WORLD REVIEW AND KEYS TO GENERA OF THE SUBFAMILY INOSTEMMATINAE WITH REASSIGNMENT OF THE TAXA TO THE PLATYGASTRINAE AND SCELIOTRACHELINAE (HYMENOPTERA: PLATYGASTRIDAE)

LUBOMIR MASNER and LARS HUGGERT

MEMOIRS OF
THE ENTOMOLOGICAL SOCIETY OF CANADA — No. 147

Spring 1989 (Date of issue: July 1989)
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MEMOIRS OF
THE ENTOMOLOGICAL SOCIETY OF CANADA — No. 147
A.B. Ewen, Editor

THE ENTOMOLOGICAL SOCIETY OF CANADA 1320 Carling Avenue Ottawa K1Z 7K9 1989
Second Class Mail Registration No. 8090
The Memoirs are subject to the same standards and review requirements as are contributions to The Canadian Entomologist except that more editorial latitude is permitted. Instructions to authors are printed in the January issue of The Canadian Entomologist.
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World Review and Keys to Genera of the Subfamily Inostemmatinae with Reassignment of the Taxa to the Platygastrinae and Sceliotrachelinae (Hymenoptera: Platygastridae)

LUOMIRMASNERand LARSHUGGERT

Abstract

The subfamily Inostemmatinae is considered a symplesiomorphic assemblage and the genera currently classified are treated in the Platygastrinae, viz. Acerotella Masner, Aceroteta Kozlov and Masner, Allostemma gen. nov., Almargella gen. nov., Annetetta gen. nov., Inostemma Haliday, Iphitarchelus Walker, Isostasius Foerster, Magellanium gen. nov., Metaclisis Foerster, Orseta gen. nov., Proplyagaster Kieffer, Rao gen. nov., Sacespalus Kieffer, and Zelostemma gen. nov. Twenty-six genera are classified in the subfamily Sceliotrachelinae, viz. Afri-
soli gen. nov., Aleyroctonus gen. nov., Alfredella gen. nov., Allotropa Foerster, Ami-
tus Haldean, Aphanomereia Dodd, Aphanomerous Perkins, Austromerus gen. nov., Cal-
omerella gen. nov., Errollium gen. nov., Fidioibia Ashmead, Helava gen. nov., Isolia Foerster, Nanomerus gen. nov., Neobia gen. nov., Oligomerella gen. nov., Parabaeus Kieffer, Platygastroides Dodd, Platystasius Nixon, Pluatemenum gen. nov., Pseudaph-
omerous Szelewski, Pulchriscilia Szabo, Sceliotrachelus Brues, Tetrabaues Kieffer, Zel-
merus gen. nov., and Zelandonota gen. nov. The following extant taxa are described: A
frisoli obesa gen. nov., sp. nov. (South Africa), Aleyroctonus pilatus gen. nov., sp.
. nov. sp. (Java), Alfredella tasmanica gen. nov., sp. nov. sp. (Australia), Allostemma
fuscum gen. nov., sp. nov. sp. (Chile), Almargella cristata gen. nov., sp. nov. sp. (Chile),
Annetetta gracillima gen. nov., sp. nov. sp. (New Zealand), Austromerus grandis
. nov., sp. nov. sp. (Australia), Calomentera scutellata gen. nov., sp. nov. sp. (USA,
Canada), Errollium piceum gen. nov., sp. nov. sp. (New Zealand), Helava alticola
. nov., sp. nov. sp. (Colombia, Venezuela, Peru), Magellanium farficea gen. nov.,
sp. nov sp. (New Zealand), Nanomerus spinialis gen. nov., sp. nov. sp. (Chile), Neo-
bia badia gen. nov., sp. nov. sp. (Venezuela, Colombia, Ecuador, Trinidad (W.I.)), Oligomerella
donai gen. nov., sp. nov. sp. (Australia), Orseta ornata gen. nov., sp. nov. sp. sp. (Canada),
Pluatemenum gen. nov., for Platygastroides indicus Mukerjee sp. (India, Nepal), Rao pse-
phus gen. nov., sp. nov. sp. (Australia), Zelomerus amicorum gen. nov., sp. nov. sp. sp.
. (New Zealand), Zelandonota kiwi gen. nov., sp. nov. sp. sp. (New Zealand), and Zels-
temma gen. nov. for Eurytoma oleariae Maskell sp. sp. (New Zealand). Fahringeria Kie-
ffer is considered a junior synonym of Fidioibia Ashmead; Nasdia Nixon and Platy-
tropa Kozlov are considered junior synonyms of Allotropa Foerster. The above 41 gen-
era are keyed, with separate keys to world genera and genera of America north of Mex-
ico; with generic diagnoses, taxonomic remarks, distribution, biology, bibliography, and
list of species described since Kieffer (1926). Higher classification and relationships of
the above genera are discussed. Eighty-one plates with 258 figures (line drawings and
micrographs) are included.

Résumé

La sous-famille des Inostemmatinés est considérée comme un assemblage symples-
imorphique et les genres actuellement classés dans cette sous-famille sont réaffectés,
sont à sous-famille des Platygastrinés ou des Sceliotrachelinés. L'ouvrage examine 41
genres dont 15 sont classés dans les Platygastrinés, soit Acerotella Masner, Aceroteta
Kozlov et Masner, Allostemma nouveau genre, Almargella nouveau genre, Annetetta
nouveau genre, Inostemma Haliday, Iphitarchelus Walker, Isostasius Foerster, Magel-
nanum nouveau genre, Metaclisis Foerster, Orseta nouveau genre, Proplyagaster
Kieffer, Rao nouveau genre, Sacespalus Kieffer et Zelostemma nouveau genre. Vingt-
six genres sont classés dans la sous-famille de Sceliotrachelinés, soit Afrisoli
gen. nov., Aleyroctonus nouveau genre, Alfredella nouveau genre, Allotropa Foerster, Ami-
tus Haldean, Aphanomereia Dodd, Aphanomerous Perkins, Austromerus nouveau
genre, Calomentera nouveau genre, Errollium nouveau genre, Fidioibia Ashmead,
Helava nouveau genre, Isolia Foerster, Nanomerus nouveau genre, Neobia nouveau

3
genre, Oligomerella nouveau genre, Parabaeus Kieffer, Platygastoides Dodd, Platy-
susius Nixon, Platumerus nouveau genre, Pseudaphanomerus Szélenyi, Pulchrisotila
Szabo, Sceliothracilus Brees, Tetraabaeus Kieffer, Zelamerus nouveau genre et Zel-
andonota nouveau genre. L’ouvrage décrit les taxons encore existants suivants: Afrisotila
obesa nouveau genre, nouvelle espèce 🌞 (Afrique du Sud), Aleyrotronus pilatus
nouveau genre, nouvelle espèce 🌞 (Java), Alfredella tasmanica nouveau genre, nouvelle
espèce 🌞 (Australie), Allostemma fuscum nouveau genre, nouvelle espèce 🌞 (Chili),
Almargella cristata nouveau genre, nouvelle espèce 🌞 (Chili), Annietella gracilis
nouveau genre, nouvelle espèce 🌞 (Nouvelle-Zélande), Austromerus grandis nouveau
genre, nouvelle espèce 🌞 (Australie), Calomerella scutellata nouveau genre,
nouvelle espèce 🌞 (États-Unis, Canada), Errolium piceum nouveau genre, nouvelle
espèce 🌞 (Nouvelle-Zélande), Helava albicola nouveau genre, nouvelle espèce 🌞
(Colombie, Venezuela, Pérou), Magellanium furviceps nouveau genre, nouvelle espèce
🌞 (Chili), nanomerella spinulosa nouveau genre, nouvelle espèce 🌞 (Chili), Neobia badia
nouveau genre, nouvelle espèce 🌞 (Venezuela, Colombie, Équateur, Trinité/Antilles),
Oligomerella donnae nouveau genre, nouvelle espèce 🌞 (Australie), Orseta ornata
nouveau genre, nouvelle espèce 🌞 (Canada), Platomerus nouveau genre pour Pla-
tygastoides indicus Mekerjee 🌞 (Inde, Népal), Rao psephus nouveau genre, nouvelle
espèce 🌞 (Australie), Zelamerus amicorum nouveau genre, nouvelle espèce 🌞
(Californie, Zelandonota kiwi nouveau genre, nouvelle espèce 🌞 (Nouvelle-
Zélande) et Zelostemma nouveau genre pour Eurytoma oleariae Maskell 🌞 (Nou-
velle-Zélande). Fahringeria est considéré comme un synonyme secondaire de Fidiobiia
Ashmead, Nasdia Nixon et Platypopora Kozlov sont considérés comme des synonymes
secondaires de Allotropa Foerster. L’ouvrage présente une clef d’identification des 41
genres susmentionnés et des clefs séparées pour les genres moniaux et les genres des
régions d’Amérique situées au nord du Mexique, des diagnostics génériques, des
remarques taxonomiques, des distributions, des cycles biologiques, une bibliographie
et une liste des espèces décrites depuis Kieffer (1926). L’ouvrage examine la classifi-
cation supérieure et les rapports des genres susmentionnés. Il comprend 81 planches
et 258 illustrations (croquis et micrographies).

INTRODUCTION

SCOPE

The main goal of this paper is to contribute toward clarification of the biosystematics
of platygastrid wasps currently interpreted as the subfamily Inostemmatinae. There were
two principal objectives at the start of this project, viz. to determine the taxonomic status
of Inostemmatinae, to review critically all genera previously described, and to describe
all new genera known to us. With regard to the concept of genera, considerable effort
was made to study the maximum amount of material available and to accumulate new fresh
material. This effort spanned 15 years and involved numerous museum and field trips.

The principal reason for such a long time of preparation was 2-fold. The members of
this group are relatively scarce in world collections, hence much time was needed to
accumulate a meaningful research base, mainly by intensive field work and by using new
collecting tools and techniques. Furthermore, the main world centre of diversity, and also
the presumed centre of origin of this group, viz. the Southern Hemisphere (temperate
forests of Chile, New Zealand, and Australia), until recently was almost unexplored. Grad-
ual accumulation of material and data resulted in several drafts of this paper that were
subsequently improved.

AUTHORSHIP AND RESPONSIBILITY

This is a joint project, with all new taxa to be credited to Masner and Huggert. Also,
all taxonomic operations, such as new synonymies, new combinations, as well as concepts
of superspecific taxa reflect the views of both of us. However, some parts of this paper
are the work of only one of us, or, in some particular aspects we differed in opinions; in such cases the respective acronyms in parentheses, *viz.* (L.M.) or (L.H.), will indicate the responsibility. Lars Huggert prepared most of the line drawings.

**Materials**

Materials were borrowed from, or studied in, the following 60 museums or private collections (in alphabetical order, with standard acronyms and curator’s name):

- **AEI** — American Entomological Institute, Gainesville, FL, USA (H.K. Townes)
- **AMS** — Australian Museum, Sydney, NSW, Australia (G.A. Holloway)
- **AMNH** — American Museum of Natural History, New York, NY, USA (J.G. Rozen)
- **ANIC** — Australian National Insect Collection, CSIRO Canberra, ACT, Australia (I.D. Nau mann)
- **BPBM** — Bernice P. Bishop Museum, Honolulu, HI, USA (G. Nishida)
- **CAS** — California Academy of Sciences, San Francisco, CA, USA (W. Palauskis)
- **CDAS** — California Department of Food and Agriculture, Sacramento, CA, USA (M.S. Was bauer)
- **CIE** — Commonwealth Institute of Entomology, CABI, London, England (Z. Boucek)
- **CNC** — Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Ont., Canada (L. Masner)
- **CMP** — Carnegie Museum, Pittsburgh, PA, USA (J. Rollins)
- **CU** — Cornell University, Ithaca, NY, USA (J. Liebherr)
- **DPIB** — Department of Plant Industry, Brisbane, QLD, Australia (I.D. Galloway)
- **FMNH** — Field Museum of Natural History, Chicago, IL, USA (J. Ashe)
- **FSCA** — Florida State Collection of Arthropods, Gainesville, FL, USA (L. Stange)
- **HUGG** — Huggert coll., Lund, Sweden (L. Huggert)
- **IFSP** — Istituto di entomologia agraria Filippo Silvestri, Portici, Italia (G. Viggiani)
- **IML** — Instituto Miguel Lillo, Tucuman, Argentina (A. Wiltink)
- **INHS** — Illinois Natural History Survey, Urbana, IL, USA (D. Webb)
- **IRSN** — Institut royal des sciences naturelles de Belgique, Bruxelles, Belgique (P. Dessart)
- **IZAC** — Instituto de Zoología, Academia de Ciencias de Cuba, Habana, Cuba (P. Alayo)
- **KUF** — Kyushu University, Laboratory of Entomology, Fukuoka, Japan (Y. Hirashima)
- **LACM** — Los Angeles County Museum, Los Angeles, CA, USA (R.R. Snelling)
- **LCC** — Lincoln College, Christchurch, New Zealand (J. Early)
- **LEM** — Lyman Entomological Museum, Macdonald College, Ste. Anne de Bellevue, Qué., Canada (M. Sanborne)
- **MCZ** — Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA (S.R. Shaw)
- **MHNS** — Museo Nacional Historia Natural, Santiago, Chile (M. Elgueta D.)
- **MNHG** — Muséum d’Histoire Naturelle, Geneve, Switzerland (C. Besuchet)
- **MNHP** — Museum d’Histoire Naturelle, Paris, France (B. Sigwalt)
- **MRAC** — Musée Royal de l’Afrique Centrale, Tervuren, Belgique (J. Decelle)
- **MSNG** — Museo Civico di Storia Naturale, Genova, Italia (R. Poggi)
- **MSUE** — Michigan State University, East Lansing, MI, USA (R.L. Fisher)
- **MUT** — Zoological Laboratory, Meijo University, Tenpaku, Japan (T. Okadome)
- **MZF** — Museo Zoológico dell’Universita di Firenze, Firenze, Italia (M. Covassi)
- **NZAC** — New Zealand Arthropod Collection, DSIR, Auckland, New Zealand (T. Crosby)
- **PPRI** — Plant Protection Research Institute, Pretoria, South Africa (G. Prinsloo)
- **PUL** — Purdue University, West Lafayette, IN, USA (J. MacDonald)
- **QMB** — Queensland Museum, Brisbane, Australia (E.C. Dahms)
- **RNH NL** — Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands (K.v. Achterberg)
- **ROM** — Royal Ontario Museum, Toronto, Ont., Canada (C.D. Darling)
- **SMEK** — Snow Museum of Entomology, University of Kansas, KS, USA (R. Brooks)
- **TAMU** — Texas A and M University, College Station, TX, USA (R. Wharton)
- **TMB** — Természet Tudományi Múzeum, Budapest, Hungary (J. Papp)
- **UAF** — University of Arkansas, Fayetteville, AR, USA (E.P. Rouse)
The 21 previously described genera recognized in this paper, the holotypes of the type species of 17 genera were examined, some of them several times at different time intervals. We were unable to examine the following four types: Platygyrostoides mirabilis Dodd (but studied specimens identified by Dodd in MCZ, Cambridge; and ANIC, Canberra); Proplatygaster rufipes Kieffer (feared lost); Inostemma festus Walker (not found in Walker's collection in BMNH, London); and Platytropha helenae Kozlov (not made available to us from ZIN, Leningrad). The primary types of most species treated in this paper were examined by one or both of us.

The single major source of material other than borrowed material was the Canadian National Collection (CNC) in Ottawa, with holdings greater than all other sources combined. Almost all of the CNC material is freshly collected, with specimens not older than 20 years. Fifty-three individuals, colleagues and friends, kindly contributed over the years by donations of specimens. Eight contributors are truly outstanding because of the magnitude as well as the quality of material supplied, viz. Stewart B. Peck and Jarmila Kukalova-Peck (Carleton U., Ottawa), Alfred Newton and Margaret Thayer (FMNH, Chicago), Rev. Anthony Watsham (St. Ignatius College, Zimbabwe), Fred D. Bennett (formerly CIBC, Trinidad, W.I.), John S. Noyes (BMNH, London), and Luis E. Pena (Santiago, Chile). Extensive collections were recently acquired from expeditions to the Dominican Republic (Masner 1978), Venezuela (Masner 1981), Ecuador (Masner, Sharkey, and Huggett 1983), New Zealand and Australia (Masner 1984–1985), Costa Rica (Masner and Goulet 1985, Masner 1986), Sulawesi (Celebes) (J.S. Noyes and A.D. Austin 1985), and South Africa (S. and J. Peck, M. Sanborne, H. and A. Howden, and W. Mason 1986). The cut-off date for materials and data used in this paper was December 1986.

COLLECTING AND PREPARATION OF SPECIMENS

We strongly believe that collecting, including all techniques and tools used in this process, is an integral part of any biosystematic study. Field experience and fresh material collected and prepared by the taxonomist cannot be substituted by outside loans, no matter how extensive or diverse the material they may represent. Collecting and its techniques should help us to penetrate all niches and levels of insect life. It is only natural in these days of high technology that we strive to advance the tools and techniques that were initiated without science some 200 years ago.
Members of the Inostemmatinae are represented in collections rather infrequently. This is partly the result of their minute size (around 1 mm), and partly because of collecting techniques used by the majority of collectors. Therefore, new or improved collecting techniques were developed and employed in the past 15 years. The following techniques and tools were tested and found effective, arranged in decreasing scale of productivity.

**Screen Sweeping.** A sweeping net on a triangular frame with screen of strong plastic meshes (7-mm openings) sewn into the collar of the net about 50 mm below the net edge will eliminate most plant debris during sweeping. Insects falling through the screen are collected at the bottom of the net, the tip of which is cut off and choked with vinyl-coated wire. Emptying is done into a plastic bag with brine. The entire catch is subsequently rinsed in fresh water and transferred into 70% ethanol. This method is by far the most productive particularly in early stages of surveying any given habitat.

**Pan Trapping.** Yellow plastic pan traps of various shapes and sizes filled with brine and a few drops of surfactant will collect numerous species of the ground floor and the lower levels in many habitats. Pan traps often yield opposite sexes of species; hence, proper sex associations are facilitated for species with a high degree of sexual dimorphism (e.g. *Inostemma*). Pan traps operated during the entire season will also provide valuable data on species frequencies, species replacement, duration of flight period, etc.

**Interception Trap** (Masner and Goulet 1981). This is actually a version of the pan trap with a flight barrier. A sheet of black (or dark green) polyester fabric (120 by 150 cm) treated with pyrethroids (e.g. Ambush) and set over a large trough of yellow plastic filled with brine and surfactant is used primarily for intercepting low- and slow-flying insects.

**Photoejector.** A collecting device based on positive phototropism of most insects. Swept material is placed in a dark box with an escape passage into a smaller light box attached to it. Screens on the sides of the light box are treated with pyrethroid; insects drop to a container with brine. For better portability in the field the photoejector could be designed as a backpack. The photoejector, vastly superior for collecting larger members of the Hymenoptera (e.g. sawflies, aculeates), has only limited use for platygastrid wasps, the members of which show generally slower response to light escape route.

**Car Net.** Two cones of fabric nets (1 m by 1 m) installed on a metal frame in front of the car bumper, approximately 30 cm above ground, will collect clean material. A piece of the nets are treated with pyrethroid and the material is emptied by a cordless vacuum cleaner. This method will allow survey of a large area in a relatively short time.

**Malaise Trap** (Steyskal 1981, bibliography). A lower version of this trap (height 150 cm) was used, however, with only moderate results for platygastrid wasps. Malaise traps in general seem to be optimal for catching fast-flying, larger insects.

**Separation Bag** (Masner and Gibson 1979). This tool was used by us primarily for sampling newly explored habitats prior to use of other mass-collecting tools (e.g. screen sweeping). Platygastrid wasps often pretend to be dead when caught, remaining motionless among plant debris. This behaviour hampers their retrieval when using a separation bag.

**Beating Sheet.** A modification of the standard beating sheet with a screen (5-mm openings) and a narrow terminal sleeve is practical for surveying spiny bushes (e.g. hawthorns, acacia, or rosebushes), especially in desert habitats. This tool also helps to pinpoint associations of platygastrid wasps with particular plants and the galls induced by gall midges.

Some of the above techniques, screen sweeping in particular, will result in an unusually high number of specimens being caught. For rapid retrieval of target groups the following tools and procedures were developed and used successfully. To prevent conglomeration of proteins around the mouth and anus in specimens from traps with brine, the
material must be rinsed in fresh water prior to storage in alcohol. Clean material is then segregated into three fractions by using sorting sifters made of wire mesh (5.0, 3.0, and 1.0 mm). The material is successively rinsed—sifted in 70% ethylalcohol through each of the three sifters (5 mm → 3 mm → 1 mm); platygastrid wasps will remain almost entirely in the finest fraction. The fractions are subsequently examined under a stereomicroscope (40 ×) in a rectangular sorting dish, longitudinally divided into six columns by raised ridges. The target culled specimens are briefly rinsed in a special strong detergent (e.g. Cascade) to remove oily substances and dirt accumulated on the body, its hairy parts in particular. Clean specimens are either further processed for critical-point-drying (CPD), or mounted directly from alcohol, or stored in 70% ethanol in a dark, refrigerated area.

The aspect of clean specimens and proper mounting cannot be overemphasized. In fact, the importance of properly prepared specimens is second only to the availability of material per se. Recognition of closely related species often depends on minute details of microsculpture, pilosity, and position and number of antennal sensilla, etc. Even a small amount of dirt or a film of oil on minute wasps can obscure relevant structures and hinder the taxonomist’s decision. Dry mounting on points is strongly preferred to mounting on rectangular cards. The latter method better protects the specimens but makes examination of particular areas of the body, such as the venter, difficult. Making slides is necessary for detailed examination of antennal sensilla, palpal and tibial spur formulae, and also for microtrichia on the wings.

Considering the minute body size of an average platygastrid wasp, only high-quality stereomicroscopes using the highest magnification available (about 160 ×) are recommended. A strong source of light in combination with a properly operated light disperser is indispensable for accurate examination. The ever increasing use of scanning electron microscopy (SEM) for the study of microsculpture, antennal sensilla, and rudimentary structures (e.g. epicnemium) is essential in platygastrid taxonomy. For best results in SEM photography, gold-coating specimens with a gold sputterer and back-scattering device is highly recommended. Instant (Polaroid) SEM prints can be used for examination of ultrastructures as well as for subsequent tracing for line drawings.

**Structure of Keys, Generic Diagnoses, and Descriptions**

The first draft of the generic key was constructed some 10 years ago. Subsequently it has been tested with taxonomic information derived from large amounts of material (cf. Materials), and perpetually refined. Several of our colleagues used this draft during this period and kindly suggested modifications and improvements. A separate key was prepared for genera known to occur in America north of Mexico. Similarly, the generic diagnoses and descriptions were gradually refined reflecting the maturation of our concepts. As a result of this intensive data gathering our concept of genera often differs from the current state of knowledge and the conventional limits of genera. Special emphasis was placed on the search for and recognition of peripheral species as well as gaps between genera. Resulting concepts were then tested against the general principles of cladistic systematics.

The structure and function of our keys differ from those of the generic diagnoses and descriptions, i.e. to enable rapid and easy identification of the target taxon. Within the keys, we sometimes employed character states of less taxonomic significance but easier to interpret even by less experienced users. Highly academic character states or those requiring dissections, preparation of slides, or SEM photomicrographs were eliminated or downgraded in the keys. To avoid complicated couples involving polytypic genera we key out such taxa more than once. Maximal effort was attempted to provide ample illustrations of character states throughout the key.

The generic diagnoses and descriptions, on the other hand, are structured to contain both trivial as well as academic character states. They are centred around the main core of the genus, and the extremes of character states and particularly those in undescribed
species are discussed separately in remarks following the descriptions. To facilitate the interpretation of individual character states in the descriptions a list of illustrations with abbreviations (cf. List of Abbreviations) is given below each generic name preceding the generic synonymy.

**HIGHER CLASSIFICATION AND INTERRELATIONSHIPS (L.M.)**

**HISTORICAL REVIEW**

The suprageneric classification of the former group Inostemmatinae has been largely a matter of personal opinion of a few authors rather than a subject of a rationale. The taxonomic rank of the group as well as its infrastructure in most publications was either a result of an arbitrary decision or simple following of the predecessors. So far, no aspects of cladistic classification have been applied. Therefore, only a brief discussion of previous classifications is given here.

The key figure in the history of the classification of platygastrid wasps is William Harris Ashmead. Classical authors before Ashmead (1893) used either the rank of a tribe, subfamily, or a family and did not discuss the interrelationships. At first, Ashmead (1893) interpreted platygastrid wasps as a subfamily, (within his only family Proctotrupidae) and attempted the first subdivision into two tribes, viz. the Inostematini and the Platygastriini. Later, Ashmead (1903) arbitrarily elevated the two tribes into subfamilies, Inostematinae and Platygastriinae, as parts of the family Platygastriidae. In both instances, Ashmead used the presence or absence of the submarginal vein in the fore wing as the only criterion for his two groups. This concept was basically followed by all subsequent authors, with additions or slight modifications. Brues (1908) added the subfamily Sceliotrachelinae but classified it in the Scelionidae. Kieffer (1926), who transferred *Sceliotrachelus* to the Platygastriinae, apparently did not study Brues' type and, relying only on the description as well as the schematic drawing, expressed the opinion that *Sceliotrachelus* was closely related to Chalcidoidea. Masner (1964a) examined the type of *S. braunsi* Brues and confirmed its placement in the Platygastriidae. Kieffer (1926) subdivided the single family Scelionidae into five subfamilies, with Platygastriinae as one of them. For the latter subfamily, he also retained Ashmead's subdivision into Inostematini and Platygastriini but only as a matter of convenience. The long post-Kiefferian period is characterized by considerable stagnation in suprageneric classification. Masner (1957) proposed the tribe Iphitrachelini within the Inostematinae. He put emphasis on the tetramerous tarsi, the shape of the fore tibial spur, and the shape of the clypeus in *Iphitrachelus*. Szabo (1959a) recognized the family Platygastriidae and divided it in four tribes, viz. Iphitrachelini, Inostematini, Amitini, and Platygastriini. His new tribe Amitini was based on two character states, viz. the absence of veins in the fore wing and the structure of the metasoma similar to that in the Telenninae (Scelionidae). Kozlov (1970) introduced an entirely new concept and infrastructure of the platygastrid wasps. He considered that the Platygastriidae was derived from the Diapriidae, primarily because of the similarity of major hosts in these two families, i.e. the order Diptera. He tried to employ some new character states (e.g. structure of the antennae, propodeum, and metasoma) but he still adhered to the presence or absence of the submarginal vein in the fore wing as a main criterion for the infrastructure of the Platygastriidae. He recognized three subfamilies within the Platygastriidae, viz. Inostematinae, Sceliotrachelinae, and Platygastriinae. The Inostematinae was further subdivided into seven tribes: Metacliseini, Inostematini, Platystasiini, Aphanomerini, Pseudaphanomerini, Allotropini, and Iphitrachelini. The subfamily Sceliotrachelinae was subdivided into two tribes: Fidiobiiini and Sceliotrachelini. The subfamily Platygastriinae has two tribes: Platygastriini and Synopeadini. Muesebeck (in Krombein et al. 1979) recognized Platygastriinae as a family with three subfamilies: Inostematinae, Sceliotrachelinae, and Platygastriinae. He recognized only two tribes within the Inostematinae: Inostematini and Iphitrachelini, and left the Sceliotrachelinae undivided.
CRITICISM OF THE PREVIOUS SYSTEMS AND PRESENTATIONS OF A NEW CONCEPT

The primary scope of this study is the recognition of world genera of the group currently interpreted as the subfamily Inostemmatae, with emphasis on alpha taxonomy, i.e., descriptions, diagnoses, and keys. However, we considered it necessary to express our views on major questions pertaining to higher classification as well as presumed evolution of the group. Our views should be interpreted only as a necessary framework with little claim to perfection. Nevertheless, we did try to employ all accumulated information on a world basis that was not available to our predecessors. The recognition of 20 new genera from a total of 41, as well as a significant broadening of concepts of previously described genera, served as a basis for formulating our present views.

Soon after this study began several years ago, it became apparent that the group of platygastrid wasps treated by authors either as the tribe Inostemmatini or the subfamily Inostemmatae does not represent a monophyletic unit. The presence of tubular veins in the fore wing used by Ashmead (1893, 1903) to characterize the Inostemmatae is considered a symplesiomorphy with little bearing on understanding the evolution of the group. The submarginal vein (R) of the fore wing is actually subjected to a wide range of reductive trends, and can be severely reduced or absent even within the same genus (e.g., Fidiobia). On the other hand, some classical genera of platygastrid wasps, closely related to those with tubular veins in the fore wing, were not included in the Inostemmatae because members lacked veins in the fore wing (e.g., Amitus and Sacespalus). Kieffer's (1926) treatment of platygastrid wasps as a subfamily of the Scelionidae is a possible solution. We do not accept Brues' (1908) treatment of the Sceliotrachelinae as a monotypic subfamily of the Scelionidae, and we also do not recognize Masner's (1957) classification of Iphitrachelus as an independent tribe. The above two genera are considered here merely as terminal apomorphic taxa in two different subfamilies of the Platygastridae (see below). Szabo (1959a) overlooked the proposal of the Sceliotrachelinae by Brues (1908) and his Amitini is considered a junior synonym of the former group (Masner 1964a). Kozlov's (1970) system of tribes reflects some of the relationships recognized by us; however, the diagnoses of his tribes are rather general and laconic, do not explain interrelationships, and certainly do not serve as the basis for a key.

The new cladistic basis for classifying platygastrid wasps triggers questions at several taxonomic levels. In the past these questions were not properly addressed or considered at all. At a superfamily level we prefer to exclude platygastrids from their traditional classification within the Proctotrupidae, and accord them, along with the Scelionidae, separate superfamily status. Masner (1956) suggested this treatment but did not give a formal diagnosis of the superfamily. Richards and Davies (1977) formally used the superfamily Scelionoidea for the Scelionidae and Platygastridae, with a diagnosis that needs modification. In our opinion the superfamily Scelionoidea is a monophyletic taxon based on two important autapomorphies, one involving the structure of the metasoma in relation to the function of the ovipositor (Austin 1983), the other pertaining to unique organs on the ventral side of the female clavomers (Bin 1981).

The metasoma of the Scelionoidea is modified to function as a pump, helping to extrude and operate the largely soft, membranous ovipositor. The entirely internal ovipositor, often telescopically housed and much longer than the metasoma, is extruded during oviposition by the combined forces of metasomal turgor pressure as well as by movements of elastic longitudinal muscles of the ovipositor. The turgor pressure of the fluids of the metasoma is altered by movement of the tegrites relative to sternites in a "bellow-like" action. For maximum efficiency of the bellow-like movement, all metasomatic segments have independent tegrites and sternites (including T1 and S1) that are locked together at
their sides with specialized laterotergites, and often also with laterosternites and corresponding connective tissues. The metasomatic spiracles are also rudimentary and non-functional, and we hypothesize that this reduction helps to maintain pressure changes inside the metasoma. Abdominal tergite 8, which normally carries functional spiracles in other groups of the microhymenoptera, is attached to abdominal tergite 9 in females. Abdominal tergite 9 either articulates with abdominal tergite 7 or is extruded with the ovipositor, or abdominal segment 9 is entirely internal, concealed under abdominal tergite 7, in some groups severely reduced and depigmented.

The antennal autapomorphy of the Scelionoidea involves one or two basiconical-like organs on the ventral side of the female clavomeres. The function of these organs is not precisely known but their shape and position are unique to the Scelionoidea. If two of these basiconical organs are present on a clavomere, the plesiomorphic condition, they are arranged in parallel pairs, except for females of *Nixonia* Msn. (Scelioninae), where the organs are arranged in transverse pairs.

The proper recognition of the Platygastridae in relation to the Scelionidae may be understood best by comparisons of the two respective ground plans. The presumed ground plan of the Scelionidae is based on the metasoma being almost homonomously segmented, with segments 1–6 subequal in length, with T9 in the female extruded, well sclerotized, articulating with T7 and bearing a pair of rather large, finger-like cerci, and the antennal formula being 14–14 and the palpal formula 5–2. The presumed ground plan for the Platygastridae is based on the metasoma being heteronomously segmented, with segment 2 remarkably enlarged, as long as or longer than the following segments combined, with T9 in the female internal, considerably reduced and depigmented, with no cerci or sensory plates, and the antennal formula being 10–10 and the palpal formula 2–1. This plan for the Platygastridae includes no exceptions among both the extant and fossil members known to us. It is interesting to note that some very primitive, undescribed members of the Platygastridae known to us from the Canadian Cretaceous amber fully correspond to this plan. This may indicate that the major division of the Scelionoidea into two families took place well before the end of the Mesozoic. We are also inclined to believe that the seemingly similar apomorphic trends in some Scelionidae (subfamily Telenominae, the tribe Gryonini of the Scelioninae) are independent parallelisms that occurred much later. Tentatively, it seems most plausible to recognize the Platygastridae as a family within the Scelionoidea. We are aware, however, that by this we are leaving the Scelionidae paraphyletic, based on plesiomorphic character states.

Paradoxically, the accumulated new information presented in this study does not seem to bring much light on the infrastructure of the Platygastridae. We can demonstrate, however, that a part of the former subfamily Inostemmatae is a mere plesiomorphic stock for the more apomorphic group treated generally as the subfamily Platygastridae (*sensu* Kozlov 1970). The other part of the former Inostemmatae is here included in the subfamily Sceliotrichelinae which we interpret in a new, broader sense. We therefore recognize two subfamilies within the Platygastridae, viz. the Platygastridae and the Sceliotrichelinae. The ground plan for the Platygastridae is based on the female antennal clava composed of five clavomeres, with paired basiconical organs on A6–A9, with the clava only moderately abrupt, subcylindrical (non-ovoid), with clavomeres clearly separated by constrictions. The general habitus of the body is cylindrical, corresponding with the host association with the Cecidomyiidae. The ground plan for the Sceliotrichelinae is based on the female antennal clava composed of four or three clavomeres, with paired basiconical organs on A7–A9, with the clava considerably to distinctly abrupt, ovoid, with clavomeres approximated or subcompact. The general habitus of the body is stocky, short, wider than high, corresponding with the shape of the host eggs (beetles) or the early host larvae (Homoptera). In fact, the major division between the Platygastridae and the Sceliotrichelinae is in their respective choice of hosts.
The members of the Platygastriinae are associated with the gall midges (Cecidomyiidae), the females attacking the host egg or its early larval stage. The subsequent postembryonic development of the wasp is delayed until the host is full grown (usually mature larva or prepupa) and then a rapid ontogeny of the parasitoid is triggered and completed. Polycaryony may result from such development, especially in cases where the host individual is much larger than the parasitoid. We speculate that all members of Kozlov's (1970) tribes Platygastriini and Synopeadinini evolved from this part of the former Inostematinae. The following genera treated in this study are hypothesized to belong to this cecidomyiid-associated group (an asterisk * denotes genera of which is not yet known): Acerotella, Inostemma, *Sacespalus, *Iphitrachelus, *Allostemma, *Almargella, Zelostemma, *Magellanium, Proplatygaster, Metaclisis, *Orseta, *Aceroteta, Isostasius, *Rao, *Annetetella. There appear to be four clusters of genera derived from the above group. It seems more appropriate to present these clusters without giving them tribal names as their taxonomic limits tend to blur.

(1) The Proplatygaster-cluster comprises rather slender to spindle-like forms with individuals of rather large body size. Proplatygaster is the most plesiomorphic genus of the cluster, mainly because of the relatively rich wing venation. The latter character state is shared by some plesiomorphic species of Metaclisis known to us to occur in the high Andes of South America. Orseta is the most apomorphic member of the cluster, presumably derived from Metaclisis. Magellanium and Zelostemma are clearly related to Proplatygaster but are considerably more apomorphic largely because of the drastic reduction of venation in the fore wing. The Proplatygaster-cluster may also be the ancestral stock for all genera classified formerly in the nominal tribe Platygastriini and Synopeadinini. Proplatygaster and Zelostemma seem rather close to genera such as Amblyaspis Foerst. and Trichacis Foerst., as well as some plesiomorphic species-groups of Platygaster. Almargella of this cluster appears as a primitive sister group of advanced genera such as Leptacis or Piestopleura, classified by Kozlov (1970) in the Synopeadinini.

(2) Allostemma-cluster, represented by Allostemma alone, is another very plesiomorphic taxon, females having clearly five-segmented (in one species six-segmented) antennal clava and with the knob of the submarginal vein of the fore wing strongly approximated or even touching the front margin of the wing (in one undescribed species from Tasmania the knob forms a true marginal vein!).

(3) We hypothesize that Allostemma may be the sister-group of the Inostemma-cluster, composed of Inostemma, Sacespalus, Acerotella, and Iphitrachelus. These four genera share the absence of felt fields on S2. Inostemma is closely related to Sacespalus and Acerotella to Iphitrachelus.

(4) The remaining four genera, viz. Aceroteta, Isostasius, Rao, and Annetetella, may be most closely related to each other because of shared similarities in the structure of the propodeum, reduction of metasomatic tergites in females (Isostasius and Rao), and position of the ocelli, with a rather long OOL (Isostasius, Aceroteta, Annetetella). The placement of Annetetella in this group is problematic because of the structure of its antennal clava, which is similar to members of the Sceliotrachelinae.

The subfamily Sceliotrachelinae, here expanded to contain a significant portion of the former subfamily Inostematinae, does not correspond with its restricted concept as presented by Kozlov (1970). Besides the main diagnostic character, i.e. the ovoid-shaped, abrupt, three- to four-segmented antennal clava of the females, the main attribute of this subfamily is biological. Members for which host associations are known are predominantly true egg parasitoids. The females attack the host egg and subsequent postembryonic development takes place in the host egg very much as in all Scelionidae. As a result, the adult parasitoid is usually ovoid in habitus, reflecting the size and shape of the host egg. There
seems to be a gradual transition within the subfamily from true egg parasitism to parasitism of egg-like objects such as ovoid larvae of white flies (Aleyrodidae) or the mealybugs (Pseudococcidae). Five clusters of genera are recognized in the Sceliotrachelinae; again, the formal tribal names are omitted as for the previous subfamily.

(1) The Fidiobia-cluster includes the following genera: Fidiobia, Neobia, Plutomeras, Zelamerus, Zelandonota, Platystasius, Platygastoides, and Oligomerella. Females of the above genera have an abrupt, three-segmented antennal clava that is distinctly segmented, the posterior ocelli are rather close to the inner eye margin, and the fore tibial spur is not combed. Probably the most primitive members of the Fidiobia-cluster are Platygastoides, Oligomerella, and Zelamerus, based on the foveolate scutellar suture and well developed scutellar rim. Plutomeras and Platystasius are more apomorphic than Fidiobia, the former because of the cephalic structure, the latter because of the rather flattened-elongate body. Zelandonota, known only from aperous forms, is classified in this cluster with some hesitation; its striate cheeks and shape of the elypeus could indicate a possible relationship with Metaclisis. The biology is known only for some Fidiobia and some Platystasius species, the former attacking the eggs of weevils, the latter eggs of longicorn beetles.

(2) The Isolita-cluster is composed of the following genera: Isolita, Afrisolita, Pulchrisolita, and Sceliotrachelus, and may represent the sister-group of the Fidiobia-cluster. The stocky members differ from those of the Fidiobia-cluster in having strong, specialized mandibles, a combed fore tibial spur, and the ocellar triangle more clustered, with the posterior ocelli rather distant from the inner margin of the eyes. The tendency for specialized scale- or spike-like microtrichia on the wing disc, culminating in some Pulchrisolita species, may be observed in its moderate phase already in some Fidiobia species. The host associations are not yet known for any member of the Isolita-cluster but the eggs of beetles seem a high probability.

(3) The Aphanomerus-cluster is composed of the following genera: Aphanomerus, Austromerus, Helava, Calomerella, Parabaesus, Pseudaphanomerus, Aphanomerelae and Tetraabaeus. There is a gradual development in this cluster to transform the segmented tetramerous antennal clava (Austromerus) into a subcompact tetramerous clava (Tetraabaeus, Aphanomerelae, Parabaesus, most Helava) and eventually into a compact one-segmented clava (Aphanomerus, Calomerella, Pseudaphanomerus). The biology is well known for some Aphanomerus species, members of which attack the eggs of various fulgoroids (Homoptera). Surprisingly, Aphanomerella ovod Dodd, which we consider to be closely related to Tetraabaeus americanus (Brues), was reared from chrysomelid eggs, whereas the latter is reported to attack sphecid wasps nesting in twigs. The members of Helava are here presumed to attack aphids (one doubtful record available).

(4) The Amitius-cluster contains stocky members including Amitius, Alfredella, Aleyroctonus, and Nanomerus. This cluster seems to be closely related to the Aphanomerus-cluster, and may be only a highly apomorphic group, with members characterized by the female antennal clava being subcompact to compact and the head in lateral view with mouth parts opistognathous. Species of Amitius and Aleyroctonus are known to attack white flies. If aphids are confirmed as hosts for Helava, then the relationship between Amitius and Helava will be more substantiated.

(5) The last cluster contains Allotropa and doubtfully also Errollium. Members of these two genera attack mealy bugs and coccids but the adults share relatively little in morphology. The antennal clava in the female is abrupt, distinctly three-segmented, and the submarginal vein in the fore wing is unusually long, its knob distinctly surpassing the basal 0.33 of the wing length. Allotropa is unique among all genera discussed above, members having the mandibles scissor-like crossed rather than clasped.
TAXONOMIC LIST OF PLATYGASTRID GENERA TREATED IN THIS PAPER

Subfamily Platygastrinae

Proplatygastrus-cluster
  Proplatygastrus Kieffer
  Zelostemma gen.nov.
  Magellantia gen.nov.
  Almargelia gen.nov.
  Metaclistis Foerster
  Orseta gen.nov.

Isostasius-cluster
  Isostasius Foerster
  Aceroteta Kozlov and Masner
  Rao gen.nov.
  Annetetta gen.nov.

Inostemma-cluster
  Inostemma Halday
  Sacespalus Kieffer
  Acrotletta Masner
  Iphitarchelus Walker

Subfamily Sceliotrichelinae

Fidiobia-cluster
  Platygastoides Dodd
  Oligomerella gen.nov.
  Zelandonota gen.nov.
  Platyctasius Nixon
  Fidiobia Ashmead
  Placinerus gen.nov.
  Neobia gen.nov.
  Zelamerus gen.nov.

Ischia-cluster
  Isicia Foerster
  Aphisita gen.nov.
  Pulcherisida Szabo
  Sceliotrichelus Brues

Aphanomerus-cluster
  Aphanomerus Perkins
  Austromerus gen.nov.
  Hetava gen.nov.
  Aphanomerella Dodd
  Tetrabaeus Kieffer
  Parabraeus Kieffer
  Calomerella gen.nov.
  Pseudaplanomerus Szélenyi

Amitus-cluster
  Amitus Haldeman
  Alfredella gen.nov.
  Aleyroctopus gen.nov.
  Nanomerus gen.nov.

Allotropa-cluster
  Allotropa Foerster
  Errolium gen.nov.

CHART AND MATRIX OF CHARACTER STATES

The following chart lists 43 character states considered important for interpreting the presumed evolution of the group and the interrelationships of the genera treated in this paper. These character states were employed in both the generic diagnoses and descriptions and to some extent in the generic keys (see Structure of Keys, Generic Diagnoses, and Descriptions). The subfamily Scelioninae (Scelionidae), especially what we interpret as the most primitive genera (such as Sparasion Latreille, Sceliomorpha Ashmead, Nixonia Masner, Archaeotetelia Masner, etc.), were considered as outgroups in character polarization. A substantial number of the character states are new or never were used in classification of the Platygastridae; such character states are marked with an asterisk (*).

<table>
<thead>
<tr>
<th>No.</th>
<th>Character state</th>
<th>Presumed plesiomorphic state (P)</th>
<th>Presumed apomorphic states (A1, A2, A3 ...)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Head (general habitus)</td>
<td>Moderately transverse, subrectangular to subellipsoidal</td>
<td>A1. Strongly transverse to lens-like  \nA2. Subglobular to globular</td>
</tr>
<tr>
<td>2</td>
<td>Vertex</td>
<td>Rounded</td>
<td>A1. Subangular  \nA2. Carinate between posterior ocelli  \nA3. Rridged behind ocelli</td>
</tr>
<tr>
<td>No.</td>
<td>Character state</td>
<td>Presumed plesiomorphic state (P)</td>
<td>Presumed apomorphic states (A1, A2, A3 ...)</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------</td>
<td>---------------------------------</td>
<td>--------------------------------------------</td>
</tr>
</tbody>
</table>
| 3   | *Occipital carina        | Moderately developed, complete, noncrenulate | A1. Crenulate  
                 |                                          | A2. Flange-like expanded                 |
|     |                          |                                 | A3. Reduced or incomplete                  |
| 4   | *Occipital pit           | Not developed                    | A1. Present                               |
| 5   | Temple                   | Well developed, receding         | A1. Short and strongly receding           |
|     |                          |                                 | A2. Reduced to blade-like edge            |
| 6   | OOL:LOL                  | OOL slightly shorter than LOL    | A1. OOL much shorter than LOL             |
|     |                          |                                 | A2. Posterior ocellus contiguous with inner orbit |
|     |                          |                                 | A3. OOL subequal to LOL                   |
|     |                          |                                 | A4. OOL much longer than LOL              |
| 7   | *Malar suture and cheek | Not developed, cheek not striate | A1. Developed but obscured by striae on cheek |
| 8   | *Clypeus and anteclypeus | Clypeus exposed, short, as long as or longer than anteclypeus, not wider than space between outer rims of toruli | A1. Clypeus concealed under interantennal process  
     |                                          | A2. Shorter than anteclypeus            |
|     |                          |                                 | A3. Much wider than space between outer rims of toruli |
| 9   | *Mandibles               | Short, bidentate, with teeth equal, clapsed normally | A1. Strong, projecting beak-like, with lower tooth upcurved  
     |                                          | A2. Long, sickle-shaped and scissor-like crossing |
| 10  | Patpal formula           | 2-1                              | A1. 1-1                                   |
| 11  | Antennal habitus         | Moderately dimorphic, clavate in female, filiform in male | A1. Strongly dimorphic, with abrupt, massive clava in female and with slender or verticillate flagellum in male  
     |                                          | A2. Clavate or subclavate in both sexes |
| 12  | *Antennal formula        | Isomerous 10-10                  | A1. Anisomerous 9-10                      |
|     |                          |                                 | A2. Anisomerous 8-10                      |
|     |                          |                                 | A3. Anisomerous 7-8                       |
|     |                          |                                 | A4. Anisomerous 7-10                      |
|     |                          |                                 | A5. Isomerous 9-9                         |
| 13  | Antennal clava (♀)       | Non-abrupt, distinctly segmented, cylindrical, with 4-5 segments bearing sensilla | A1. Abrupt, 3-segmented, non-ovoid         |
|     |                          |                                 | A2. Abrupt, ovoid and subcompact, 3- to 4-segmented |
|     |                          |                                 | A3. Compact, 1-segmented                  |
| 14  | *Sensillar formula (♀)   | Sensilla paired on 1 or more clavomeres, and sensilla more or less protruding | A1. Only single sensillum on clavomere     |
|     |                          |                                 | A2. Sensilla sunken or reduced             |
| 15  | *Male sexsegment         | A4, usually moderately developed | A1. A4 but hypertrophied                  |
|     |                          |                                 | A2. A3                                    |
|     |                          |                                 | A3. A5                                   |
| 16  | Ventral lamella on A1    | Not developed or minute or A1 ecarinate | A1. Moderately developed                  |
|     |                          |                                 | A2. Strongly developed, shield-like       |
| 17  | Mesosoma: general habitus| About as high as wide, subcylindrical, longer than wide | A1. Moderately to strongly depressed dorsoventrally  
<pre><code> |                          |                                 | A2. Strongly squat, short, as long as wide |
</code></pre>
<p>| 18  | *Epornia                 | Not developed                    | A1. Developed                             |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Character state</th>
<th>Presumed plesiomorphic state (P)</th>
<th>Presumed apomorphic states (A1, A2, A3 ...)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Notauli</td>
<td>Pendant, noncrenulate, often not dilated posteriorly</td>
<td>A1. Abbreaste anteriorly and dilated posteriorly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Crenulate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. Absent</td>
</tr>
<tr>
<td>20</td>
<td>Scutellum; habitus</td>
<td>Broadly semicircular, moderately convex dorsally</td>
<td>A1. Transverse, subrectangular and flattened dorsally</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Subquadratic</td>
</tr>
<tr>
<td>21</td>
<td>*Lateral keels of scutellum</td>
<td>Moderately developed</td>
<td>A1. Very long and protruding posteriorly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Reduced to almost absent</td>
</tr>
<tr>
<td>22</td>
<td>*Scutellar rim</td>
<td>Differentiated, noncrenulate</td>
<td>A1. Not differentiated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Crenulate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. Flattened</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A4. Angular posteriorly</td>
</tr>
<tr>
<td>23</td>
<td>*Metanotum; sculpture</td>
<td>Foveolate</td>
<td>A1. Nonfoveolate</td>
</tr>
<tr>
<td>24</td>
<td>*Dorsellum</td>
<td>Moderately differentiated</td>
<td>A1. With 2 lateral keels</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Concealed under scutellar rim</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>or posterior margin of scutellum</td>
</tr>
<tr>
<td>25</td>
<td>Propodeum</td>
<td>With 2 median parallel keels and with no foamy structures</td>
<td>A1. With 1 central keel</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. With 3 keels</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. With foamy structures</td>
</tr>
<tr>
<td>26</td>
<td>*Epicnemium</td>
<td>Present and almost entire, between tegula to fore coxa</td>
<td>A1. Rudimentary above fore coxa</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Absent</td>
</tr>
<tr>
<td>27</td>
<td>*Mesopleural depression</td>
<td>Rather large and shallow, more or less arched in upper part</td>
<td>A1. Deeply triangular</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Reduced to horizontal sulcus</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. Not well defined</td>
</tr>
<tr>
<td>28</td>
<td>*Sternaulus</td>
<td>Not developed</td>
<td>A1. Entire but moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Entire and strong</td>
</tr>
<tr>
<td>29</td>
<td>*Metapleuron</td>
<td>Evenly hairy</td>
<td>A1. Mostly glabrous</td>
</tr>
<tr>
<td>30</td>
<td>*Wings; general development</td>
<td>Normally developed, fore wing slightly surpassing apex of metasoma</td>
<td>A1. Oversize</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Reduced</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. Absent</td>
</tr>
<tr>
<td>31</td>
<td>Fore wing venation</td>
<td>R-vein long, tubular, often M + Cu, RS + M, RS, M, Cu nebulous</td>
<td>A1. R-vein shortened to rudimentary</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. R-vein nebulus</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. R-vein absent</td>
</tr>
<tr>
<td>32</td>
<td>Knob of R-vein</td>
<td>Distinctly differentiated, forked in R1 and r2</td>
<td>A1. Not forked, R1 and r2 not differentiated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Absent (nontubular)</td>
</tr>
<tr>
<td>33</td>
<td>*Hind wing venation</td>
<td>Short stem of tubular R-vein and often nebulous r-m present</td>
<td>A1. R-vein nebulus and r-m absent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Fore margin strongly sclerotized</td>
</tr>
<tr>
<td>34</td>
<td>*Microtrichia on wing disc</td>
<td>Moderately long, evenly spread, nonspecialized hairs</td>
<td>A1. Long, sparse microtrichia</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Disc semilabrous</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. Microtrichia specialized, spinulitus</td>
</tr>
<tr>
<td>35</td>
<td>*Legs; tibial spur formula</td>
<td>1-2-2</td>
<td>A1. 1-1-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A1. Trifid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Bifid and combed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. Combed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A4. Simple</td>
</tr>
<tr>
<td>36</td>
<td>*Front spur</td>
<td>Bifid or subtrifid</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Tarsal formula</td>
<td>5-5-5, with tarsomere 5 not specialized</td>
<td>A1. 4-4-4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Tarsomere 5 enlarged</td>
</tr>
<tr>
<td>38</td>
<td>Metasoma; number of visible segments (♀ ♂)</td>
<td>♂ 6T and 6S; ♀ 8T and 7S (note: T8 in ♀ often partly concealed)</td>
<td>A1. ♀ 3T and 3S</td>
</tr>
</tbody>
</table>
Character States Chart (Concluded)

<table>
<thead>
<tr>
<th>No.</th>
<th>Character state</th>
<th>Presumed plesiomorphic state (P)</th>
<th>Presumed apomorphic states (A1, A2, A3 ... )</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>*T1–T2; S1–S2</td>
<td>Free sclerites, with sutures in between</td>
<td>A1. T1 fused with T2; S1 fused with S2</td>
</tr>
<tr>
<td>40</td>
<td>*S1; structure (♀♂)</td>
<td>With no foamy structures</td>
<td>A1. with foamy structures</td>
</tr>
<tr>
<td>41</td>
<td>T1; structure (♀♂)</td>
<td>Trapezoidal to quadristic, with no hump or horn in ♀</td>
<td>A1. Broadly transverse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. With hump in ♀</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A3. With horn in ♀</td>
</tr>
<tr>
<td>42</td>
<td>*Laterotergite lt2</td>
<td>Moderately developed, well differentiated from T2 by sharp edge</td>
<td>A1. Wide and not well differentiated from T2 by distinct edge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Extremely narrow, rim-like</td>
</tr>
<tr>
<td>43</td>
<td>*Felt fields on S2</td>
<td>Developed, rather large, oval</td>
<td>A1. Reduced</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A2. Absent</td>
</tr>
</tbody>
</table>

World Distribution (Chart)

In spite of intensive accumulation of fresh material in recent years from all over the world and the use of newly developed techniques of mass-collecting, our present knowledge of distribution must be considered as incomplete. This is particularly true for the world tropics and the Southern Hemisphere where several centres of diversity are now apparent. New Zealand, with a relatively small landmass, has 11 genera (with four genera endemic) compared with the 12 genera (none endemic) for the vast and relatively well-explored Palearctic region. Major additions to the world fauna or distribution are expected from further exploration of Australia (presently with 24 genera of which six are endemic), the high Andes of South America, the cool temperate forests of Chile (Valdivian and Magellan forests, with 12 genera of which three are endemic), as well as the dry grassland of South Africa. The above scenario might indicate the possible origin of some platygastrids in the former landmass of Gondwana. Indeed, almost all genera treated in this paper as primitive are either restricted to or well represented in the Southern Hemisphere. Four genera, viz. *Proplatygaster*, *Allostemma*, *Helava*, and *Parabaeus*, show at least partial Gondwanic distribution. Eight genera are worldwide in distribution, with members in all major biogeographic regions. The following review of biogeographic regions is arranged by the decreasing representation of genera of both the Sceliotrachelini and Platygastroidei (part).

Australia (incl. New Caledonia and New Guinea). This region has representatives of 24 genera (six endemic), but with continued exploration, the total number is expected to increase. The endemic *Platygastridoides*, with only three species described, is estimated to have nearly 40 species in Australia, Tasmania, and New Caledonia (Ian Naumann, CSIRO, personal communication). Other genera with numerous undescribed species include *Aphanomerus*, *Austromerus*, *Inostema*, *Isostasius*, and *Sacespalus*. The ties with New Zealand are represented by *Annetiella* and *Aphanomerus*, the latter genus with one or two species shared. The Gondwanic genera in Australia include *Helava* (not in Africa), *Proplatygaster* (not in Africa), *Parabaeus*, and *Allostemma*. The faunal ties with the Oriental region include *Sacespalus*, *Aphanomerus* (in Sulawesi), and *Aleyroctonus*. *Sacespalus* is represented in cooler parts of Australia by a large and distinct species group (all undescribed). The six genera endemic to Australia are *Alfredella*, *Aphanomerella*, *Austromerus*, *Oligomerella*, *Platygastridoides* (all Sceliotrachelini), and *Rao* (Platygastrini).

Nearctic Region. This region has a total of 17 genera, and is the second-richest and second-best explored region. Only three genera are speciose, viz. *Inostema*, *Isostasius*, and *Metacallis* (all Platygastrini). The faunal ties are strongly Holarctic with 11 genera shared. Compared with the Palearctic fauna with only 12 genera, the Nearctic fauna is
enriched by the extension of genera from the New World tropics, viz. *Allostemma*, *Neobia*, *Parabaeus*, *Calomerella*, and *Tetrabaeus*. These extensions usually reach the southern latitudes of the United States such as Florida, and the sun belt from Texas to California.

**Neotropical Region** (excluding Chile). Representatives of 15 genera are encountered from the Caribbean and Central and South America. Two different complexes are distinct, viz. the fauna of the tropical lowlands and that of the high mountains (continuation of Rocky Mountains in Mexico and Central America and the Andes of South America). The lowland fauna includes mostly widespread to worldwide genera, whereas the high Andes of South America have species with strong ties to Chile and the Gondwanan. *Helava* and *Allostemma*, both with numerous undescribed species, illustrate the latter category. Surprisingly, tropical America has not produced any endemics at the generic level.

**Oriental Region.** The 14 genera with only one endemic genus do not seem to indicate the Oriental region as one of the centres of diversity. Lack of collecting may be one contributing factor. *Inostemma* and particularly *Sacespalus* in southeastern Asia seem to be the dominant genera. *Sacespalus*, *Aleyroctonus*, and *Aphonomerus* (in Sulawesi) are also shared with tropical Australia. *Plutomerus* is the only endemic genus in the Orient, with apparent relationships to some Ethiopian members of *Fidiobia*.

**Ethiopian Region.** The 13 genera in Africa south of the Sahara show a moderate prevalence of the Sceliotrachelinae over the Platygastrinae (part), particularly speciose is *Fidiobia*, with numerous undescribed species. One of its species groups indicates relationships with the Oriental *Plutomerus*, another one is closely related to undescribed species of *Fidiobia* from Brazil. The cluster *Sceliotrachelus-Afrisolia-Pulchrisolia*, peculiar for Africa, is related to *Isolia* which is presently known from the Paleartic and Oriental regions. *Parabaeus*, involved in Gondwanic distribution, also has several outstanding undescribed species. Among the more primitive Platygastrinae, *Inostemma* is the most speciose genus in Africa, with most taxa known to us from the drier grassland and parkland areas of the South and South-East.

**Chile.** This region includes the temperate to cool-temperate forests in Chile and adjacent Argentina (Prov. Nunequen), the Andes, and the entire Patagonia. A total of 13 genera with a high degree of endemism (three genera) is truly impressive. Considering the relatively small territory, as well as the relatively recent date of exploration, *Metaclisis*, *Proplatygaster*, *Helava*, and *Allostemma* are most speciose but with almost all species undescribed. The strongest faunal ties are with Australia (*Helava, Allostemma, Proplatygaster*). The three genera peculiar to Chile are *Almargella*, *Magellania*, and *Nanomerus*.

**Palearctic Region.** Although probably most intensely explored, this vast region has only 12 genera, none of which is endemic. Eight could be considered as widespread to worldwide in distribution. The Palearctic fauna could also be described as consisting of predominantly apomorphic members. The closest faunal ties are with the Nearctic region (11 genera); only *Isolia* appears to be related to Afro-Oriental fauna and is not represented in the Nearctic. Most species belong to the following widespread genera: *Inostemma*, *Iosostatus*, *Allothropa*, *Amitus*, *Fidiobia*, and *Metaclisis*.

**New Zealand.** Although New Zealand has a small landmass and remains still faunistically underexplored, its platygastrid diversity is relatively very high; three of the four endemic genera are the most speciose, viz. *Zelandonota*, *Errolium*, and *Zelostemma*. The apertural members of *Zelandonota* are virtually omnipresent in all habitats and with an estimated 15 species make the largest genus in New Zealand. *Zelandonota* in New Zealand could be compared with *Platygastroides* in Australia as a dominant genus. *Errolium* and *Zelostemma* may have fewer species than *Zelandonota*; *Zelamerus* has only two species. Although no genus is shared with Chile, the close relationship between *Zelostemma* and
Propatygaster (Chile–Australia) and Annetella and Magellanium (Chile) are quite apparent. Australian ties are best shown by Annetella and Aphanomerus, the latter most probably sharing one or two species between the two landmasses. Surprisingly, the much expected Gondwanian elements such as Helava and Propatygaster, both present in Australia, are not yet recorded from New Zealand.

Genera with Worldwide Distribution. This arbitrary category covers eight genera: Acerotella, Allostemma, Inostemma, Iphitrachelus, and Isostasis of the Platygastriinae, and Allotropa, Amitus, and Fidiobia of the Sceliotrachelinae. These are all well-known genera described by classical authors (except Allostemma), usually with numerous species, some of them used in biological control of pests. The latter activity contributed toward spreading some species over most parts of the world (Amitus, Allotropa, Inostemma).

Gondwanian Genera. As mentioned above, Gondwan and its disjunct parts of today may have served as a centre of diversity, if not the origin of both the Sceliotrachelinae and the Platygastriinae (part). More data ought to be accumulated to elevate our hypothesis above mere speculation. So far members of the genera Allostemma, Parabaeus, Helava, and Propatygaster have species in southern extremes of South America, New Zealand, Australia (Tasmania), and South Africa. Parabaeus is found in South America (with one species extending to Florida), Western Australia (Perth), and is well represented in Africa (Seychell Is., South Africa, Zimbabwe, Kenya). Helava has species along the high Andes up to Colombia and Venezuela and one species in Tasmania. Propatygaster has congeners in both Chile and Australia and Allostemma occurs in all southern areas but is also pantropical, with one species extending to southeastern USA.

The chart below was prepared to facilitate rapid data retrieval in all 41 genera surveyed. A genus is considered as represented in a given region if at least one species has been described previously (type examined by us) or known to us by an undescribed species. Some gaps are obviously due to lack of collecting. Endemic genera, with distribution peculiar to a given region, are marked with (E).

### World Distribution Chart

<table>
<thead>
<tr>
<th>Genus</th>
<th>Holarctic</th>
<th>Neotropical</th>
<th>Australian</th>
<th>Worldwide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Palaeartic</td>
<td>Neartic</td>
<td>Central America, Caribbean, South America</td>
<td>Chile</td>
</tr>
<tr>
<td>Acerotella</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>Aceroeta</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Afrisota</td>
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<tr>
<td>Aleuroctonus</td>
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<tr>
<td>Alfredella</td>
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<td>E</td>
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</tr>
<tr>
<td>Allostemma</td>
<td>X</td>
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</tr>
<tr>
<td>Allotropa</td>
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<tr>
<td>Almargelia</td>
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</tr>
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<td>Amitus</td>
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<td>Annetella</td>
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<td>Aphanomerella</td>
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<td>Aphanomerus</td>
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<td>Austromerus</td>
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<td>Calomerella</td>
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<tr>
<td>Errolium</td>
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<tr>
<td>Fidiobia</td>
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<td>Helava</td>
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<td>Inostemma</td>
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<td><em>Loxostus</em></td>
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<td><em>Parabobus</em></td>
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<td><em>Proplatagaster</em></td>
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<td><em>Pseudophanes</em></td>
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<td><em>Ruo</em></td>
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<td><em>Zelanuus</em></td>
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<td><em>Zelosoma</em></td>
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<tr>
<td><strong>Subtotal</strong></td>
<td>12(0E)</td>
<td>17(0E)</td>
<td>15(0E)</td>
<td>13(0E)</td>
</tr>
</tbody>
</table>

**List of Abbreviations**

A1, A2, A3 ... — antennal segments  
A1 — scape  
A2 — pedicle  
A3 — first flagellomere  
ac — acetalular carina  
acl — anteclypeus  
al — admedian line  
An — anal vein  
ao — anterior ocellus  
apS2, apT2 — anterior pits on S2 & T2  
ar — arolium  
a — axillum  
a? — female antenna  
a? — male antenna  
ch — cheek  
ck — central keel  
cl — clypeus  
Cu — cubicul vein  
cv — clava  
cx1 — fore coxa  
cx2 — middle coxa  
cx3 — hind coxa  
d — diameter of ocellus  
ds — dorsellum  
dv — dorsal view  
ec — epicnemium  
ep — epomia  
fl — felt field  
f2 — frenal gutter  
fb — frenal hooks  
f1 — frontal ledge  
fr — frons  
f3 — fore spur  
fw — fore wing  
he — hyperoccipital carina  
hw — hind wing  
io — inner orbit  
ios — interorbital space  
Ip — interantennal process  
kn — knob  
l — lamella  
lk — lateral keel  
lo — lower orbit  
LOL — lateral ocellar line  
l1, l2, l3 — laterotergites  
lv — lateral view  
M — medial vein  
mb — mandible  
mc — marginal cilia  
M + Cu — fusion of medial and cubital veins  
md — mesopleural depression  
mi — microtrichia  
mk — median keel  
ms — malar sulcus  
mp1 — mesopleuron  
mp2 — metapleuron  
msc — mesoscutum  
msn — mesonotum  
mt — metanotum  
nt — notaulus  
mu — mucha  
oc — occipital carina  
oO — ocellar ocellar line  
op — occipital pit  
otp — occipital sulcus  
pc — precoxal carina  
pG — pronotal groove  
pl — parapsidal line  
PN — pronotum  
pv — posterior ocellus
**GLOSSARY OF TERMS**

*(from Masner 1980, modified)*

**Actubular carina (ac; Fig. 2)** — transverse carina on anteroventral part of mesepisternum (behind fore coxae).

**Admedian lines (al; Figs. 1, 2)** — two abbreviated parallel lines in anterolateral part of mesoscutum (msc), often reduced to mere pits.

**Anal vein (An; Figs. 4)** — lowermost vein in fore wing, usually rudimentary or absent in Platygastridae; *synonym* — analis.

**Anteclypeus (acl; Fig. 3)** — see clypeus.

**Antennal formula** — total number of apparent segments in female antenna (first number) and male antenna (second number), excluding radicle (ra); e.g. antennal formula 8-10 in *Iphitchelus*.

**Antennal segments (A1, A2, A3 ...; Fig. 7)** — all segments of antenna excluding radicle (ra); numbered from scape (A1) to apical segment.

**Anterior ocellus (ao; Fig. 3)** — middle ocellus in occellar triangle; *synonym* — median ocellus.

**Anterior pits on S2 and T2 (apS2, apT2; Fig. 6)** — paired, oval or circular depressions situated anterolaterally on S2 and T2, often filled with dense pilosity.

**Aroulum (ar; Fig. 13)** — median membranous lobe between tarsal claws.

**Axilla (ax; Fig. 8)** — subtriangular or very narrow region of mesonotum (msn) situated anterolaterally of scutellar disc (sd), sometimes as parts of scutellaxillar pits.

**Basal vein** — see Rs+M.

**Central keel (ck; Fig. 3)** — median vertical keel on frons (fr) between toruli (tr) and anterior ocellus (ao).

**Cheek (ch; Fig. 3)** — arbitrary region on head comprising malar region and gena between lower orbit (lo) of eye and base of mandible (mb), rarely divided by malar sulcus (ms) in Platygastridae.

**Clava (cv; Fig. 7)** — several incrassate distal antennal segments (clavomers) in female antenna bearing 1–2 sensilla (sm) each; clava rarely formed in male antenna (without sensilla); clava termed abrupt if most proximal clavomere is distinctly larger than preceding antennal segment (Figs. 119, 127, 131, 137, 139); clava termed segmented if clavomers clearly separated by gaps (Figs. 113, 116, 129, 135, 153); clava termed subcompact if clavomers separated only by fine sutures but no gaps (Figs. 127, 139, 170, 171); clava termed compact if no sutures visible between original clavomers (Figs. 137, 146, 149, 177); *synonym* — club.

**Clavomers** — see clava.

**Clypeus (cl; Fig. 3)** — region of head between toruli (tr) and labrum (concealed in Platygastridae); in Platygastridae clypeus more or less divided into 2 parts, viz. clypeus proper (cl) and anteclypeus (acl).

**Crenulae** — series of pits open on one side, e.g. on occipital carina (oc), (Fig. 2).

**Cubital vein (Cu; Fig. 4)** — vein in fore wing between radial vein (R) and anal vein (An); in Platygastridae at most as nebulous or spectral vein; *synonym* — cubitalis.

**Diameter of ocellus (d; Fig. 3)** — maximal diameter of any ocellus; e.g. distance between posterior ocellus (po) and inner orbit (io) of eye (OOL) is 2d in Figure 3.

**Dorsellum (ds; Figs. 1, 8)** — median, usually specialized, part of metanotum (mtn); *synonym* — metascutellum.

**Epicnemium (ec; Figs. 2, 237, 245)** — narrow, usually strongly reduced vertically, sclerite situated between postero-lateral margin of pronotum (pn) and anterior margin of mesopleuron (mpl).
Epornium (ep; Fig. 2) — anterovertical keel on side of pronotum (pn).
Felt field (ff; Fig. 6) — paired specialized areas on S2 posterior to anterior pits (apS2), usually oval
in shape, with distinct microsculpture and dense pilosity.
Foamy structures (Fig. 24) — whitish or yellowish structures usually on propodeum (pr), rarely on
T1, S1, or S2.
Fore spur (fs) — apical spur on fore tibia; spur termed bifid if with 2 prongs (Fig. 12), trifid if with
3 prongs, combed if with multiple prongs (Fig. 65a).
Foveolae — series of pits closed on all sides, e.g. on metanotum (mnt) (Fig. 18).
Frenal gutter (fg; Fig. 4) — flexed glabrous part of posterior margin of fore wing for coupling with
frenal hooks (fh) of hind wing.
Frenal hooks (fh; Fig. 5) — hooks on anterior margin of hind wing for coupling with frenal gutter
(fg) of fore wing.
Frorns (fr; Figs. 2, 3) — region of head between inner orbits of eyes (io), lower margin of toruli (tr),
and anterior ocellus (ao).
Frontal ledge (fl; Figs. 1, 2, 3) — transverse keel on lower frons (fr) above toruli (tr).
Hyperoccipital carina (hc; Figs. 1, 2) — transverse carina on top of head behind posterior ocelli
(po), sometimes merging laterally with outer orbit of eye without joining occipital carina (oc).
Inner orbit of eye (io; Fig. 3) — inner median part of eye margin, approximately between level of
posterior ocelli (po) and lower orbit of eye (lo).
Interantennal process (ip; Fig. 2) — sharp projection on lowermost part of frons (fr) between toruli
(tr) and clypeus (cl), rarely overlapping latter (Fig. 235).
Interorbital space (ios; Fig. 3) — shortest distance on frons (fr) between inner orbits of eyes (io).
Knob (kn; Fig. 4) — apex of submarginal vein (sv), usually swollen, rounded, truncate to bifurcate
(if R1 and R2 parts differentiated).
Lamella (la; Fig. 7) — transparent, sharp edge on apex of scape (A1) partly housing the base of
pedicel (A2) from both sides.
Lateral keels (lk; Fig. 8) — raised longitudinal keels on scutellum (sc), flanking scutellar disc (sd),
often composed of 2 parts; presumably of axillary origin.
Lateral ocellar line (LOL; Fig. 3) — shortest distance on vertex (v) between inner margins of
anterior ocellus (ao) and posterior ocellus (po).
Laterotergite (lt; Fig. 6) — flexed lateral part of tergite (lt1, lt2, lt3...).
Lower orbit of eye (lo; Fig. 3) — lowermost arc of eye margin.
Malar space — median part of cheek immediately adjacent to malar sulcus (ms) if latter developed.
Malar sulcus (ms; Fig. 3) — furrow on cheek (ch) between lower orbit of eye (lo) and mandibular
(mb) base; usually obscured if cheek striate; synonym — genal sulcus, subocular suture.
Marginal cilia (mc; Figs. 4, 5) — fringe of hairs around periphery of fore (fw) and hind (hw) wings.
Medial vein (M; Fig. 4) — middle vein of fore wing between radial (R) and anal (An) veins; in
Platygastridiae present at most as spectral or nebulous vein, running jointly with cubital vein
(Cu) in anterior part; synonym — medialis.
Median keel(s) of propodeum (mk; Fig. 1) — usually 2, rarely 3 longitudinal keels in middle part
of propodeum (pr), or the 2 keels strongly approximated to form a single keel; in some Platygastridiae
keels may be covered with foamy structures.
Mesonotum (msn; Fig. 1) — dorsal sclerite of mesothorax comprising mesoscutum (msc) and scutellum
(sc).
Mesopleural depression (md; Fig. 2) — declivity on mesopleuron (mpl) above sternaulus (st), often
reduced to sulcus or pit(s).
Mesopleuron (mpl; Fig. 2) — lateral region of mesothorax; here more precisely mesepisternum.
Mesoscutum (msc; Fig. 1) — anterior region of mesonotum (msn) between pronotum (pn) and
scutellum (sc); often divided into middle and lateral lobes by notauni (nt).
Mesosoma — thorax and propodeum (pr) combined.
Metanotum (mnt; Figs. 1, 2) — dorsal sclerite of metathorax.
Metapleuron (mp2; Fig. 2) — lateral region of metathorax.
Metasoma — abdomen posterior to propodeum (pr).
Microtrichia (mt; Figs. 4, 5) — hairs on surface (disc) of fore (fw) and hind (hw) wings.
Nebulous vein (Figs. 194a,b, 196a) (Mason 1986) — any trace vein in fore (fw) and hind (hw)
wings indicated only by pigmentation and visible in transmitted light at any angle; e.g. radius
sector (RS), RS + M, junction of M + Cu, medial (M) and cubital (Cu) veins in fore wing of *Proplatygaster* (Fig. 192a).

Notauli (nt; Figs. 1, 2, 8) — paramedial longitudinal furrows on mesoscutum (msc), often incorrectly termed parapsidal furrows; notauli termed percurrent if complete between pronotum (pn) and transcutal suture (ts), notauli abbreviate if not complete; *synonym* — notaulices.

Nucha (nu; Fig. 1) — posteromedian neck-like constricted part of propodeum (pr).

Occipital carina (oc; Figs. 1, 2) — transverse ridge on posterior part of head dividing vertex (vx) from occiput (ot).

Occipital pit (op; Fig. 1) — single median hole immediately dorsad of occipital carina (ocu).

Occiput (ot; Fig. 1) — region of head posterior to occipital carina (oc); occiput not well delimited if occipital carina (ocu) not developed.

Ocular ocellar line (OOL; Fig. 3) — shortest distance on vertex (vx) between outer margin of posterior ocellus (op) and inner orbit of eye (io).

Palpal formula — total number of maxillary (first number) and labial (second number) palpal segments of either sex; e.g. 2-1 in *Proplatygaster*.

Parapsidal lines (pl; Fig. 1) — posterior admedian lines or ridges on lateral lobes of mesoscutum (msc).

Pedecel (A2; Fig. 7) — second antennal segment.

Posterior ocellar line (POL; Fig. 3) — shortest distance on vertex (vx) between inner margins of posterior ocelli (po).

Posterior ocellus (po; Figs. 1, 3) — paired outer ocelli off the ocellar triangle; *synonym* — lateral ocelli.

Precoxal carina (pc; Fig. 2) — short oblique ridge in posteroventral corner of mesopleuron (mp1), in front of midcoxa (cx2).

Pronotal groove (pg; Fig. 2) — diagonal sulcus along anterolateral margin of pronotum (pn), usually filled with dense pilosity.

Pronotum (pn; Figs. 1, 2) — dorsal sclerite of prothorax, sides reaching to tegula (tg) and fore coxa (cx1).

Propodeum (pr; Fig. 2) — apparent segment of mesosoma posterior to metanotum (mtn); originally first abdominal tergite fused with thorax; *synonyms* — median segment of Kieffer (1926), metanotum of Ashmead (1893).

Radial vein (R; Fig. 4) — see submarginal vein.

Radicle (ra; Fig. 7) — connective joint between scape (A1) and torulus (tr); radicle not included in count for antennal formula.

Radius sector (RS; Fig. 4) — distal extension of radial vein (R) past knob (kn) in fore wing; in Platysgastridae present at most as nebulosus vein.

Radius sector + medial vein (RS + M; Fig. 4) — first transverse vein in fore wing (fw), almost perpendicular to submarginal vein (sv); in Platysgastridae present at most as nebulosus vein; in hind wing (hw) homologous to r + m (Fig. 5); *synonym* — basalis.

Scape (A1; Fig. 7) — first antennal segment.

Scutellar disc (sd; Figs. 2, 8) — dorsal median part of scutellum (sc) between scutellar suture (sqs), transcutal suture (ts) and scutellar rim (sr), flanked by lateral keels (lk).

Scutellar rim (sr; Figs. 2, 8) — differentiated posterior margin of scutellum, often distinctly foveolate or crenulate.

Scutellar suture (sqs; Fig. 8) — suture between anterolateral part of scutellar disc (sd) and axilla (ax); suture often not well defined or prominent, frequently indicated by arc of foveolae.

Scutellaxillar pits — more or less well defined anterolateral pits on scutellum (sc) composed of axilla (ax), scutellar suture (sqs), and anterior edge of scutellar disc (sd).

Scutellum (sc; Fig. 1) — posterior region of mesonotum (msn) between mesoscutum (msc) and metanotum (mtn).

Sensillar formula — total number of basiconical sensilla (sm) on clavomeres of female antenna, with first number referring to apical clavomere, second number to penultimate clavomere, etc.; e.g. sensillar formula 1-2-2 in *Platygastroides*.

Sensillum (sm; Fig. 7) — presumed sense organ on clavomeres of female antenna; here specifically basiconical type of sensillum.
Spectral vein (Mason 1986) — any trace vein in fore (fw) or hind (hw) wing in shape of slight elevation of wing membrane, nonpigmented, and therefore visible only in reflected light at particular angle; in Platygastridae almost always M + Cu and Cu.

Spiracle (sp1, sp2; Figs. 1, 2, 244, 245) — spiracular openings between pronotum (sp1) and mesopleuron and on propodeum (sp2).

Sternalus (st; Fig. 2) — horizontal or subhorizontal keel on lower mesopleuron (mp1), approximately between fore coxa (cx1) and middle coxa (cx2).

Sternalite (S1, S2, S3…; Figs. 2, 6) — ventral sclerite of metasoma.

Submarginal vein (sv; Fig. 4) — first apparent tubular vein in fore wing of some Platygastridae; also supposedly homologous to rudiment of submarginal vein in hind wing; *syonym* = R, radial vein, radialis.

Tarsal formula — total number of fore, middle, and hind tarsal segments of either sex; e.g. tarsal formula 5-5-5 in *Inostemma*.

Tarsomere — any tarsal segment of all 3 pairs of legs.

Tegula (tg; Figs. 1, 2, 245) — sclerite covering base of fore wing.

Temple (te; Fig. 1) — region of head posterior to eye in dorsal view; measured longitudinally.

Tergite (T1, T2, T3…; Figs. 1, 2) — dorsal sclerite of metasoma.

Tibial spur formula — total number of spurs on fore (first number), middle (second number), and hind (third number) tibia of either sex; e.g. tibial spur formula 1-2-2 in *Isostatus*.

Toruli (tr; Fig. 3) — paired circular openings above clypeus (cl) housing proximal ends of radicle (ra); *syonym* — antennal sockets.

Transcutal suture (ts; Fig. 8) — transverse furrow dividing mesoscutum (msc) from axilla (ax) and scutellar disc (sd).

Tubular vein (Mason 1986) — a rigid tubular structure with sharply defined edges, usually yellow, brown, or even black, but sometimes milky or clear; *syonym* — tracheate vein.

Vertex (vx; Fig. 2) — dorsal region of head between anterior ocellus (ao) and occipital carina (oc).

**KEY TO WORLD GENERA**

1. Wings absent or vestigial, with no apparent venation .............................. 2

   - Wings fully developed, with or without venation .............................. 12

2(1) Eye wanting or reduced to minute point; antenna 2- to 5-segmented; tarsus 2- to 3-segmented; parasites of coccids in New Zealand. *ERROLIUM* gen. nov. *dwarf*  3  3  (part)

   - Eye developed normally; antenna with at least 7 distinct segments; tarsus 5-segmented .............................. 3

3(2) T1 fused with T2 and S1 fused with S2, without sutures, glabrous (Figs. 73, 74, 255, 256, 257); cheek and postgena with deep excavation; Australian, Ethiopian, and Neotropical .................. *PARABAEBUS* Kieffer  4  ♀ ($♀$) (part)

   - T1 separated from T2 and S1 from S2 by sutures (cf. Figs. 30, 57, 60), sutures sometimes partly obscured by dense pilosity (cf. Fig. 88); cheek and postgena with no excavation .............................. 4

4(3) Scape with large ventral lamella covering flagellum and clava when antenna folded (Fig. 160); head with deep, scattered punctures (Fig. 50); metasoma flattened, broadly spatulate, with T1 broadly subrectangular (Fig. 50); Australia and New Caledonia .................. *PLATYGASTIOIDES* Dodd  5  ♀ ($♀$) (part)

   - Scape without ventral lamella; head not distinctly punctate; metasoma of different shape .............................. 5

5(4) Cheek with fan-like striation and often with malar sulcus (Figs. 31, 56) .............................. 6

   - Cheek not striate, malar sulcus absent .............................. 7

6(5) T2 with at least short costae anteromedially, or with strong hump; A8 and A9 of female clava each with single sensillum (Fig. 115); epicnemium well developed; Andes of South America incl. Chile .................. *METACLUSIS* Foerster  8  ♀ ($♀$) (part)

   - T2 with 1-2 pits anteromedially, with no costae or hump (Fig. 30); A8 and A9 of female clava each with double sensilla (Fig. 119); epicnemium absent; New Zealand .................. *ZELANDONOTA* gen. nov.  9  ♀ ($♀$)

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<td>12(1) T1 fused with T2 and S1 fused with S2, without sutures, glabrous (cf. Figs. 73, 74); (check and postgena with deep excavation; body remarkably bright orange-yellow with few darker markings; antenna of both sexes with abrupt, subcompact, 4-segmented clava [Figs. 140, 141]; fore wing with rudiment of submarginal vein, not knobbled apically) (Fig. 219a); Neotropical .......... <strong>PARABEUS</strong> Kieffer ♂ ♀ (part)</td>
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<td>— T1 separated from T2 and S1 from S2 by sutures, sutures sometimes partly obscured by dense pilosity .......... 13</td>
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<td>— Scutellum about as wide as long, convex, not pointed posteromedially (Fig. 14); propodeum without foamy structures (Fig. 14); T1 about as wide as long, or slightly wider, subquadrate (Fig. 14); head rugulose or coriaceous, without distinct punctures; female antenna with slender, non-abrupt 4-segmented clava (Fig. 125); Oriental (incl. Kyushu (Japan)) and Australia .......... <strong>ACEPSALUS</strong> Kieffer ♂ ♀</td>
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<td>— OOL distinctly shorter than LOL (Figs. 26, 37, 39); body usually elongate, spindle-like .......... 20</td>
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<td>17(16) Marginal ciuia of fore wing not developed (Figs. 206, 207) .......... 18</td>
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18(17) S2 with long erect hairs (Fig. 63); hind wing with sclerotized dark fore margin (Fig. 206); prothorax enlarged, at meson almost as long as mesoscutum, with sides keel-like, sharp (Figs. 62, 63); Ethiopian ... SCELIOTRACHELLUS Brues \(\delta\) S2 glabrous; hind wing without sclerotized fore margin (Fig. 207); prothorax not enlarged, at meson much shorter than mesoscutum, with sides rounded (Figs. 65, 70); Palearctic and Oriental ... ISOLIA Förster \(\delta\) OOL several times longer than LOL, ocelli clustered together (Fig. 93); propodeum with median keels spike-like projecting posteriorly (Fig. 88); female antenna distinctly 9-segmented, with noncompact 3-segmented clava (Fig. 182); Chile ... \(\delta\) NANOMERUS gen.nov. \(\delta\) OOL subequal to LOL, ocelli not clustered together (Fig. 91); median keels of propodeum not projecting posteriorly (Fig. 243); female antenna appearing 8-segmented, A8 actually composed of 3 segments (Fig. 181); worldwide except for New Zealand ... AMITUS Haldeman \(\delta\) \(\delta\) \(\delta\)

20(16) Antenna 9-segmented in both sexes; laterotergite 2 wide, about 0.50 maximal width of T2 (cf. Fig. 55); Ethiopian ... FIDIOBIA Ashmead \(\delta\) \(\delta\) (part) Antenna 10-segmented in both sexes; laterotergite 2 narrow, about 0.12 maximal width of T2 ... \(\delta\)

21(20) Metapleuron almost entirely glabrous (Fig. 40); notauli not developed (Fig. 39); vertex with hyperocciptal carina (Fig. 40); Chile ... ALMARGELLA gen.nov. \(\delta\) \(\delta\) Metapleuron evenly hairy (Figs. 28, 38); notauli percurrent (Figs. 26, 37); vertex rounded ... \(\delta\)

22(21) Metanotum foveolate (Fig. 26); female A6–A9 each with single sensillum (Fig. 121); tibial spur formula 1-2-2; New Zealand ... ZELOSTEMMA gen.nov. \(\delta\) \(\delta\) Metanotum nonfoveolate (Fig. 37); female A7–A9 each with double sensilla (Fig. 133); tibial spur formula 1-1-1; Chile ... MAGELLANIUM gen.nov. \(\delta\) \(\delta\)

23(13) Tarsi 4-segmented ... \(\delta\)

24(23) Notauli percurrent, more or less broadened posteriorly (Fig. 24); propodeum and often also T1 covered with hyaline or foamy structures, propodeum medially with 2 parallel keels (Fig. 24); antennal formula 8-10, female antenna with compact 1-segmented clava (Fig. 137); worldwide ... IPHTHARCHUS Walker \(\delta\) \(\delta\) Notauli absent (cf. Fig. 102); propodeum and T1 without special structures, hairy, with single central keel (Fig. 102); antennal formula 9-9, female antenna with noncompact 3-segmented clava (cf. Fig. 183); Neotropical ... ALLOTROPA Förster \(\delta\) \(\delta\) (part)

25(23) Antenna appearing 7- to 8-segmented, with clava compact (Figs. 146, 149, 175, 177) or subcompact (Figs. 147, 148, 172, 173, 179) (clava counted as 1 segment) ... \(\delta\)

26(25) T2 with at least short longitudinal costae and/or striae anteriorly (Figs. 81, 83, 86, 89) ... \(\delta\)

27(26) Metanotum distinctly foveolate (Figs. 81, 83); antennal clava of female solid, 1-segmented (A7 or A8) (Figs. 146, 149); epinotium narrow but developed (Figs. 84, 237) ... 28

28(27) Scutellum distinctly foveolate anterior to scutellar rim, not pointed posteromedially (Fig. 83); mesosoma considerably flattened, clearly wider than high (Fig. 84); female antenna 7-segmented, with sensillum formula 1-2-0 (Fig. 149); Holarctic \(\delta\) (see couplet 54) ... \(\delta\) PSEUDAPHANOMERUS Széchenyi \(\delta\) Scutellum with 2 large oval depressions posterolaterally, with tiny point at posteromedian apex (Fig. 82); mesosoma not flattened, about as wide as high (Fig. 82); female antenna
8-segmented, with sensillar formula 1-2-1 (Fig. 146); Nearctic and Neotropical ........................................ CALOMERELLA gen. nov. ♀  

29(27) RS + M of fore and hind wings rather strongly indicated; submarginal vein of fore wing with knob slightly downcurved; in eggs of Chrysomelidae; Australia ......................................................... APHANOMERELLA Dodd ♀ ♂  
— RS + M of fore and hind wings inconspicuous; submarginal vein of fore wing with knob slightly upcurved (Fig. 224a); parasites of Sphecidae; Nearctic and Neotropical ........................................ TETRAEUS Kieffer ♀ ♂  

30(26) Cheek fan-like striate; clypeus pointed and projecting anteromedially (Fig. 72); parasites of Aleyrodidae; Oriental and Australia .................. ALEYROCTONUS gen. nov. ♀ ♂  
— Cheek not striate; clypeus not pointed or projecting anteromedially .................. 31  

31(30) T1 and T2 densely hairy anteriorly, hairs sometimes obscuring suture between 2 tergites (Fig. 96); propodeum predominantly or partly covered with foamy structures, with no distinct median keels (Fig. 96); Andes of South America and Australia (Tasmania) ................................................................. HELAVA gen. nov. ♀ ♂ (part)  
— T1 and T2 at most with scattered hairs not obscuring suture between 2 tergites (Figs. 76, 94); propodeum without foamy structures, with 2 or 3 median keels (Figs. 76, 94) .................. 32  

32(31) Female antenna appearing 8-segmented, with A8–A10 fused into cylindrical subcompact clava; sensillar formula 1-2-2-2-1 (Fig. 179); T1 narrowly trapezoidal (Fig. 76); Australia ................................................................. ALFREDELLA gen. nov. ♀  
— Female antenna appearing 7-segmented, with A7–A10 fused into ovoid compact clava; sensillar formula 1-2-2-1 (Fig. 177); T1 broadly subrectangular (Fig. 94); in eggs of Homoptera; Australia, New Zealand, and Sulawesi .................. APHANOMERUS Dodd ♀ ♂  

33(25) Cheek with distinct fan of striae (Figs. 33, 36, 48) .................................................. 34  
— Cheek not striate .......................................................... 36  

34(33) T1 and T2 without longitudinal costae (Fig. 47); propodeum with foamy structures (Fig. 47); A8 and A9 of female clava each with double sensilla (Fig. 158); Australia ................................................................. OLIGOMERELLA gen. nov. ♀  
— T1 and T2 with longitudinal costae or striae (Figs. 32, 35), T2 rarely with smooth hump anteriorly; propodeum without foamy structures (Figs. 32, 35); A8 and A9 of female clava each with single sensillum (Figs. 113, 131) .................................................. 35  

35(34) Frons with sharp central keel (Figs. 36, 235); interantennal process elevated, sharply projecting over clypeus (Figs. 235); submarginal vein of fore wing with knob upcurved, almost touching fore margin of wing (Fig. 198a); antennal formula 9-10 (Figs. 131, 132); male antenna with A3 longer than A4 (Fig. 132); Nearctic, Neotropical, Australia, and New Zealand ................................................................. ORSETA gen. nov. ♀ ♂  
— Frons without central keel; interantennal process not prominent; submarginal vein of fore wing with knob not particularly upcurved, distinctly remote from fore margin of wing (Figs. 194, 195); antennal formula 10-10 (Figs. 113, 114); male antenna with A3 shorter than A4 (Fig. 114); Holarctic, Neotropical incl. Chile ........................................................................ MEXICISIS Foerster ♀ ♂ (part)  

36(33) RS + M of fore wing indicated as nebulus trace (Figs. 192a, 197a, 220a, 225a, 229a) .......................................................... 37  
— RS + M of fore wing not indicated .................................................. 42  

37(36) Propodeal keels well defined, parallel or subparallel (Figs. 22, 34, 41, 106) .................. 38  
— Propodeal keels not defined, usually with light foamy structures, these sometimes V- or \-shaped medially (Figs. 96, 98) .......................................................... 41  

38(37) Propodeal keels distinctly longer than maximal width between them (Fig. 41); submarginal vein of fore wing short, not surpassing basal 0.25 of wing (Fig. 197a); New Zealand, Australia ................................................................. ANNETTELLA gen. nov. ♀ ♂  
— Propodeal keels at most as long as maximal width between them (Figs. 22, 34, 106); submarginal vein of fore wing longer, surpassing basal 0.33 of wing (Figs. 192a, 229a) .......................................................... 39
39(38) Scutellar disc semicircular, scutellum with 2 triangular scutellartial pits and short lateral keels not surpassing basal 0.50 of scutellum (Fig. 34); Chile, Australia .................. PROPLATYGASTER Kieffer 2 3

— Scutellar disc subquadric or subrectangular, scutellum with deep scutellar suture (often crenulate) anteriorly and with longer lateral keels surpassing basal 0.50 of scutellum (Figs. 22, 106) .......................... ZELAMERUS gen. nov. ? 3

40(39) Propodeal keels laced with yellowish foamy structures (Fig. 106); female antenna with semiabrupt 3-segmented clava (Fig. 119); submarginal vein of fore wing with knob small and distinctly remote from fore margin of wing (Fig. 229a); New Zealand .................. ALLOSTEMMA gen. nov. ? 3 (part)

— Propodeal keels not laced with foamy structures (Fig. 22); female antenna with non-abrupt 5- to 6-segmented clava (Fig. 110); submarginal vein of fore wing with knob large, usually close to or contiguous with fore margin of wing; southeastern USA, Chile, Australia, New Zealand, Africa, Orient ................................ AUSTROMERUS gen. nov. ? 3 (part)

41(37) Antennal clava of female subcompact, ovoid, abruptly 3-segmented, with sensillar formula 1-2-2; male antenna filiform, with A9 and A10 forming 2-segmented sausage-like clava; Tasmania ........................................ HELAVA gen. nov. ? 3 (part)

— Antennal clava of female noncompact, sausage-like, moderately abrupt, 3- to 4-segmented, with sensillar formula 1-2-1 (Fig. 168); male antenna subclavate, with all segments clearly separated (Fig. 169); Australia ........................................ AUSTROMERUS gen. nov. ? 3 (part)

42(36) Antennal formula 9-9 ........................................ 43

— Antennal formula 10-10 (in Alfredella ? 3 A9 and A10 closely approximated) .................. 46

43(42) Propodeum medially with single keel, without foamy structures (Fig. 102); scutellar suture with series of foveolae (Fig. 102); submarginal vein of fore wing distinctly surpassing basal 0.33 of wing (Fig. 228a); mandibles scissor-like crossing; worldwide (except for New Zealand) ........................................ ALLOTROPA Foerster ? 3

— Propodeum medially with 2 short parallel keels, or covered with foamy structures (Figs. 54, 58, 61); scutellar suture without foveolae; submarginal vein of fore wing reaching at most to basal 0.33 of wing (Figs. 212a, 215a); mandibles clasped normally .......... 44

44(43) Vertex blade-like acute (Fig. 61); temple reduced to sharp edge behind eye; scape expanded ventrally into wide lamella covering rest of antenna when folded (Fig. 153); Oriental (incl. Kyushu [Japan]) .................................................. PLUTOMERUS gen. nov. ? 3

— Vertex rounded; temple more or less developed behind eye; scape at most with moderate lamella ventrally ........................................ 45

45(44) T2 costate-striate anteromediately (Fig. 58); posterior ocellus distinctly remote from inner orbit of eye by about 3d; Neotropical, Nearctic .................. NEOBIA gen. nov. ? 3 (part)

— T2 not costate or striate anteromediately (Fig. 54); posterior ocellus closer to inner orbit of eye (1-1.5d); worldwide .................................................. FIODIOBA Ashmead ? 3 (part)

46(42) Posterior margin of scutellum not defined by foveolae or depressions, rarely defined by weak rim (some Platystasis) (Figs. 52, 59, 66, 68) ........................................ 47

— Posterior margin of scutellum defined by foveolae, depression, and/or rim (Figs. 9, 16, 19, 22, 44, 76, 83, 100, 104) ........................................ 50

47(46) Notauli complete, almost parallel, narrow, not broadened posteriorly; propodeum without foamy structures (Fig. 59); laterotergite 2 at most 0.25 maximal width of T2; Holarctic, Australia .................................................. PLATYSTASIS Nixon ? 3

— Notauli absent or abbreviate, broadened posteriorly (Figs. 52, 66, 68); laterotergite 2 at least 0.33 maximal width of T2 ........................................ 48

48(47) Submarginal vein of fore wing reaching to about 0.33 of wing (Fig. 211a); fore wing with marginal cilia short to moderately long; spur of fore tibia bidual or trifid; worldwide .................................................. FIODIOBA Ashmead ? 3 (part)

— Submarginal vein of fore wing not exceeding basal 0.10 of wing length (Figs. 208a, 210a); fore wing without marginal cilia; spur of fore tibia combed ........................................ 49

49(48) Lower frons with sharp transverse carina above antennal insertion (Fig. 67); interantennal process strongly projecting; mandible strong, projecting; fore wing with dark transverse
bands, with microtrichia on disc transformed into flattened-twisted upright pegs (Figs. 208a, 249, 250, 251); notauli absent; Ethiopian ... PULCHRISOLIA Szabo ♂ ♂ Lower frons without transverse carina above antennal insertion (Fig. 69); interantennal process minute, not projecting; mandible small, not projecting; fore wing not banded, with microtrichia on disc transformed into little points (Fig. 210a); notauli broad, abbreviate anteriorly (Fig. 68); Ethiopian ... AFRISOLIA gen.nov. ♂

50(46) Propodeum partly covered with foamy structures; head with deep scattered punctures (Fig. 50); metasoma broadly spatulate, with T1 broadly subrectangular (Fig. 50); submarginal vein of fore wing not clearly defined at apex (Figs. 204a, 205a); Australia ... PLATYGASTOIDES Dodd ♂ ♂ (part)

Propodeum without foamy structures; head with sculpture other than deep scattered punctures; metasoma usually spindle-shaped, elongate, with T1 only slightly wider than long, rarely squat and almost as long as wide; submarginal vein of fore wing strong, with distinct knob ... 51

51(50) Longest marginal cilia of fore wing from 0.25 to 0.50 maximal width of wing (Figs. 227a, 230a); antennal clava of female 2- to 3-segmented ... 52

Longest marginal cilia of fore wing at most 0.12 maximal width of wing (Figs. 200a, 201a, 202a, 215a, 223a, 226a); antennal clava of female 4- to 5-segmented, or not abrupt (3-segmented in some Acerotella) ... 53

52(51) Notauli percurrent (Fig. 104); scutellum with foveolae along posterior margin; T2 with longitudinal costae and striae; submarginal vein of fore wing surpassing basal 0.33 of wing length (Fig. 227a); parasites of Pseudococcidae in New Zealand ... ERROLIUM gen.nov. ♂ ♂ (part)

Notauli absent (Fig. 100); scutellum with 2 large oblique depressions in front of posterior margin; T2 not costate or striate; submarginal vein of fore wing not reaching basal 0.33 of wing length (Fig. 230a); worldwide (except New Zealand and Chile) ... ACEROTETA Koszlov and Masner ♂ ♂

53(51) Submarginal vein of fore wing with knob reaching or very close to fore margin of wing (e.g. Fig. 223a) ... 54

Submarginal vein of fore wing with knob distinctly remote from fore margin of wing (e.g. Fig. 200a) ... 55

54(53) T2 evenly costate-striate anteriorly, without distinct pits (Fig. 83); A10 of male antenna large, ovoid, about twice as long as A9 (Fig. 150); Holarctic (♂ see couplet 28) ... PSEUDAPHANOMERUS Szélenyi ♂

T2 with 2 pits and fan of striae originating from them (Fig. 22); A10 of male antenna not longer than A9 (female antenna with 5- to 6-segmented non-abrupt clava); worldwide except for Paleartic region ... ALLOSTEMMA gen.nov. ♂ ♂ (part)

55(53) Scutellum with posterolateral corners angular and often sharply projecting, subquadrate or inversely trapezoidal between lateral keels (to be viewed from in front) (Fig. 19); T1 of female often with hump or horn, sometimes reaching over head (Figs. 17, 21); worldwide ... INOSTEMA Haliday ♂ ♂

Scutellum with posterolateral corners not angular and not projecting, broadly semicircular between lateral keels (Figs. 9, 16, 43, 76); T1 of female without hump or horn ... 56

56(55) Submarginal vein of fore wing with knob slightly downcurved (Fig. 190a); female metasoma with 6 visible tergites; body more or less depressed dorsoventrally (Fig. 10); anteclypeus huge, deeply concave (Fig. 11); worldwide except in New Zealand ... ACEROTELLA Masner ♂ ♂

Submarginal vein of fore wing with knob straight or slightly upcurved (e.g. Fig. 203); female metasoma with 3 visible tergites (Isostatus and Rao); body moderately to considerably arched; anteclypeus short ... 57

57(56) Metasoma squat, about as long as wide (cf. Fig. 76); epicnemium well developed; male antenna with A9 and A10 closely approximated, without constriction; Australia ... ALFREDIELLA gen.nov. ♂ (part)

Metasoma distinctly elongate (Figs. 16, 43); epicnemium absent; male antenna with A9 and A10 separate by distinct constriction ... 58
58(57) OOL subequal to or longer than LOL (Fig. 43); metanotum nonfoveolate (Fig. 252); A7–A10 of female antenna not flattened ventrally; tarsomere 5 of all legs not particularly incrassate; eye hairy; worldwide ................................................. *ISOSTASIS* Foerster ♂ ♀

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OOL distinctly shorter than LOL (Fig. 16); metanotum foveolate (Fig. 16); A7–A10 of female antenna distinctly flattened ventrally (Fig. 123); tarsomere 5 of all legs incrassate (Fig. 13); eye glabrous; Australia .................................................. *RAOG* gen. nov. ♂ ♀

**KEY TO GENERA IN AMERICA NORTH OF MEXICO**

1 Wings vestigial or absent .......................................................... 2

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Wings well developed ................................................................. 4

2(1) T1 fused with T2 and S1 with S2, without sutures between them (Figs. 73, 74, 256); antennal clava of both sexes subcompact, 4-segmented (Figs. 140, 141); propodeum with posterolateral corners spike-like (Fig. 73); body orange ............ *Parabaeus* Kieffer ♂ ♀

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T1 separate from T2 by suture, also S1 from S2 (cf. Fig. 64); antennal clava of both sexes clearly 3-segmented (cf. Fig. 156); propodeum with posterolateral corners unarmed; body melanic or yellowish ........................................ 3

3(2) T2 with longitudinal keels or striae anteromedially (cf. Fig. 58); OOL subequal to LOL; body yellowish ........................................ *Neobia* gen. nov. ♀

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T2 without keels or striae anteromedially, with 2 pits or hairy depression(s) (cf. Fig. 54); OOL distinctly shorter than LOL; body melanic ............ *Fidiobia* Ashmead ♀ ♀ (part)

4(1) Fore wing at most with rudiment of submarginal vein (Fig. 213a); (antennal formula 8-10 [Figs. 180, 181]; body rather squat and depressed dorsoventrally [Fig. 92]) .............

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Fore wing with shorter or longer tubular submarginal vein terminating in knob (Figs. 190a, 194a, 200a, 202a, 211a, 212a); (other characters varied) ............... 5

5(4) Tarsi 4-segmented; (antennal formula 8-10 [Figs. 137, 138]; scutellum with large deep depression anteromedially [Fig. 24]; T1 often lighter than rest of body) ............. *Iphitarchelus* Walker ♂ ♀

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Tarsi 5-segmented; (other characters varied) ............... 6

6(5) Antennal clava either subcompact, 4-segmented (Figs. 147, 148), or compact, 1-segmented (Figs. 146, 149), hence antenna appearing only 7- to 8-segmented if clava counted as 1 segment ........................................ 7

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Antennal clava either clearly 3-segmented (Figs. 131, 156), or, if 4-segmented, then not subcompact (Figs. 111, 135), rarely 5-segmented (Fig. 110), or antenna generally not clavate, filiform (most ♂ ♀) and always distinctly 9- to 10-segmented ..... 9

7(6) Scutellum distinctly foveolate anterior to scutellar rim (Fig. 83); mesosoma rather flattened dorsoventrally (Fig. 84); (female antenna appearing 7-segmented [Fig. 149]) (♂ see couplet 16) ........................................ *Pseudaphanotus* Szelenyi ♀

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Scutellum nonfoveolate anterior to scutellar rim but with 2 oval depressions posterolaterally (Figs. 81, 86); mesosoma not flattened dorsoventrally (Figs. 82, 85) ........... 8

8(7) Antennal clava subcompact, 4-segmented (♂ ♀) (Figs. 147, 148); scutellum not pointed posteromedially (Fig. 85); metanotum nonfoveolate (Fig. 86) .... *Tetrabaenus* Kieffer ♂ ♀

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Antennal clava compact, 1-segmented (♂ ♀ unknown) (Fig. 146); scutellum produced into minute point posteromedially (Fig. 82); metanotum foveolate (Fig. 81) .................. *Calomerella* gen. nov. ♂ ♀

9(6) Check distinctly fan-like striate (Figs. 33, 235) ................................ 10

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Check not striate ................................................................. 11

10(9) Frons with strong central keel (Fig. 235); RS + M of fore wing not developed (Fig. 198a); antennal formula 9-10 (Figs. 131, 132); metanotum foveolate (Fig. 35) .......... *Orseta* gen. nov. ♂ ♀

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Frons without central keel; RS + M of fore wing usually as nebulous vein (Figs. 194a, 195a); antennal formula 10-10 (Figs. 113, 114); metanotum nonfoveolate (Fig. 32) ................. *Metactis* Foerster ♀ ♀

11(9) OOL subequal to or longer than LOL (Figs. 43, 100) .................. 12
OOL shorter than LOL (Figs. 9, 19, 102) .................................................. 13

12(11) Fore wing with short marginal cilia (Figs. 203a); female metasoma with 3 visible tergites (Fig. 44); female antennal clava non-abrupt, 4- to 5-segmented (Fig. 111) .......................... Isoostasis Foerster ♀♂

Fore wing with very long marginal cilia (Fig. 230a); female metasoma with 6 visible tergites (Fig. 100); female antennal clava rather abrupt, 2- to 3-segmented (Fig. 142) .......................... Acerotella Kozlov and Masner ♀♂

13(11) Antenna 9-segmented in both sexes ........................................... 14

Antenna 10-segmented in both sexes ................................................... 15

14(13) Submarginal vein of fore wing surpassing basal 0.33 of wing length (Fig. 228a); notaule not developed (Fig. 102); propodeum medially with single keel, without foamy structures dorsally (Fig. 102); mandibles scissor-like clasped .......... Allotropa Foerster ♀♂

Submarginal vein of fore wing not surpassing 0.33 of wing length (Fig. 212a); notaule abbreviata, broadened posteriorly (Fig. 54); propodeum medially with 2 keels, often with foamy structures dorsally (Fig. 54); mandibles clasped normally .......................... Fidiobia Ashmead ♀♂ (part)

15(13) Submarginal vein of fore wing with knob almost touching fore margin of wing (Fig. 223a) .................................................. 16

Submarginal vein of fore wing with knob distinctly remote from fore margin of wing (Figs. 190a, 209a. 209a, 211a) .................................................. 17

16(15) T2 evenly costate-striate anteriorly, without distinct pits (Fig. 83); A10 large, ovoid, about twice as long as A9 (Fig. 150) (♀ see couplet 7) .... Pseudaphanomerus Szelényi ♀

T2 anterolaterally with 2 pits and fan of striae originating from them (Fig. 22); A10 of male antenna not distinctly longer than A9; (female antenna with non-abrupt 5-segmented clava [Fig. 110]) .......................... Allostemma gen.nov. ♀♂

17(15) Scutellum suture with series of foveolae (Fig. 19) or with 2 large scutellum xilxal pits (Fig. 9); A8 and A9 of female clava each with single sensillum (Figs. 108, 135) ............... 18

Scutellum suture simple, scutellum xilxal pits minute or strongly reduced (Figs. 52, 59); A8 and A9 of female clava each with 2 sensilla (Figs. 151, 156) ......................... 19

18(17) Scutellum rounded posteriorly, with posterolateral corners not projecting (Fig. 9), with 2 large scutellum xilxal pits (Fig. 9); submarginal vein of fore wing with knob slightly down-curved (Fig. 190a); clypeus large and broad (Fig. 11); fore spur pectinate and shortly bifurcate apically (Fig. 12); T1 of female without hump or horn (Fig. 10) ........................................... Acerotella Masner ♀♂

Scutellum truncate posteriorly, with posterolateral corners acute and often projecting (Fig. 19), with scutellum suture composed of foveolae (Fig. 19); submarginal vein of fore wing with knob straight (Fig. 200a); clypeus small; fore spur not pectinate, trifid apically; T1 of female often with hump (Fig. 17) or horn (Fig. 21) .......... Inostemma Haliday ♀♂

19(17) Notauli percurrent, linear and subparallel (Fig. 59) ................. Platyssusius Nixon ♀♂

Notauli not developed (Fig. 52) ........................................... Fidiobia Ashmead ♀♂ (part)

GENERIC DIAGNOSES AND DESCRIPTIONS

Acerotella Masner

Figs. 9(dv), 10(lv), 11(cl), 12(fs), 108(a♀), 109(a♂), 190a(fw), 190b(hw)


Diagnosis (♀♂). Moderately elongate, melanic members with body rather depressed dorsoventrally; occipital pit present; clypeus large, concave, and very broad, distinctly wider than distance between outer rims of toruli; scutellum flattened, almost semicircular, with 2 large scutellum xilxal pits anterolaterally, and with scutellum rim rounded, nonangular posterolaterally; felt fields on S2 not developed; apex of T6 of females of most species rounded.
Description (♀ ♂). Head from above wider than long, subellipsoidal; vertex rounded; occipital carina strong, complete; occipital pit usually well developed; temples long, strongly reeding behind eyes; posterior ocellus distant from inner orbit at most by 1d; OOL.< interruption; eyes with minute hairs; head in lateral view subglobular, with malar sulcus not developed and cheeks not striate; head from in front with clypeus large and very broad, distinctly wider than outer rims of toruli, deeply concave, with upper margin rim-like projecting; mandibles bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; in female clava either not abrupt or abruptly 3-segmented, ovoid, and almost sub-compact, with A5 and A6 very minute; sensillar formula 1-1-1, rarely 1-1; in male antenna thread-like, with A3 and A4 subequal in length and A4 with longitudinal carina; scape in both sexes without distinct lamellae apically.

Mesosoma distinctly wider than high; pronotal shoulders narrow; mesoscutum slightly to distinctly flattened dorsally; notauli either percurrent and often dilated posteriorly, or abbreviated posteriorly or entirely absent; scutellum flattened, almost semicircular, with lateral keels fused, with 2 large scutellaxillar pits anterolaterally and with posterior margin well defined, rounded, often crenulate; metanotum not foveolate, with dorsellum usually overlapped by posterior rim of scutellum; propodeum medially with 2 short, glabrous, parallel keels, hairy at sides; pronotal groove moderately deep, rather narrow, glabrous; epicnemium not developed; sternaulus usually absent, rarely developed; mesopleuron with deep, triangular depression; metapleuron and sides of propodeum hairy; no brachypterous or apterous forms known; fore wing with tubular submarginal vein not surpassing basal 1/3 of wing length, knob rounded and gently downcurved, other veins indicated at most as spectral veins; marginal cilia in fore wing very short; hind wing with short stem of tubular submarginal vein and with marginal cilia slightly longer than in fore wing; legs slender, with tibial spur formula 1-2-2 and with fore spur pectinate, shortly bifurcate apically; tarsal formula 5-5-5.

Metasoma distinctly elongate, rather depressed dorsoventrally, wider than high, in female at least as long as head and mesosoma combined, with 6 visible tergites, in male with 8 visible tergites; T1 in both sexes moderately transverse, with few striae medially, in female without horn or hump; T6 in female usually elongate and almost truncate apically, rarely broadly triangular and almost pointed; T2 in both sexes with short striae or a transverse pit or median sulcus at anterior margin; felt fields on S2 not developed; metasoma with sharp edges, with broad lat 2 about 1/2 width of T2.

Recognition and Relationships. Some American authors (see Remarks, below) misinterpreted Inostemma species, the females of which have no horn on T1, for members of Acerotella. Acerotella can be distinguished from Inostemma in both sexes easily by combination of following character states, viz. downcurved knob of submarginal vein of fore wing, scutellar rim rounded and nonangular posterolaterally, and T6 of females in most species distinctly rounded. The pectinate-bifurcate fore tibial spur, the broad, deep clypeus, the well-developed occipital pit, and the absence of felt fields on S2 indicate a possible relationship of Acerotella with Iphitracelus. Masner (1980b) recognized 3 species-groups within the genus, viz. aceris, boter, and evanescens.

Remarks. The name Acerotella, originally described without included species (Foerster 1856), was misinterpreted by American authors (Ashmead 1887, 1893; Fouts 1925; Muesebeck and Walkley 1951, etc.). Masner (1964b) pointed out that Acerota caryae Ashmead, designated as the type species by Muesebeck and Walkley (1951), belongs to Inostemma and proposed the new name Acerotella.

Distribution. Specimens were examined from all biogeographic regions except New Zealand.
Biology. No published host data are available but H.J. Vlug (personal communication) reared 1 European species from an unidentified gall midge (Cecidomyiidae).


Species described since Kieffer (1926).
- acerina Masner 1980b, Canada, USA
- aceris Masner 1980b, Canada
- depressa Masner 1980b, USA
- gudeii Masner 1980b, USA
- humilis (Kieffer) 1913, Germany (not recorded in Kieffer [1926])
- hungarica (Szelényi) 1938a, Hungary
- nearctica Masner 1980b, Canada, USA
- oblongisubcostaliscepis (Szábo) 1981, Hungary — comb. nov. from Acerota auct.
- silvicola (Szábo) 1981, Hungary — comb. nov. from Acerota auct.
- vockerothi Masner. 1980b. Canada

**ACEROTETTA KOZLOV AND MASNER**

Figs. 100(dv), 101(lv), 142(a-2), 143(a-4), 230a(fw), 230b(hw), 254(dv)


Diagnosis. (♀♂). Gracile, minute members with abundant pilosity on body; posterior ocellus distinctly remote from inner orbit and OOL large; eye positioned very low on head and malar space very short; clypeus wide; 1 or 2 clavomeres of female antenna curved apically; male antenna slightly and gradually thickened toward apex; fore wing long with very long marginal cilia; propodeum with V-shaped median keel.

Description. (♀♂). Head from above wider than long, subellipsoidal; vertex rounded; occipital carina complete, noncrenulate; occipital pit not developed; temples rather long, receding behind eyes; posterior ocellus distinctly remote from inner orbit by several diameters (3-4d); OOL in most species longer than or subequal to LOL, in 1 Ethiopian species slightly shorter than LOL; eyes with few scattered hairs, eyes positioned rather low on head, causing both larger OOL and extremely short malar space; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, but very broad, distinctly wider than outer rims of toruli, with anterior margin slightly projecting; mandibles rather long, bidentate, clasped normally; palp formula 2-1; antennal formula 10-10; in female with moderately abrupt, 2- to 4-segmented clava, A9 and A10 in most species protruding ventrally; sensillar formula 1-1 or 1-1-1; male antenna only slightly and gradually increscatoe toward apex, without distinct clava, A4 with keel ventrally; scape in both sexes not carinate, with no lamellae apically.

Mesosoma about as high as wide; pronotal shoulders moderately visible in dorsal view, nonangular; mesoscutum evenly convex; notauli reduced, at most indicated as very short V-shaped impressions posteriorly; admedian lines close to each other, pit-like; scutellar suture finely foveolate (foveolae obscured by pilosity in some species) or foveolae reduced and very close to transcutal suture; axillae reduced; scutellum rather convex, semicircular, with 2 deep oval converging depressions posterolaterally causing postero-medial part of scutellum to appear keel-like, compressed; lateral keels of scutellum fused, developed in anterior 1/2 and posterior margin of scutellum with narrow, fine rim; metanotum not foveolate, with dorsellum defined as 2 short, prominent parallel keels; propodeum rather long, densely hairy, with glabrous median keels either wedge-like confluent posteriorly or running subparallel and nucha rather distinct, costate; pronotal groove deep,
with sparse pilosity; epicnemium not developed; sternaulus not developed; mesopleural depression almost nonexistent, medially with arched sulcus sloping toward anteroventral corner of pleuron; acetabular carina rather fine but distinct and precoxal carina as fine flange; metapleuron and sides of propodeum hairy; no brachypterous or apterus forms known; fore wing very long and slender, with tubular submarginal vein and subtruncated knob not reaching basal 1/3 of wing length; M + Cu, Cu, and RS present as spectral veins; marginal cilia in fore wing very long, about 1/4 wing width; hind wing with short tubular stem of submarginal vein, with 4-5 short hairs, marginal cilia distinctly longer than width of hind wing; legs long and slender, with tibial spur formula 1-1-1 and with fore spur trifid; tarsal formula 5-5-5.

Metasoma rather short but elongate-ovoid, convex, only slightly wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes slightly transverse, with longitudinal costae medially, hairy at sides, in female without horn; T2 in both sexes with abundant pilosity anteriorly, with no distinct pits or striae; metasoma with rather blunt edges; felt field on S2 rather distinct; Lt2 about 1/5 width of T2.

Recognition and Relationships. Kozlov (1977) compared Aceroteta with Acerotella but we (L,M.) believe that Aceroteta is more closely related to Isostasisius, mainly because of similar cephalic structures (clypeus, OOL), similar shapes of scutellum and propodeum, and because of the nonpectinate fore tibial spur. The curved clavomeres of the female antenna in Aceroteta superficially resemble conditions of some members of the genus Allotropa but this is most probably due to convergence.

Distribution. Specimens were examined from major geographic regions except for Chile and New Zealand. Aceroteta is in all probability worldwide in distribution but its minute members may have been overlooked by most students.

Biology. Host and habits are unknown.

Species described since Kieffer (1926).

borealis Kozlov and Masner 1977, USSR (Karelia), Canada

AFRISOLIA GEN. NOV.

Figs. 68(dv), 69(1v), 162(a-2), 210(a-fw), 210b(hw).

Type species: Afrisolia obesa sp. nov. (described below), by present designation.

Diagnosis (♀). Robust, stocky species, rather flattened dorsally; notauli broad, abbreviate anteriorly, with deeply incised margins but with median part at same level as mesoscutum; fore wing very broad, with short submarginal vein, with specialized microtrichia and no marginal cilia; metasoma broadly trapezoidal and with rather wide laterotergites.

Description (♀). Head from above strongly transverse, much wider than long, almost lens-like; vertex acute particularly between posterior ocelli; occipital carina noncrenulate, developed medially, absent laterally; occipital pit not developed; temples strongly reduced and receding behind eyes; posterior ocellus remote from inner orbit at least by 2d; OOL only slightly shorter than LOL; eyes large, appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus minute, subtriangular, slightly concave, distinctly narrower than outer rims of toruli, with anterior margin rim-like projecting, anteclypeus large, oval, only slightly shorter than wide, lower frons without transverse carina above antennal insertions; interantennal process between toruli sharp and short; mandibles short and very broad, bidentate, with lower edge upcurved apically, clasped normally; palpal formula 2-1; female antenna 10-segmented, with massive, abrupt, 3-segmented clava; sensillar formula 1-2-2; sensilla deeply embedded; scape carinate with moderate lamella apically.

Mesosoma short and squat, distinctly wider than high, subrectangular; pronotal shoulders well developed dorsally, subangular, cervical part not projecting; mesoscutum short
and broad, with distinct anterior notaular pits, rather flattened; admedian lines indicated anteriorly as 2 pits; notauli not crenulate, abbreviate anteriorly (with only notaular pits left), broad and with deeply incised margins but median part of notauli at same level as mesoscutum; scutellar suture and axillae completely reduced and pushed forward, close to transcutal suture; scutellum rather flattened, broadly subrectangular, with deep, non-crenulate transcutal suture, and laterally with completely fused lateral keels, with posterior margin (rim) not differentiated; metanotum not foveolate, with dorsellum weakly defined; propodeum with foamy structures posteriorly and posterolaterally, with weakly defined median keels formed by foamy structures; propodeal nucha very small but distinct; prontal groove deep but narrow; epicnemium not developed; sternaus strong; mesopleural depression deep, almost horseshoe-shaped; metapleuron and sides of propodeum hairy, metapleural pit very deep; no brachypterous or apterous forms known; fore wing broad, with short, tubular submarginal vein with rounded knob reaching only 1/7 wing length; spectral veins present; marginal cilia not developed, microtrichia on disc transformed into minute spiculae; hind wing stipitate basally, with short tubular stem of submarginal vein, with very short marginal cilia and microtrichia similar to those on fore wing; legs rather short, with tibial spur formula 1-2-2, with fore spur combed; tarsal formula 5-5-5.

Metasoma short and broad, subessatile, somewhat depressed dorsoventrally, much wider than high; in female with 6 visible tergites; T1 in female without horn, strongly transverse-trapezoidal, noncostate, without pits but hairy anteriorly; T2 glabrous, with no pits and no striae except for 2 very short and wide depressions along anterior margin; felt fields on S2 not developed; apex of metasoma in female broadly triangular; metasoma with sharp edges, with lt2 about 1/3 width of T2.

**Recognition and Relationships.** This genus is related to Isolita and Pulchrissolita but considered to represent a more plesiomorphic clade than the latter 2 genera. The submarginal vein in the fore wing of Afrisolita is still well developed but severely shortened in Pulchrissolita and absent in Isolita. Afrisolita has very peculiar wide notauli that are level with the mesoscutal surface and surrounded by deep grooves, a character state truly unique among all genera studied by us. We classify Afrisolita in the cluster of genera comprising Isolita, Pulchrissolita, and Sceliotrichelidae because of the following shared derived character states: the combed fore tibial spur, the specialized microtrichia on the wing disc, the wide lt2, the position of the ocelli with OOL subequal to LOL, and loss of felt fields on S2.

**Etymology.** The prefix Afro- refers to the known distribution of this genus.

**Distribution.** South Africa.

**Biology.** Hosts and habits not known.

**Species described since Kieffer (1926).**

*obesa* Masner and Huggert, present description, South Africa

**Afrisolita obesa sp. nov.**

Figs. 68(dv), 69(iv), 162(a-?), 210a(fw), 210b(hw)

**Diagnosis** (*♀*). Stout, squat species with blackish head and mesosoma and brown metasoma; body smooth and shining, with delicate reticulation; notauli at same level with mesoscutum, surrounded by deep grooves; median foamy keels of propodeum widely apart, with 3 slight elevations or abbreviated costae between them; fore wing broad, with microtrichia on disc transformed in bulbous spiculae, no marginal cilia and short, strong submarginal vein.

**Description. Female.** Length 0.95 mm. Body blackish to dark brown, with metasoma brown, appendages and mandibles yellow; wings somewhat infuscate.

Head in dorsal view strongly transverse (16:39), lens-like, with frons only gently arched; temples straight, strongly receding toward occipital carina; POL:LOL:OOL =
13:5:4; A1 distinctly shorter than interorbital space (16:22); eyes with minute hairs and hairs on head slightly longer; head with delicate alutaceous reticulation, also behind sharp vertexal crest; head in lateral view twice as high as long (16:32), with lower frons rather straight, vertex acute and toruli hardly protruding; eyes oval (13:18) and upper part of gena almost disappearing behind eye; edge of gena not crenulate or particularly sharp and malar space shorter than eye height (11:18); head from in front wider than high (39:32), subtriangular, with vertex and cheeks rather straight, mouth very small, with interorbital space larger than eye height (22:18); frons evenly covered with delicate reticulation, with no particular wrinkles at toruli and with minute hairs all over.

Antenna (Fig. 162) with A1 to radicle as 16:3, A1 with distinct reticulation; antennomeres in proportions: 16:5.5; 5.5:2.5; 2.2; 1.5:2; 2:2; 2:2.5; 2:3; 5:5.5; 4:5.5.5; 7:4.5.

Mesosoma distinctly wider than high (36:25), subrectangular, only moderately convex dorsally; pronotum and mesoscutum, except for smooth area between notauli, with delicate reticulation and some areas with scattered minute hairs; anteromediadly on pronotum with small tuft of longer hairs; scutellum smooth, with some minute hairs especially posteriorly and much wider than long (28:10); posterior margin of scutellum somewhat semihyaline, projecting over part of short dorsellum; dorsellum about 7 x wider than long, with short lateral keels, smooth in between; suture separating metanotum from propodeum not raised, only as fine line; foamy median keels of propodeum wide apart, subtriangular and between them with 3 smooth areas; lateral foamy edges of propodeum bent up like flanges; propodeal nucha smooth; narrow pronotal groove only with few hairs, more hairy in lowermost corner; sculpture on pronotum more distinct than on mesoscutum and pronotum with scattered hairs anterodorsally; mesopleuron smooth but with pronounced longitudinal wrinkles below sternaus and some costae in posterdorsal third; acetabular and postpectal carinae delicate; metapleuron with rather dense, long hairs except for around depression and dorsal and posterior edge forming wide foamy area.

Fore wing clearly surpassing tip of metasoma, very broad (85:42), without marginal cilia, with extremely short pointed microtrichia with bulbous base; M + Cu, R1 + M, R2, R3, and Cu indicated as spectral veins; hind wing (65:14) with distinct marginal cilia only basally and stem of submarginal vein with 3 hairs.

Metasoma subequal to rest of body in length (45:50), wider than high (39:20); T1 broadly trapezoidal (8:38), with very short, narrow rim-like neck anteromediaally and behind it with very shallow, wide depression ending laterally in blunt knobs more or less covered with grey pilosity; T2 distinctly wider than long (39:22); T3-T6 short, with 1 row of minute hairs each and some delicate transverse reticulation; S1 anteriorly with foamy patch and behind it hairy.

Male. Unknown.

Etymology. The name is the Latin adjective obesus (stout or chubby). It refers to the habitus of this species.

Material Examined. Holotype: 1 ♀, South Africa, Grahamstown, 24 June, 1955 (E.McC. Callan) [BMNH].

Biology. Unknown.

**Aleyroctonus gen. nov.**

Figs. 71(dv), 72(dv), 175(a ♂), 176(a ♀), 217(at), 217(hw), 233(dv), 234(dv)

Type species: *Aleyroctonus pilatus* sp. nov. (described below), by present designation.

Diagnosis (♀ ♂). Short, stocky species, with abundant pilosity on body; eye large, densely hairy; cheek strongly striate; clypeus projecting anteromediaally over mandibles into sharp spine; antennal formula 8–8, antenna with compact clava (fused A8–A10); claws equal.
**Description**. Head from above clearly transverse; vertex rounded but occiput very precipitous and partly concave; occipital carina weakly defined, incomplete, located very close to foramen magnum; occipital pit not developed; temples extremely short; head strongly receding behind eyes; posterior ocellus only 0.25d distant from inner orbit; OOL < LOL; eyes large, bulging, with dense, long hairs; head in lateral view with malar sulcus obscured by strong, fan-like striae on cheeks; head from in front with clypeus small, distinctly narrower than outer rims of toruli, projecting anteromedially over mandibles into sharp spine or truncation; mandibles extremely short, bidentate, clasped normally; palpal formula 1-1; antennal formula 8-8; in female with massive compact, ovoid clava (A8–A10), A7 also distinctly incrasate but separate from clava, without sensillum; sensillar formula 1-2-2; male antenna with clava (A8–A10) more slender, less abrupt, A4 slightly curved, remarkably longer than A3, with strong carina ventrally; scape in both sexes delicately carinate apically.

Mesosoma broad, short, clearly wider than high; pronotal shoulders moderately developed dorsally, nonangular; mesoscutum only slightly convex; notauli precurrent, sharply incised, not crenulate and not broadened posteriorly, diverging at posterior tips, anterior notaular pits deep; scutellum pillow-shaped, broadly elevated, with noncrenulate scutellar suture, with deep transcutal suture, with lateral keels strongly reduced, each interrupted medially, and with lateral margin forming shallow groove reaching large axillae; groove absent posteromedially; metanotum not foveolate with dorsellum weakly defined, and squeezed between postmedian margin of scutellum and midpropodeum; propodeum densely hairy, with no foamy structures, with 3 short, glabrous, median keels; pronotal groove very narrow, sparsely hairy; epicnemium not developed; sternaulus not developed; mesopleural depression with deep, angular, median sulcus ending on both sides in deep pits, metapleuron and sides of propodeum hairy; no brachypterous or apterous forms known; fore wing with straight, tubular submarginal vein and subtruncate knob reaching slightly over basal 1/3 of wing length and submarginal vein rather far from fore wing margin; M + Cu, RS + M, and M as nebulous veins; marginal cilia in fore wing short; hind wing with short stem of submarginal vein not clearly defined and with marginal cilia longer than in fore wing; legs not especially short but sturdy, tarsi in particular, tibial spur formula 1-2-2, with fore spur bifid and tarsal formula 5-5-5, tarsomeres strong, claws equal.

Mesosoma short, stocky, rather depressed dorsoventrally, much wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes strongly transverse-trapezoidal, densely hairy, with short keel anteromedially, in female without horn; T2 in both sexes with 2 shallow, transverse, hairy pits anteriorly, not striate anteromedially, felt fields on S2 delicate; metasoma with sharp edges, with lst2 about 1/5 width of T2.

**Recognition and Relationships.** Aleyroctonus is morphologically similar to Aphanomerus, mainly because of the formation of the solid antenial clava, venation of the fore wing (with submarginal vein rather remote from fore margin), structure of the propodeum and metasoma, as well as the general habitus. However, it differs from Aphanomerus principally by the very apomorphic structure of the clypeus, striate cheeks and densely hairy eyes, and also by details in the structure of the antenial clava and the sensillar formula in female. It is difficult to decide whether the sharp projection below the toruli is actually a part of clypeus or an interantennal process covering the clypeus; no sutures are visible ventral of the toruli. Aleyroctonus differs from Aphanomerus also in choice of hosts but is in this respect similar to Amitus, from which it is rather distant taxonomically.

**Etymology.** The prefix Aleyro- refers to the known host, and etonos (Greek) meaning to kill.

**Distribution.** Specimens were examined from the Oriental (Java, Sumatra, Malaya) and Australian (tropical Queensland) regions.
Biology. One species was reared from the Aleyrodidae.

Species described since Kieffer (1926).

* pilatus Masner and Huggett, present description, Java, Sumatra, Malaya

**Aleyroctonus pilatus sp. nov.**

Figs. 71(dv), 72(lv), 175(a, b), 176(a, c), 217(a, b, f, w), 217b(hw) 233(dv), 234(dv)

**Diagnosis** (♀♂). Short squat species with very hairy eyes; cheeks distinctly fan-like striate; clavate antenna with A4 very long in female; notauli sharply incised, slightly diverging at extreme posterior tips; scutellum elevated, with weakly defined posterolateral margin and deep scutellaxillar pits; wings large.

**Description. Female.** Length 1.18 mm. Body blackish, with head darkest, with light yellow appendages and mandibles; wings hyaline.

Head in dorsal view about twice as wide as long (23:44); eyes large and shortest width of frons (dorsal view) slightly shorter than length of eye (19:22); frons almost straight and occiput slightly concave; seen more from behind vertex almost precipitous and partly smooth; POL:LOL:OOL = 11:7:0.25; scape longer than interorbital space (23:19); head and eyes covered with rather long, dense pilosity except for vertical smooth area on occiput; vertex with rough thimble-like punctures; head in lateral view subtriangular, higher than long (37:23); toruli hardly projecting and frons straight; eyes broadly almond-shaped, slightly higher than long (23:20), with posteroventral margin straight and upper part of gena almost continuous with eye margin; median part of gena with rather distinct edge and inconspicuous crenulae; malar space clearly shorter than height of eye (13:23); head from in front subtriangular, wider than high (44:37), with vertex and cheeks rather straight but mandibular condyle clearly arched, thus lower part of head rather blunt, although mouth very small; interorbital space shorter than eye height (19:23); lower 2/3 of frons glabrous medially; otherwise head with conspicuous white hairs and pronounced sculpture; frons with rather distinct median carina almost reaching anterior ocellus and with irregular, transverse wrinkles forming concentric circles around toruli.

Antenna (Fig. 175) with A1 to radicle as 23:4; antenomeres in proportions: 23:5.5; 10:3.5; 4:3; 3:3.5; 2.5:3.5; 2.5:4.5; 3.5:6; 15:7.

Mesosoma clearly wider than high (48:40), only somewhat convex dorsally; admedian pits on mesoscutum inconspicuous and parapsidal lines hardly indicated; mesoscutum coriaceous, with punctures less so at posterior edge of midlobe; scutellum finely coriaceous in anterior half, smooth in posterior half; mesoscutum and scutellum with rather dense, long pilosity; scutellar suture medially as narrow deep groove, widened laterally to form deep scutellaxillar pits, axillae fairly large, subvertical; anterior part of lateral keels as short, sharp edge, separated from weakly defined posterior part; posterolateral margin of scutellum with at most fine depression and no deep, hairy groove reaching axillae; dorso- sternum only as very narrow, smooth strip with slightly irregular surface; muncia rather large, distinctly costate, pronotum rather densely hairy, especially upper half; prepectus not developed but along posterior margin of pronotum with edge of shallow depression, almost reaching spiracle; mesopleuron forming 2 bulging, smooth areas on either side of mesopleural depression, upper area subdivided by oblique, shallow groove; acetabular and postpectal carinae distinct; metapleuron in upper half subdivided by rather deep, transverse groove.

Fore wing much surpassing tip of metasoma, large and broad (110:50); with M + Cu, RS + M, and M indicated as nebulous veins and same veins plus RS and Cu also as spectral veins; wings densely hairy all over, except for along M + Cu and above frenal gutter; hind wing (85:18) with marginal cilia 1/5 wing width and stem of submarginal vein with 3–4 hairs; legs very hairy, with basitarsi strong, tarsi tapering apically and coxae rather small.
Metasoma subequal to mesosoma in length, about as long as broad, subcircular, much wider than high; T1 transverse-trapezoidal (6:36), with short anteromedian rim and some short, distinct costae; T2 transverse (33:47), with 2 almost contiguous, short, transverse rows covered with dense, short pilosity, also with some pilosity anterolaterally on T2; following tergites forming blunt apex, shorter than wide (15:42); T3-T6 with rather dense pilosity.

**Male.** Basically identical to female except for apex of metasoma being more obtuse and the different antenna; A1 more slender and A4 very long, gently curved, with sharp edge along ventral side; antenna (Fig. 176) with A1 to radicile as 24:3; antennomeres in proportions: 24:4.5; 9:3; 4:3; 10:4; 3:3; 3.5:3.5; 3.5:3.5; 15:4.

**Etymology.** From *pilatus* (Latin, hairy), here referring to the hairy body, especially the eyes.

**Material Examined.** Holotype: ♀, Indonesia, Sumatra, Serapoh, March 1939, lot No. 39-11815, ex *Aleurodicus destructor* (R. Awibowo) [USNM]; Paratypes (all from Indonesia): 2 ♀♂, with same data as in holotype; ♀, Java, Bawean Is., July 1939, lot No. 39-10208, ex *Aleurodicus destructor* (R. Awibowo); 13 ♀♂, 5 ♀♂, Java, Buitenzorg, September 1934, lot No. 39-11815, ex *Aleurodicus destructor* (R. Awibowo) [USNM, CNC, HUGG]; 12 ♀♂, Malaya, Kuala Lumpur, 24 August, 1931, ex *Aleurodicus destructor*, CI Entom. Div. 7914 [BMNH].

**Recognition and Relationships.** No substantial variation was observed among the specimens examined. Some smaller individuals show generally finer sculpture and in some the edge on the vertex, delimiting the smooth occipital area, is sharper.

**Biology.** Several host records show *Aleurodicus destructor* Mackie (*Aleyrodidae*) as the host in Java and Sumatra.

**ALFREDELLA GEN. NOV.**

Type species: *Alfredella tasmanica* sp. nov. (described below), by present designation.

**Diagnosis (♀♂).** Short, squat, melanic members; antennal clava of female slender, cylindrical, 5-segmented of which A8–A10 is compact, with sensillar formula 1-2-2-1, male antenna with A6–A10 slightly incrassate and A9 almost fused with A10; fore wing long, widely overlapping apex of metasoma, with tubular submarginal vein; epicnemium well developed; tibial spur formula 1-2-2; metasoma short, squat, only slightly longer than wide; T1 narrowly trapezoidal, almost subtriangular, with sides strongly converging anteriorly.

**Description (♀♂).** Head from above transverse, subrectangular; vertex rounded; occipital carina delicate, situated very low on occiput, with minute crenulae; occipital pit not developed; temples rather short, strongly receding behind eyes; posterior ocellus less than 1d from inner orbit; OOL<LOL; eyes with scattered, minute hairs; head in lateral view distinctly higher than long, with malar sulcus not developed and cheeks not striate except for few subhorizontal wrinkles near mandibular base; head from in front virtually without antennal process, with clypeus flat, without raised rims; mandibles short, bidentate clasped normally; palpal formula 1-1; antennal formula 10-10; in female with nonabrupt, remarkably slender, cylindrical, 5-segmented clava of which A8–A10 form subcompact, slender piece, with sensillar formula 1-2-2-2-1; in male antenna almost thread-like, with A3 distinctly shorter than A4, latter with longitudinal carina, A6–A10 slightly incrassate, A9 and A10 as subcompact piece, without constriction in between.

Mesosoma short and stout, as high as wide; pronotal shoulders clearly visible in dorsal view; mesoscutum moderately convex; notaui widely separated, subparallel or slightly...
converging posteriorly, noncrenulate, rarely complete and slightly dilated posteriorly, usually abbreviate anteriorly and very narrow; scutellum rather convex, flattened in 1 species, broadly oval to subtriangular, distinctly wider than long, with 2 small pits posteriord of notauli and simple, noncrenulate transcutal suture; lateral keels of scutellum deeply interrupted medially, scutellum without distinct posterior rim but with deep, irregular foveolae posterolaterally, usually smooth posteromedially; metanotum not foveolate, with dorsellum entirely concealed under posterior margin of scutellum; propodeum hairy at sides, with 2 short, subparallel median keels set wide apart; pronotal groove deep; epicnemium well developed, almost reaching spiracle; sterna1us absent; mesopleural depression deep, angular, with deep sulcus directed toward anterioventral corner of mesepisternum; metapleuron with dense pilosity; no brachypterous or apterous forms known; fore wing long, with tubular submarginal vein and truncate knob clearly exceeding basal 1/3 of wing, distal part of vein slightly upcurved; RS + M, M + Cu, Cu, M, and RS indicated as nebulus veins; marginal cilia in fore wing moderately long; hind wing with short stem of tubular submarginal vein and with marginal cilia longer than in fore wing; legs normal, slender, with tibial spur formula 1-2-2 and with fore spur bifid; tarsal formula 5-5-5.

Metasoma short, squat, only slightly longer than wide, rather convex both dorsally and ventrally, wider than high; in female with 6, in male with 8 visible tergites; T1 narrowly trapezoidal, almost subtriangular, with lateral sides strongly converging anteriorly, without horn in female; T2 with narrow, transverse hairy grooves anteromedially, not striate, felt fields on S2 rather distinct; apex of metasoma in female almost obtuse; metasoma with sharp edges, with l/t2 about 1/6 width of T2.

Recognition and Relationships. Alfredella is considered related to Amius, largely because of the shared derived habitus of the more plesiomorphic clade, the presence of a relatively long, tubular submarginal vein, and the distinct knob of the fore wing. All members of Amius have the submarginal vein in the fore wing reduced to a short rudiment without knob. The 2 genera also differ in structure of the antennae in both sexes, with a slender 5-segmented clava and sensillar formula 1-2-2-2-1 in the female of Alfredella and a spine-shaped, compact clava and sensillar formula 1-2-2 in the female of Amius. The tibial spur formula 1-2-2 in Alfredella is also more plesiomorphic than 1-1-1 in Amius.

Etymology. The genus is named in honour of Alfred Newton Jr., who, along with his wife Margaret M. Thayer, collected the first species in Tasmania. The gender is feminine.

Distribution. We examined 1 described and 4 undescribed species from Australia (Tasmania, N.S.W., W. Australia) [CNC, ANIC]. The genus is most probably restricted to Australia.

Biology. The host and habits are not known. However, judging from apparent relationships and similar habitus with Amius, groups such as the white flies (Aleyrodidae) are the presumed hosts.

Species described since Kieffer (1926).

tasmanica Masner and Huggert, present description, Tasmania

Alfredella tasmanica sp.nov.

Figs. 76(dv), 77(lv), 179(a,y), 22ba(fw), 226b(hw)

Diagnosis (♀♂). Black species with light brown to orange-yellow appendages, head and dorsum of mesosoma with fine reticulate microsculpture, metasoma predominantly smooth; notauli abbreviate, predominantly smooth; notauli abbreviate anteriorly, present in posterior 2/3 of mesoscutum, narrowly incised, not broadened and running subparallel posteriorly; scutellum considerably convex, distinctly sloping down along posterior margin.
Description. Female. Length 0.90 mm. Body black, with appendages from orange-yellow to light brown. Radicle, scape, tibiae, and tarsi lighter, A2–A10 and femora darker, coxae brownish-black; wings considerably infuscate.

Head in dorsal view transverse (18:35), subrectangular; temples short, only about 1/5 eye length; POL:LOL:OOL = 15:7:1; A1 as long as interorbital space (21:21); head in lateral view higher than long (29:18), gena rather broad, and vertex rather flattened; eyes oval, higher than long (16:12); malar space shorter than eye height (10:16); head from in front slightly wider than high (35:29), inner orbits running almost parallel to one another, with broad, shallow, subcircular depressions around toruli and with 2–3 very short horizontal wrinkles below toruli near base of mandibles; frons with fine reticulation, better developed along inner orbits, almost smooth and polished in middle part below anterior ocellus.

Antenna (Fig. 179) with A1 considerably constricted and arched in basal third; A1 to radicle as 21:1; antennomeres in proportions: 21:4; 7:3; 4:2; 4:2; 4:2; 5:3.5; 5:4; 5:4; 4:4; 3:5:4.

Mesosoma only slightly wider than high (35:32), subrectangular, rather convex dorsally; pronotum, mesoscutum, and scutellum with delicate reticulate sculpture and rather dense, short, decumbent hairs; notauli narrow, sharply incised, not broadened posteriorly, abbreviate in anterior third, subparallel in course; scutellum wider than long (24:11), posterior margin of scutellum at sides with short impressed foveolae, smooth and without sculpture at meson; lateral parts of metanotum deeply excavate; apex of notauli crenulate, posterior (vertical) face of propodeum smooth; lower part of pronotum progressively less hairy, almost smooth; mesepisternum predominantly smooth and glabrous, its lower (ventral) part with delicate reticulation and short scattered hairs; sharp keel running from base of hind wings towards propodeal spiracle; metapleuron evenly and densely hairy.

Fore wing surpassing tip of metasoma by at least 1 metamodal length, wing longer than wide (90:40), with marginal cilia very short, with rather dense, short microtrichia on wing disc, with submarginal vein slightly surpassing basal 1/3 of wing (35:90), distal 1/3 of submarginal vein gently upcurved, with short, pale interruption just before knob, knob with 2 minute circles apically; hind wing narrow (70:13), with short but well defined tracheate stem of submarginal vein and with very short marginal cilia.

Metasoma clearly shorter than rest of body (40:50), only slightly longer than wide (40:34), twice as wide as high (40:20); T1 narrowly trapezoidal, transverse (6:29), shortly costate anteromedially, with fine, dense, greyish pilosity on remaining part; T2 distinctly transverse (20:34), subrectangular in shape but with anterolateral corners slightly rounded, perfectly smooth and glabrous except for short fans of striae and hairs situated in extreme anterolateral corners and with dense, fine pilosity along anterior margin, with no pits but narrow groove anteriorly; T3–T6 smooth, when combined as long as T2 (20:20), with 1 transverse row of hairs each.

Male. Differs from female in structure of antennae; antennomeres in relative proportions: 21:3.5; 6.5:3; 3.2:5; 6:3; 4:3; 5.5:3.5; 5.5:3.5; 5:3.5; 4.5:3.5; 5.5:3.

Etymology. The Latinized name refers to the presumed range of distribution of this species in Tasmania.

Material Examined. Holotype: ♀, Australia, Tasmania, Mt. Field N.P., 8–14 January, 1983, Malaise trap along Barron's Creek (L. Masner) [ANIC]; Paratypes (all from Tasmania): 7 ♀, ♂, with same data as in holotype [ANIC, CNC, HUGG]; ♀, Mt. Barrow Rd., 890 m, 15–17 November, 1980 (A. Newton, M. Thayer) [CNC]; 3 ♀, 14 km S Bronte Park, 15 January – 3 February, 1983, Malaise trap (I.D. Naumann and J.C. Cardale) [ANIC]; 3 ♀, Barrow Creek, 8 km NE Nunamara, 12 January – 6 February 1983, Malaise trap (I.D. Naumann and J.C. Cardale) [ANIC]; ♀, 6 km W Miena, 20 January 1983 (I.D. Naumann and J.C. Cardale) [ANIC]; ♀, Mt. Barrow, 11 km E Nunamara, 30 January
Biology. Host and habits are not known.

**Allostromma gen. nov.**
Figs. 22(Dv), 23(lv), 110(a?)

Type species: *Allostromma fuscum* sp. nov. (described below), by present designation.

**Diagnosis** (♀ ♂). Distinctly elongate to spindle-shaped members; head subglobose; occipital carina weakly defined; antennal clava of female 5- (rarely 6-) segmented, with sensillar formula 1-2-2-2-1 (rarely 1-2-2-2-2-2); fore wing with tubular submarginal vein terminating in distinctly forked knob; knob strongly approximated to or touching fore margin of wing; tubial spur formula 1-2-2; felt fields on S2 large, oval.

**Description** (♀ ♂). Head from above wider than long, subglobose; vertex rounded; occipital carina weakly defined, irregular in outline and with broad, smooth area behind; occipital pit not developed; temples long, strongly receding behind eyes; posterior ocellus distant from inner orbit by 1-1.5v; OOL<LOL; eyes at most with fine hairs; head in lateral view nearly globular, with malar sulcus not developed and cheeks not stratite; head from in front with clypeus short, not wider than outer rims of toruli and anteclypeus large, shiny, concave, clypeal margin rim-like projecting, with medium sized bristles; mandibles short, bidentate, clapsed normally; palp formula 2-1; antennal formula 10-10; in female with cylindrical, weakly abrupt 5- to 6-segmented clava; sensillar formula 1-2-2-2-1, 1-2-2-2-2, or 1-2-2-2-2; male antenna thread-like, with A3 about equal to A4, A4 with carina terminating in point; scape in both sexes with short, narrow carinae but no lamellae apically.

Mesosoma only slightly wider than high; pronotal shoulders moderately developed; mesoventriculum moderately arched; notauli percurrent, sharply incised, noncunulate, distinctly broadened posteriorly in some species; axillae rather large, triangular, subhorizontal and thus scutellaxillar pits rather shallow; scutellar suture deep and rather wide, strongly crenulate, with costae subdividing axillar area into pits, rarely suture noncunulate, with only 2 rather large transverse pits; scutellum rather flattened or moderately convex, semiellipsoidal to subquadrate, with fused, thin, moderately long lateral keels, sometime keels clearly divergent posterolaterally; scutellum with series of crenulae along posterior margin; metanotum with weak to distinct foveaeae, with dorsellum weakly defined; propodeum medially with 2 glabrous, subparallel median keels, hairy at sides; pronotal groove shallow, subglabrous; epicnemium variously developed; sternaulus absent or only weakly developed; mesopleural depression large and deep, subtriangular, mesepisternum with transverse striae below tegula; metapleuron and sides of propodeum hairy, and metapleuron with deep median, longitudinal groove; no brachypeterous or apertures forms known; fore wing with tubular submarginal vein terminating in large, knotty, or forked knob approximated to or touching fore margin of wing, reaching over 1/3 wing length; especially RS + M and M sometimes indicated as nebulous and spectral veins; marginal cilia in fore wing rather short; hind wing with rather long tubular stem of submarginal vein and marginal cilia slightly longer than in fore wing; legs long and slender, with tubial spur formula 1-2-2 and with forespur bifid; tarsal formula 5-5-5.

Metasoma distinctly elongate, lanceolate, strongly depressed dorsoventrally, much wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes with 2 hairy pits anterolaterally and fans of longitudinal striae originating from pits, T1 in female usually without, rarely with hump or short horn; felt fields on S2 large, oval, well developed; apex of metasoma sharply pointed in female, with T6 acutely triangular, obtuse in male; metasoma with sharp edges, with narrow laterosternite 2 about 1/7 width of T2.
Recognition and Relationships. This is probably the most plesiomorphic extant genus of the platygastine wasps, as demonstrated by the 5- to 6-segmented antennal clava in the females, the plesiomorphic sensillar formula (1-2-2-2-1 or 1-2-2-2-2-2), and the tibial spur formula 1-2-2, etc. Also, the distinctly truncate to bifurcate knob of the submarginal vein in the fore wing with rudimentary R1 and r2 illustrates the ancestral condition. In 1 undescribed Tasmanian species the R1 is briefly, but clearly, touching and then parallelly the fore margin of the wing, forming a short marginal vein, a state commonly found among scelionid wasps but not observed among other extant platygastids. *Allostemma* is related to the ancestral stock that eventually produced genera such as *Inostemma*, *Iphitchelus*, or *Saucespalus*.

Etymology. The prefix *allo-* (in Latin meaning other, different) refers to the unusual combination of character states in this interesting new genus. The gender is neuter.

Distribution. The present data indicate a near worldwide distribution. The absence of *Allostemma* in tropical lowland South America (with the large gap between Florida and Chile) is most likely due to lack of collecting. However, the absence of the genus in the better explored Palearctic region may be a real one.

Biology. Host and habits are not known.

Species described since Keiffer (1926).

*fuscum* Masner and Huggert, present description, Chile

*Allostemma fuscum* sp.nov.

Diagnosis (♀ ♂). Elongate blackish species with antennae and legs slightly lighter; head with rather long temples, occipital carina fine, irregular, with broad smooth area behind and lower frons with fine, transverse striation; female clava cylindrical, 5-segmented and with sensillar formula 1-2-2-2-2; notauii percurrent, broadened behind and midlobe slightly projecting over transeptal suture; scutellar suture strongly crenulate-costate, bordering crenulae extending forward over large axillae, dividing axillae into 3–4 pits; scutellar disc rather flat, and posterior rim broad, with distinct crenulation; head and mesosoma with distinct coriaceous reticulation; propodeal keels strongly diverging posteriorly, flat and reticulate on top; upper 1/2 of pronotum with rough sculpture and prepectus reaching halfway to spiracle; mesopleuron strongly striate above depression; metapleuron with very thick dorsal border and deep, median transverse groove; T1 medially smooth, hump-like elevated in female, and anterolateral pilose pits deep, small, and sides of T1 with strong, longitudinal striation.

Description. Female. Length 1.90 mm. Body blackish, with dark brown antennae, radicle and pedicel lighter; mandibles brown and legs lighter brown, with coxae and median part of femora and tibiae darker; wings slightly infuscate.

Head in dorsal view less than twice as wide as long (41:25); frons moderately arched and occiput very concave; eyes slightly protruding and temples about 1/2 eye length, strongly curved; POL:LOL:OOL = 15:7:4; scape barely shorter than interorbital space (23:25); head in lateral view higher than long (36:25), with vertex and frons strongly and evenly curved; interantennal process only slightly protruding and upper part of gena broad, distinctly shorter than length of eye (8:13); eye almond-shaped, higher than long (19:13) and malar space about 1/2 eye height (10:19); head from in front subcircular, wider than high (41:36), with cheeks evenly arched; head rather dull, covered all over with coriaceous sculpture most pronounced on vertex and lower frons, with fine, dense, transverse striation; head with short, rather dense pilosity, except medially on frons and lower cheeks with some longer hairs.
Antenna with A1 to radicle as 25:3; antennomes in proportions 25:6.5:9.5:4.5:6.4:5:4.5:5:5.5:6.6:6.5:6:5.5:6.5:6.5; clava 5-segmented, with sensillar formula 1-2-2-2-2-2 and scape with distinct reticulation.

Mesosoma much longer than wide (65:39); admedian pits as narrow streaks as far from each other as from notaular pits; notauli broadened posteriorly, smooth and shining and midlobe slightly projecting over transcutal suture; parapsidal lines fine; mesoscutum with distinct, conicoarceous reticulation and short, rather dense pilosity; axillae rather large, subhorizontal and scutellumaxilar pits not deep; scutellar suture with pronounced crenulation; axillae semidivided into 3–4 parts or pits; scutellum anteriorly distinctly constricted and lateral keels thus diverging posteriorly; scutellar disc subquadratic without lateral grooves at lateral keels and posterior rim broad, slightly elevated, with distict crenulae inwardly; scutellar disc with same sculpture and pilosity (though sparse medially) as mesoscutum; scutellum about 1/3 length of mesoscutum (17:35); metanotum with conspicuous foveolae and dorselfum weakly elevated, covered with pronounced longitudinally wrinkled sculpture; propodeal keels strongly diverging posteriorly, flat on top, with rugulose sculpture; area between keels wide, anteriorly subequal to length of keels and with sublunamental wrinkled sculpture; nucha rather large, smooth anteriorly and slightly longitudinally costate posteriorly; pronotal groove narrow, somewhat widened posteroventrally and with sparse pilosity; lower 1/2 of pronotum smooth and shining, upper 1/2 of pronotum rather roughy rugulose, with scattered, short pilosity; prepectus long, reaching halfway to spiracle; ace tabular and postpectal carinae absent; mesopleuron strongly transverselly striate above pronounced depression, coriaceous below depression; metopleuron with very strong, sub median, transverse groove and dorsal edge bordering propodeum very thick.

Fore wing moderately large (140:53), just surpassing tip of metasoma; knob of submarginal vein with pronounced lower lobe; M + Cu, RS + M, RS, and M pigmented as rather distinct nebulous veins and particularly M + Cu. Cu, and M also as spectral veins; disc of wing rather densely hairy, marginal cilia rather short, about 1/11 wing width; hind wing (110:22) with marginal cilia about 1/5 wing width and stem of submarginal vein rather long, with about 5 hairs.

Metasoma long (105:43), much longer than mesosoma (105:65), broadly lanceolate; T1 only slightly wider than long (21:19), medially smooth and shining, elevated, almost forming hump; lateral parts of T1 strongly longitudinally striate, with scattered hairs, and anterolaterally T1 with rather small, deep, pilose pit on each side of hump; posterior edge of T1 distinctly crenulate; T2 slightly elongate (47:43), anteriorly similar to T1, with crenulate anterior edge of elevated, median, smooth part and anterolaterally with deep, pilose pits; fan-like pronounced striation from pits reaching about halfway along T2; T3–T6 (42:42), slightly shorter than T2, with delicate recintulation and transverse row of hairs, more irregularly hairy on T5 and T6.

**Male.** Length 1.68 mm. Colour as in female. Antenna with A1 to radicle as 21:3; antennomeres in proportions: 21:5.5:8:4.5:6:4:6.5:6.5:6:6:6:5:6; A1 not quite as distinctly reticulate as in female and A4 with sharp, arched carina ending in tooth; hairs on flagellomeres short, about 1/2 width of segments; metasoma rather long (81:35), with obtuse apex, distinctly longer than mesosoma (81:58); T1 distinctly transverse (15:17), generally much as in female but less humped medially and longitudinally striate also medially; T2 (42:32) also with some striation medially; T3-T7 (22:31) with same sculpture and pilosity as in female.

**Etymology.** From *fuscus* (Latin, dark) and here referring to the blackish colour of the body.

**Material Examined.** Holotype: A, Chile, Prov. Malleco, Malalcahuello, 1080 m, 13–31 December 1982 (A. Newton and M. Thayer) [CNC No. 19475]; Paratypes (all from Chile): A, A, with same data as in holotype but A from 1350 m; 2 D, A, with same data as in

Remarks. As a rule, smaller individuals have the head slightly narrower and the sculpture less pronounced. In larger individuals the occipital carina has a more definite irregular or zig-zag-shaped anterior margin delimiting the broad, smooth, posterior part from the sculpture on the vertex. A slight indication of an occipital pit may be seen in larger individuals.

Biology. Host and habits are not known.

**Allotropa Foerster**

Figs. 102(dv), 103(lv), 183(a♀), 184(a♂), 185(a♂), 228(fw), 228(hw)


Diagnosis (♀♂). Moderately slender, almost spindle-shaped members, sometimes slightly to considerably flattened dorsoventrally; mandibles long, bidentate, sharply pointed, sickle shaped and scissor-like crossing; notaui not developed; scutellar suture foveolate; propodeum medially with single keel or bulge; submarginal vein of fore wing with slightly upcurved, rounded knob; metasoma with indistinct lateral edge and with very broad laterotergite.

Description (♀♂). Head from above remarkably wider than long, subellipsoidal to lens-like; vertex in most species rounded to subacute, rarely carinate; occipital carina delicate, noncrenulate; occipital pit not developed; temples very short, strongly receding behind eyes, almost absent in some species; posterior ocellus at most 1d distant from inner orbit, usually much closer or almost contiguous to eye margin; OOL<LOL; eyes distinctly hairy or at least with short hairs, rarely appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus rather long, subtriangular, convex, slightly wider than outer rims of toruli and with anterior margin slightly projecting; mandibles long, bidentate, sharply pointed, sickle shaped and scissor-like crossing; palpal formula 1-1; antennal formula 9-9; female antenna with semi-abrupt 3-segmented clava, A7 and A8 distinctly projecting anterocantrally; sensillar formula 1-1-1; male antenna in most species nonclavate, with A3-A7 with whorls of long, erect bristles, in few species male antenna subclavate, with nonabrupt 3-segmented clava; scape in both sexes with very short lamellae.

Mesosoma usually as wide as high, rarely flattened dorsoventrally; pronotal shoulders well visible from above, nonangular; notaui and admedian lines not developed; scutellum usually slightly convex, semicircular, foveolate along scutellar suture, foveolae gradually reduced toward transcutal suture; lateral keels of scutellum moderate and posterior rim not developed; metanotum nonfoveolate, with dorsellum not differentiated, closed between posterior rim of scutellum and median keel of propodeum; propodeum medially with elevated, central, glabrous keel or triangular bulge, otherwise hairy except for small areas around spiracles; pronotal groove almost nonexistent, glabrous; epicnemium not developed; sternauli rarely developed as trace, in most species absent; acetabular and precoxa carinae inconspicuous and behind the former usually with small depression; mesopleural depression deep, horse-shoe-shaped, mesopleuron usually with some transverse striae.
below tegula; metapleuron and sides of propodeum hairy, and posterolateral margin of propodeum often triangularly thickened; nucha in most species clearly costate; few subapterous or apterous species known from high Andes; fore wing with tubular submarginal vein slightly upcurved apically, with large, rounded knob distinctly surpassing 1/3 wing length, other veins indicated as spectral veins, especially M + Cu and Cu; marginal cilia in fore wing rather long; hind wing with short tubular stem of submarginal vein, with 1 distinct apical hair and with marginal cilia longer than in fore wing; legs rather slender, with tibial spur formula 1-1-1 and with fore spur bifid; tarsal formula 5-5-5, in 1 undescribed species 4-4-4.

Metasoma elongate, broadly spindle-shaped, rather convex, rarely depressed, usually only slightly wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes slightly transverse, longitudinally costate, hairy at sides, in female without horn; T2 in both sexes with 2 hairy pits anterolaterally, shortly costate anteromedially; felt fields on S2 inconspicuous; apex of metasoma sharply pointed in female, obtuse in male; metasoma with edge indistinct, with large it2 about 1/2 width of T2.

Recognition and Relationships. This is a very distinct genus, relatively well recognized by most authors. However, 2 of its junior synonyms listed above resulted from fragmentary knowledge of the generic limits of Allothropa, involving exotic or extreme peripheral species. Recognition of Nasidia and Platyropa undoubtedly makes Allothropa paraphyletic. The type species of both Nasidia and Platyropa represent (opinion, L.M.) only extreme peripheral species of Allothropa. Nasidia was classified by Nixon (1942) in the Telenominae, an error corrected by Masner (1965). Nasidia prosper (type examined by the senior author) is a very distinct species mainly because of its dark banded wings, sharp vertex, prominent propodeal median keel, and male antenna without whorls of bristles. However, these characters states occur in various combinations throughout the entire genus Allothropa. Several undescribed species of Allothropa examined by us exhibit continuous transitions to character states encountered in N. prosper. Platyropa was proposed by Kozlov (1976) as different from Allothropa largely on the strongly flattened body of P. helenae, the males of which lack bristy antenna. The senior author collected several individuals of an Allothropa species from Tasmania (CNC) that possessed almost all the character states of P. helenae. The flattened body of P. helenae probably is due to the flattened body of its host, a coccid on reed (Phragmites). The synonymy of Eurostemma is due to misinterpretation of its type species, Inostemma europus Walker. Szélenyi (1938a), without examination of Walker's type of I. europus, erected Eurostemma and compared it with Metaclusis and Inostemma. Vlug and Graham (1984) selected the lectotype of I. europus and transferred the species to Allothropa. The senior author re-examined the above lectotype in 1984 in Wagenigen, where Walker's and Haliday's type material of platygastrid wasps was on loan to H.J. Vlug.

Exploration of the generic limits of Allothropa brought further interesting results; several undescribed peripheral species of Allothropa known to us (CNC) establish the broader limits of this genus. We collected the first micropterous species (both sexes) in the high Andes of Ecuador (around 3000 m). The junior author also collected in 1983 from the lowland rainforest of Ecuador a female with the antennal clava ovoid, almost subcompact, similar to some micropterous members of Metaclusis from South America. Eventually, a series of species with tetramerous tarsi was collected in pan traps from Trinidad, W.I. (CNC).

Kozlov (1970) classified Allothropa in the monotypic tribe Allothropini. Unfortunately, he did not stress the most important, unique character state, i.e. the structure of the mandibles. The scissor-like position of the mandibles (not claspable as in other genera dealt with here) led us to place Allothropa in a special cluster of its own. Perhaps only Errolium (a
coccid parasite!) comes somewhat close to *Allotropa* but only because of similarity of wing venation.

**Distribution.** Almost worldwide, however, no specimens were examined from New Zealand. The absence of *Allotropa* in New Zealand may be interpreted as its replacement by *Erratiola* (also a coccid parasite).

**Biology.** The species of *Allotropa* are parasites of mealybugs (*Pseudococcidae*) (Clancy 1944; Haeussler and Clancy 1944; Gilliatt 1939; Murakami 1962, etc.). Some species were used in biological control of pests and hence spread by man. Twin embryonic development is reported in 1 species (Clancy 1944).

**Keys to Species.** USSR (Kozlov 1978).

**Species described since Kieffer (1926).**

- *ashmeadi* Muesebeck 1939, new name for *americanana* Ashmead 1893 nec 1887
- *burrelli* Muesebeck 1942, Japan, USA
- *citri* Muesebeck 1954, China
- *conventus* Maneval 1936, France
- *convexifrons* Muesebeck 1942, Japan, USA
- *europus* (Walker 1838), from *Eurostemma* Szélenyí (Vlug and Graham 1984)
- *heleenae* (Kozlov 1976), USSR, **comb.nov.** from *Platytrupa* Kozlov
- *jacobsoni* Ogloblin 1926, Czechoslovakia
- *kamburovi* Annecke and Prinsloo 1977, S. Africa
- *magnini* Risbec 1955, Ivory Coast
- *meridionalis* Brèthes 1913, S. America (not recorded in Kieffer [1926])
- *merrilli* Muesebeck 1954, USA
- *paulliani* Risbec 1955, Madagascar
- *proser* (Nixon) 1942, Fiji, **comb.nov.** from *Nadxia* Nixon
- *scutellata* Muesebeck 1954, Brazil
- *subclavata* Muesebeck 1970, Japan
- *utilis* Muesebeck 1939, Canada

**ALMARGELLA GEN. NOV.**

Figs. 39(dv), 40(lv), 129(57), 130(84), 196(a1w), 196b(lw), 248(dv)

Type species: *Almargella cristata* sp.nov. (described below), by present designation.

**Diagnosis** (♀ ♂). Distinctly elongate, slender species with dense, reticulate sculpture on head and most mesosoma; hyperoccipital carina strong, raised; occipital carina flange-like at side; scutellar disc subquadrate; metapleuron almost entirely glabrous; propodeum long, with 2 sharp, flange-like, parallel, glabrous keels medially and with raised, sharp lateral keels above metapleuron; submarginal vein of fore wing nebulous with blurred knob; T1 subquadrate, glabrous and smooth medially, with lateral keels and dense pilosity at sides.

**Description** (♀ ♂). Head from above wider than long, subellipsoidal; vertex rounded but with raised hyperoccipital carina behind posterior ocelli; occipital carina strong, complete, though weakest medially, nonfoveolate, flange-like, particularly at sides; occipital pit not developed; temples long, strongly receding behind eyes; posterior ocellus about 1d distant from inner orbit; OOL<LOL; eyes with minute scattered hairs; head in lateral view distinctly higher than long, with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, not wider than outer rim of toruli, with margin strongly rim-like projecting and anteclypeus relatively short; interantennal process remarkably projecting; mandibles short, bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; in female with A3 distinctly elongate, A4 and A5 minute, A6 enlarged but without sensillum, clava semi-abrupt, cylindrical, 4-segmented (A7–A10); sensillar formula 1-2-2; male antenna with thread-like flagellum, A3 subequal to A4, A4 with carina ventrally;
scape in both sexes ventrally with sharp, raised, narrow lamella, with only halfway lamella dorsally.

Mesosoma as high as wide; pronotal shoulders in dorsal view well developed; mesoscutum considerably convex; notauli usually not well defined but replaced by corresponding shallow depressions considerably dilated posteriorly, in 1 species notauli clearly indicated; parapsidal lines well developed and admedian lines delicate; scutellum subquadrate; axillae reduced, almost invisible, scutellar suture distinctly foveolate; lateral keels long, fused and subparallel; scutellum with prominent broad, posterior rim, more or less distinctly crenulate inwardly; metanotum not or only weakly foveolate, dorsellum rectangular, with raised lateral keels; propodeum long, subequal in length to scutellar disc, with 2 sharp, flange-like, parallel, glabrous keels medially and with raised, sharp lateral keels above metapleuron; pronotal groove deep, glabrous, and epomia short; epicnemium not developed; sternaulus present, better developed anteriorly; mesopleural depression deep, its deepest, almost pocket-like part situated anterocentrically; metapleuron smooth and mostly glabrous, with scattered pilosity only ventrally, in front of hind coxa, with deep metapleural pit medially; no brachypterous or aperous forms known; fore wing long and slender, with submarginal vein nontubular, reduced to nebulous streak, with blurred knob exceeding basal 1/3 of wing length, other veins as nebulous or spectral veins; marginal cilia in fore wing long, absent in 1 species; hind wing with short stem of nontubular submarginal vein and with marginal cilia about as long as in fore wing; legs long and slender, femora distinctly attenuate anteriorly, particularly in hind legs, tibiae and tarsi very long and slender, femora and tibiae with distinct reticulation; tibial spur formula 1-2-2, with outer spur rudimentary on mid- and hind legs, and fore spur trifid; tarsal formula 5-5-5.

Mesosoma distinctly elongate, spatulate, considerably depressed dorsoventrally, much wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes subquadrate, slightly wider than long, glabrous and smooth medially, with 2 lateral keels and dense pilosity at sides, in female without horn; T2 in both sexes with 2 hairy patches anteriorly and glabrous keel anteromedially, with no distinct striae; felt fields on S2 distinct, as 2 narrow brushes; apex of metasoma subtruncate in female, obtuse in male; metasoma with sharp edges, with laterotergites only about 1/9 width of T2.

**Recognition and Relationships.** This is a very distinct genus, with a unique structure of the propodeum, scutellum, and metapleuron. The flange-like median keels of the propodeum, the subquadrate scutellar disc, and the almost glabrous metapleuron will distinguish *Almargella* from all genera known to us. The rather coarse, reticulate sculpture on the head and mesosoma appears to be shared by all species known to us. *Almargella* is in general habitus similar to both *Magellanium* and *Annetella*, but differs from both by the more primitive state of the tibial spur formula (1-2-2 vs. 1-1-1), the structure of the fore tibial spur (trifid versus bifid), and in having a very deep mesopleural depression. The plesiomorphic sensillus formula of 1-2-2-2 also indicates that *Almargella* is relatively pleiomorphic.

**Etymology.** The name *Almargella* is an abbreviated combination of 2 names, *viz.* Alfred (Newton) and Margaret (Thayer); it is intended to honour these 2 outstanding entomologists, who collected the first species of this genus in Chile. The gender is feminine.

**Distribution.** Several species are known to us from temperate forests in Chile.

**Biology.** Hosts and habits are not known.

**Species described since Kieffer (1926).**

- *cristata* Masner and Huggert, present description, Chile
**Almargella cristata sp. nov.**

Figs. 39(dv), 40(lv), 129(a♂), 130(a♂), 196(a-fw), 196b(hw), 248(dv)

**Diagnosis** (♀♂). Elongate, dark brownish species, with lighter mesosoma and metasoma, propodeum and base of metasoma lightest; tegulae, coxae, legs, and antennae yellow, with clava blackish; head and mesosoma with conspicuous reticulation and only scattered minute hairs; cheeks with subtransverse wrinkles, larger individuals with wrinkles also on frons, around ocelli, and with semiconnecting wrinkles between occipital and hyperoccipital carinae; malar space short, about 1/4 eye height; notauli vaguely impressed, midlobe and sidelobes very convex; tegula sometimes distinctly reticulate; metanotum without foveolae, except for 1–2 rudiments close to dorsellum; width of median propodeal keels rather even throughout; metapleuron with only few hairs posterolaterally; T2 anteriorly with short median keel and lateral pits shallow, with rather sparse pilosity.

**Description. Female.** Length 2.20 mm. Head black; mesosoma slightly lighter, with propodeum and metapleuron successively dark brown; metasoma generally brown, with T1 and base of T2 light brown, tegulae, coxae, legs, and antennae yellow, A2 slightly darker and clava blackish; wings slightly infuscate, especially fore wings around RS + M and M nebulosus veins.

Head in dorsal view not quite twice as wide as long (44:28), with frons gently curved and occiput rather deeply excavate, with raised, somewhat irregular carina, produced as sharp flanges along posterior genae; temples 1/2 half length of eyes (8:16); POL:LOL:OOL = 13:7:3; scape longer than interorbital space (28:25); head in lateral view higher than long (40:28), with frons rather strongly arched; interantennal process roundly produced and clypeal edge prominent; eyes rather large, higher than long (24:16), almond-shaped and malar space short (11:24); posterior genae rather wide, subparallel to posterior orbit and slightly angular dorsad; head from in front subtriangular, wider than high (44:40), with cheeks rather straight; head with minute scattered hairs and rather pronounced, distinct reticulation; vertex with sharply sinuate hyperoccipital carina; cheeks with more pronounced reticulation forming subtransverse wrinkles.

Antenna (Fig. 129) with A1 to radicle as 28:4; antennomeres in proportions: 28:7; 9:3; 10:2.5; 3:2.5; 2.5:3; 4:5; 6:6; 6:6; 6:6; 7:5:5; A1 with conspicuous reticulation.

Mesosoma more than 1.5 times longer than wide (75:46), with wide, evenly arched pronotal shoulders and distinct neck; notauli shallowly impressed, and strongly converging, dilated posteriorly; midlobe of mesocutum rather strongly elevated and sidelobes also elevated, particularly posterolaterally; admedian lines as 2 short delicate streaks much closer to each other than to notaular pits; parapsidal lines distinct, situated in extreme posterolateral corners of sidelobes; axillae much reduced; along and behind scutellar suture smooth, thicker edge forming anterior edge of scutellum; mesocutum and scutellum with minute, scattered hairs and fine but distinct reticulation, tegulae also reticulated; metasternum smooth and shining, without foveolae; dorsellum long, almost smooth, subequal in length to rim of scutellum and posterior edge of dorsellum slightly concave with raised lateral keels; propodeum medially subequal in length to scutellar disc (16:16) and deeply excavate between distinctly elongate median keels; median keels rather broad, separated from each other by slightly more than their width; propodeum between keels smooth and glabrous, lateral of median keels with rather dense, whitish pilosity; mala rather distinct, smooth and shining; pronotal groove smooth, shining, not very deep but with raised, sharp crest along propodeuron and terminating posteroventrally into large, fold-like pit; whole side of pronotum reticulate; in dorsal view spiracle spine-like projecting; mesopleuron with some transverse ridges below tegula and abundant finer striation; acetabular carina rather pronounced and precoxal carina diffuse but posterolateral edge of pleuron flange-
like, produced backward; metapleuron below sharp, flange-like dorsal edge deeply concave and lower 1/2 of pleuron strongly convex; mesopleural pit deep, elongate, situated near meso-metapleuron suture.

Fore wing rather long (200:70), surpassing tip of metasoma by more than 1/7 its length; more than distal 1/2 of submarginal vein reduced to nebulous vein and diffuse knob less than its diameter from anterior margin of wing; especially M and less so M + Cu, Cu, and whole area around RS + M and RS as nebulous veins or darker zones; especially distal part of submarginal vein but also M + Cu, Cu, M, and RS also as spectral veins; disc of wing with rather short, not too dense pilosity; marginal cilia about 1/8 wing width; hind wing moderately narrow (160:28) and marginal cilia slightly more than 1/3 wing width; stem of submarginal vein with about 2 minute hairs.

Metasoma subequal in length to rest of body, much longer than wide (125:51) and widest in its posterior third; T1 (18:23) only slightly broader posteriorly than anteriorly, with smooth somewhat elevated median part and with anterior edge as distinct, elevated, lunate hump; S1 hairy all over; T2 (70:51) smooth and lustrous, with anterior edge thickened, produced medially as short, backward-projecting keel and with shallow pits on each side of keel as hairy streaks; S2 anteromedially with large diffuse hairy depression and with 2 narrow felt fields as brushes mediolaterally; T3–T6 as long as 1/2 T2 (35:70), with transverse rows of minute hairs and with fine reticulate sculpture all over.

**Male.** Antenna (Fig. 130) with antennomeres in proportions: 26:6.5; 7:3.5; 7:3; 5:3.5; 4:3; 5:4.5; 5:4.5; 5:5; 5:5; 9:4; hairs on flagellum semi-erect, about 1/2 as long as width of segments; metasoma as in female with 7 segments and apex more rounded.

**Etymology.** The specific name is derived from *crista* (Latin), referring to the hyperoccipital carina on the head.


**Recognition and Relationships.** The considerable degree of variation in the length of the body (1.30–2.30 mm) is correlated with the degree and intensity of sculpture on the head and mesosoma. Larger individuals tend to be more strongly sculptured, with the hyperoccipital carina more pronounced and with the facial wrinkles better developed than in smaller individuals. The foveolae along scutellar suture, as well as along the posterior rim of the scutellum, are generally better developed in larger individuals. The notauli are generally less defined in smaller specimens, so also are the median and the lateral keels of the propodeum. Smaller individuals also tend to have shallower and less hairy anterior pits on T2 and the mesopleural depression more shallow than the larger individuals.
Biology. The host and habits are not known. However, the considerable differences in altitude among the individuals of the type series (350–1250 m) might indicate association with a host of considerable ecological amplitude.

**AMITUS HALDEMAN**

Figs. 91(dv), 92(lv), 180(a, b, c, d), 181(a, b), 213a(fw), 213b(hw), 243(dv), 244(dv), 245(lv), 246(sc).


**Diagnosis** (*♀♂*). Short, stocky, dorsoventrally flattened species, with long wings without distinct veins; head in lateral view somewhat opistognathous; antennal formula 8-10; female antenna with abrupt, compact, spindle-shaped to ovoid clava resulting from fusion of A8–A10; male antenna with specialized paddle-shaped area on A4; epinotum well developed; propodeum partly covered with foamy structures; metasoma short, subseisal, almost as wide as long; T1 strongly trapezoidal-transverse; T2 usually with fan of striae anterolaterally.

**Description** (*♀♂*). Head from above distinctly wider than long, subellipsoidal; vertex rounded; occipital carina not developed; occipital pit not developed; temples very short, strongly receding behind eyes; posterior ocellus distinctly remote from inner orbit by at least 1d; OOL equal to, larger or smaller than LOL; eyes appearing glabrous; head in lateral view somewhat opistognathous, with malar sulcus not developed and cheeks not striate; head from in front with clypeus subtriangular, rather convex, as wide as outer rims of toruli, with anterior margin rim-like projecting, and without any median or lateral ridges; anteclypeus rather large, viewed ventrally, but very short if viewed from in front; mandibles short, bidentate, clasped normally; palpal formula 1-1; antennal formula 8-10; in female with abrupt, compact, spindle-shaped to ovoid clava (A8 as result of fusion of A8–A10), clava sometimes with 2 faint traces of sutures; sensillar formula 1-2-1; male antenna thread-like, with cylindrical flagellomeres, A4 with paddle-shaped specialized area; scape in both sexes noncarinate, with no lamellae apically.

Mesosoma short, broad, clearly wider than high; pronotal shoulders clearly visible in dorsal view, in some species almost angularly protruding, epomia not distinct; mesonotum rather to considerably flattened; notauli usually current, noncrenulate, usually distinctly dilated posteriorly and admedian lines very weak; scutellum convex to flattened, broadly semicircular to subrectangular; axillae as rather distinct triangular areas; scutellar suture more or less distinctly foveolate and scutellum with moderately long, fused, lateral keels; scutellum along posterior margin usually roughly or irregularly foveolate, with no or only weakly defined posterior rim; metanotum nonfoveolate, with dorsellum concealed between posterior margin of scutellum and median keels of propodeum; propodeum posteriorly and partly at sides with foamy structures, structures also often forming 3 short median keels of propodeum; pronotal groove very narrow, slit-like and area around groove with scattered hairs; epinotum well developed; sterna notus not developed; mesopleural depression rather shallow, with deep, median, widely angular sulcus terminating on both ends in deep pits; acetalbar and precoxal carinae weakly developed; metaepimeron and sides of propodeum hairy; no brachypterous or paterous forms known; fore wing long, with short rudiment of submarginal vein in basal part, knob not developed; M+Cu, Cu, M, and RS usually distinct as spectral veins; marginal cilia in fore wing very long; hind wing with short rudiment of sub marginal vein and with marginal cilia about as long as in...
fore wing; legs rather long and slender, with tibial spur formula 1-1-1 and fore spur bifid; tarsal formula 5-5-5.

Metasoma short, subsessile, almost as wide as long, strongly depressed dorsoventrally and much wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes strongly trapezoidal-transverse, usually longitudinally costate, in narrow area medially with only sparse pilosity in rudimentary pits, and anterolateral corners often pointed, T1 in female without horn; T2 in both sexes with 2 small, shallow pits anteromedially, sparsely hairy, usually with longitudinal fan of striae anterolaterally, starting from pits; felt field on S2 delicate; apex of metasoma broadly triangular in female, obtuse in male; metasoma with sharp edges, with It2 only 1/6–1/10 width of T2.

Recognition and Relationships. The name Amitus has been reasonably well interpreted by a majority of authors. The 2 junior synonyms are due to bibliographic oversight or unfamiliarity with exotic taxa. However, the higher classification of Amitus has been a subject of considerable disagreement among authors. A review of this particular problem is discussed in the introduction to higher classification of the genera. The senior author considers Amitus closely related to Alfredella, the latter being interpreted as the more plesiomorphic. Both genera share the generally stocky habitus and a well-developed epicnemium, which is in fact the largest among all genera studied. The more derived character states of Amitus are the almost complete atrophy of the submarginal vein in the fore wing, tibial spur formula of 1-1-1, and the female antennal clava composed of A8–A10, with reduced sensillar formula of 1-2-1.

The presence of Amitus in Australia remains problematic. We examined numerous Australian specimens (ANIC, CNC) that could be referred to this genus. However, specimens that we examined differ from the generic diagnosis of Amitus in several important character states. The scutellar disc has a rather well-developed posterior rim, the OOL is shorter than 1d (i.e. posterior ocellus much closer to inner orbit), and the male antenna is almost identical to that of the female, i.e. 8-segmented, with a 1-segmented compact clava (A8–A10 fused). We prefer to include the above species provisionally in Amitus pending better understanding of the entire Australian fauna of platygastrid wasps.

Distribution. Almost worldwide except for New Zealand and the uncertain status of several Australian species discussed above.

Biology. Parasites of whiteflies (Aleyrodidae) and as such subjected to rather intensive introductions, resulting in some species being now near cosmopolitan in distribution (Clu- sen 1958; Dowell 1979; Viggiani and Battaglia 1983).

Key to Species. European spp. (Kozlov 1978); Italian spp. (Viggiani and Mazzone 1982).

Species described since Kieffer (1926).
- *aleurolobi* Mani 1939, India
- *aleurotubae* Viggiani and Mazzone 1982, Italy
- *arcturus* Whittaker 1930, Canada
- *blanchardi* DeSantis 1937, Argentina; considered synonym of *spiniferus* (Brêthes) (DeSantis 1941)
- *fuscipennis* MacGown 1978, Costa Rica, Colombia, Guatemala, Mexico
- *gibbosus* MacGown 1978, USA
- *granulosus* MacGown 1978, USA
- *hesperidum* Silvestri 1927, China (now tropicopolitan through introductions)
- *pigeanus* MacGown 1978, Chile
- *rugosus* Viggiani and Mazzone 1982, Italy
spinaires (Bréthes) 1914, Argentina (not recorded in Kieffer [1926])
vessavianus Viggiani and Mazzone 1982, Italy

ANNETTELLA GEN. NOV.
Figs. 41(dv), 42(lv), 127(a\(\bar{\imath}\)), 128(a\(\mathcal{\ddot{\imath}}\)), 197a(fw), 197b(hw), 247(dv)
Type species: Annetella gracilis sp. nov. (described below), by present designation.

Diagnosis (\(\varphi\ \bar{\imath}\)). Elongate, gracile, smooth, brownish species with fine, dense, decumbent pilosity on head and mesosoma; head subglobose; posterior ocellus distinctly remote from inner margin of eye, hence OOL rather large; eye with rather large ommatidia; antenna of both sexes with abrupt, 3-segmented ovoid clava; scutellar keels long, fused, sharply pointed at apices; propodeum long, with long, parallel median keels; fore wing unusually long, with rather short tubular submarginal vein and with long marginal cilia.

Description (\(\varphi\ \bar{\imath}\)). Head from above only moderately wider than long, subglobose; vertex rounded; occipital carina rim-like, complete, noncrenulate; occipital pit not developed; temples long, strongly receding behind eyes; posterior ocellus at least 1.5d distant from inner orbit; OOL either slightly shorter or slightly longer than LOL; eyes with scattered or distinct minute hairs and rather large ommatidia; in lateral view head almost globular, with malar suture not developed and cheeks not striate; head from in front with clypeus broadly triangular, slightly wider than outer rims of toruli, with transversely projecting rim-like keel and short median keel running in between toruli; anteclypeus rather large; mandibles short, bidentate, clapsed normally; palpal formula 1-1; antennal formula 10-10; in female A3–A7 minute, clava ovoid, very strongly abrupt, subcompact 3-segmented (A8–A10); sensillar formula 1-2-1; in male antenna with A4 considerably enlarged, distinctly larger than A3, with strong longitudinal carina, A5–A7 minute, clava abrupt, ovoid, subcompact 3-segmented (A8–A10); scape in both sexes noncarinate but with short lamellae apically.

Mesosoma as high as wide; pronotal shoulders well developed; mesocutum considerably convex; notauli percurrent, noncrenulate, strongly converging posteriorly; axillae subvertical, short, fused to mesocutum; scutellum slightly convex, semicircular to subquadradratic, with scutellum suture as series of deep foveolae, with 2 long, fused lateral keels reaching almost to posterior 1/3 of scutellum, with 2 large shallow depressions posterolaterally and with distinct posterior rim; metanotum nonfoveolate, dorsellum with 2 parallel keels; propodeum remarkably long, about as long as scutellum, with 2 parallel glabrous keels, hairy at sides; pronotal groove narrow, almost glabrous; epicnemium not developed; sternalus sharp anteriorly and fading out posteriorly; mesopleural depression shallow, with deep diagonal sulcus originating anteroventrally at base of sternalus; metapleuron partly smooth, partly covered with longer, decumbent hairs; no brachypterous or apterous forms known; fore wing unusually long, with rather short tubular submarginal vein and rounded knob not exceeding basal 1/4 of wing length; RS + M indicated as dark nebulus vein close to knob; especially M + Cu, base of Cu, and less so RS indicated as spectral veins; marginal cilia in fore wing considerably long; hind wing with short, tubular stem of submarginal vein and with marginal cilia about as long as or slightly longer than in fore wing; legs slender, with tibial spur formula 1-1-1 and with fore spur bifid; tarsal formula 5-5-5, claws rather strong.

Metasoma rather elongate, depressed dorsoventrally; in female with 6, in male with 8 visible tergites; T1 in both sexes moderately transverse, with some longitudinal costae, in female without horn; T2 in both sexes with 2 hairy pits anterolaterally; S2 with only delicate felt fields; apex of metasoma moderately pointed in female, obtuse in male; metasoma with sharp edges, with h2 about 1/5 width of T2.

Recognition and Relationships. Annetella is most closely related to Magellanium. These 2 southern genera share a similar habitus, pilosity and colour of the body. Also the position
of the ocelli, with the posterior ocellus distinctly remote from the inner orbit, the relatively long propodeum, with long, parallel median keels, the unusually long wings, the structure of the scutellum with sharply projecting apices of the long lateral keels, and a tibial spur formula of 1-1-1, strongly indicate this relationship. However, it is relatively easy to distinguish these 2 genera from each other by comparing the structure of the antennae in both sexes. *Annetella* has a strongly abrupt, ovoid, subcompact clava and has the reduced sensillar formula of 1-2-1 in the female antenna. These states are distinctly more apomorphic than found in *Magellanium*, with its rather generalized type of antenna. The tracheate submarginal vein with a strong apical knob in *Annetella* is, however, more plesiomorphic if compared with the rather reduced (nebulous) venation in *Magellanium*.

**Etymology.** The new genus is named in honour of Annette K. Walker (formerly of NZAC, Auckland) who collected the first members in New Zealand. Annette Walker also contributed significantly in logistics to facilitate the collecting trip of the senior author in New Zealand (1983–1984).

**Distribution.** Two species were examined by us, 1 from New Zealand (described below), 1 from Australia. The individuals are rare in collections.

**Biology.** Host and habits are unknown.

**Species described since Kieffer (1926).**

*gracilis* Masner and Huggert, present description, New Zealand

***Annetella gracilis*** sp. nov.

Figs. 41(dv), 42(iv), 127(a), 128(a, b), 197(a, b), 197(b, c), 247(dv)

** Diagnosis (♀ ♂).** Distinctly elongate, gracile, light brown species, with lighter legs and large wings; head and mesosoma with dense pilosity; head subglobose, with OOL shorter than LOL; posterior ocellus about 2d from inner orbit; admedian lines as short crests and notauli percurrent; scutellar suture more or less distinctly foveolate; lateral keels of dorsellum rather long and broad, with fine longitudinal sculpture; median keels of propodeum long, rather broad and separated from each other by about twice their width; acetabular carina and anterior part of sternaulus sharp, and lower part of mesopleural depression very narrow and deep.

**Description. Female.** Length 1.05 mm. Colour of body light brown, legs and antenna yellow, with legs still lighter and wings slightly infuscate, especially RS+M.

Head in dorsal view slightly transverse (17:24); frons convex and occiput slightly rectangularly excavate; temples rather long, equal to length of eyes (7:7); POL:LOL:OOL = 11:6:4.5; posterior ocellus 2.5d from inner orbit; scape equal to interorbital space (19:19); head in lateral view oval, higher than long (26:17), with frons evenly curved, convex; eyes oval (13:8), not too large and malar space shorter than eye height (5:13); posterior gena evenly wide compared with posterior orbit; head from in front subcircular, about as high as wide (26:24), with vertex strongly elevated, evenly arched and cheeks rather straight; head smooth and shining, with minute, dense, closely decumbent pilosity and pronounced fringe of long hairs on clypeal margin; eyes with scattered but distinct hairs.

Antenna (Fig. 127) with A1 to radicle as 19:2.5; antennomeres in proportions: 19:3; 6.5:2.7; 3:2; 3:2; 1.5:2; 1.5:2; 6:8; 5:8; 6:7.

Mesosoma much longer than wide (42:25), with evenly curved, broad pronotal shoulders and distinct neck; notauli converging posteriorly and narrow, crest-like admedian lines slightly closer to notauli than to each other; apex of midlobe barely projecting over transcutal suture; sides of scutellar disc somewhat converging posterd and scutellar disc slightly triangular due to posterolateral depressions inside scutellar rim; mesoscutum and scutellum smooth, with dense, semidecumbent, moderately long pilosity; dorsellum with
pronounced lateral keels as 2 broad rectangular plates projecting toward median keels of propodeum; propodeum long, equal to length of scutellum (11:11), median keels separated from each other by triple their width; lateral edge of propodeum as sharp keel, propodeum hairy, almost glabrous between keels; pronotal groove very narrow and clearly dilated posteroventrally, here with some pilosity; acetabular carina fine but sharp; sides of pronotum and mesopleuron smooth and shining; pronotum dorsally with pilosity; metapleuron almost without any oblique submedian depression, smooth and shining, with few scattered longer hairs, particularly in lower half, dorsal edge conspicuous, sharp.

Fore wing very long (120:45), surpassing tip of metasoma by at least 1/3 its length and knob less than its diameter from anterior margin of wing; disc of wing rather densely hairy and marginal cilia about 1/12 wing width; hind wing rather narrow (100:14), with 2 distinct hairs on tubular stem of submarginal vein, with marginal cilia about 1/2 wing width.

Metasoma longer than wide (55:26), slightly shorter than combined length of head and mesosoma; T1 transverse (8:15), with anterior margin broadly elevated, with some costae, T1 laterally depressed and with rather dense, long hairs; T2 slightly longer than wide (28:26), anteriorly with 2 rather small, subcircular, hairy pits and anterolaterally T2 with few scattered hairs, otherwise glabrous; T3–T6 tapering to apex, about 1/2 length of T2 and with transverse row of hairs each; S2 anteriorly with large subtriangular spot with short, dense, whitish pilosity.

**Male.** Coloured as female and differing only in few characters. Antenna (Fig. 128) with antennomeres in proportions: 20:2.5:6.3; 2.5:2:5.5:3; 2.2; 3.2; 3.2; 5.4; 4.5:5; 7:4.5; A4 strongly curved and broadened apically, with sharp carina on concave side; metasoma as in female but with 7 tergites, T7 obtuse apically.

**Etymology.** *Gracilis* (Latin) meaning gracile, slender and here referring to slender legs and wings.

**Material Examined.** Holotype: ♂, New Zealand, 24 mi. N Springs Junction, 10 February 1965 (A.K. Walker) [NZAC]; Paratypes (all from New Zealand): Ship Cove, SD, 30 November 1972 (J.S. Dugdale); 2♂♀, 5♂, TO, Moerangi, 625 mi., 4 April 1980 (A. Newton, M. Thayer), mixed *Podocarpus* forest; ♂, ND, Waipoua Kauri Forest, 12 December 1983 (L. Masner); ♂, WD, Westland N.P., Franz Josef Glacier, 2 January 1984 (L. Masner); ♂, ♂, NN, Cobb Reservoir, March 1981 (A.R. Curtis), *Nothofagus* forest; ♂, BR, Nelson Lakes N.P., Lake Rotioit, 600 m, April 1981 (F. Dodge), *Nothofagus* forest; ♂, MC, Banks Peninsula, Prices Valley, March 1981 (R.P. Macfarlane), edge of native bush; 2♂♂, AK, Waitakere Ra., November 1980 (J.S. Noyes); ♂, AK, Huia, March 1981 (B.M. May), in bush; ♂, OL, Makarora, Davis Flat, 400 m, 12 April 1982 (J.W. Early); ♂, BR, SH6, 4 km N Rapahoe, 12 November 1981 (R.M. Emberson), litter LCNC 81/10 [NZAC, CNC, HUGG, BMNH].

**Recognition and Relationships.** The body colour may vary from very light to rather dark brown. The appendages are darker in generally darker individuals. The OOL/OL ratio seems to vary slightly in that the OOL may be equal to or inconspicuously longer than LOL. In some specimens the notaumy be less imprinted to almost obliterate or difficult to observe. The foveolation of the scutellar suture is better developed in most but less distinct in a few individuals. The broad lateral keels on the dorsum are slightly variable in length and some specimens have the median propodeal keels narrower and closer to each other than in the holotype. As these variations are present in specimens not only from distant localities but also from the same place we are inclined to consider them as intra-specific variation.

**Biology.** The host and habits are not known.
APHANOMERELLA DODD

Figs. 89(dv), 90(iv), 144(a, f), 145(a, d), 221a(fw), 221b(hw)


Diagnosis (♀ ♂). Moderately stocky members with abundant pilosity on body; antenna with abrupt, ovoid, subcompact, 4-segmented clava and with sensillar formula 1-2-2-2 of female antenna; notauli percurrent, deeply incised; scutellar suture nonfoveolate; metastomum nonfoveolate; propodeum without foamy structures; fore wing with tubular submarginal vein and with nebulous RS+M; T2 costate anteromedially; felt fields on S2 delicate.

Description (♀ ♂). Head in dorsal view wider than long, subellipsoidal; vertex rounded; occipital carina strong, complete, noncrenulate; occipital pit not developed; temples rather short, strongly receding behind eyes; posterior ocellus less than 1d from inner orbit; OOL<LOL; eyes large, bulging, appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head in front with clypeus very short, anteclypeus large, as slightly concave, smooth subtriangular plate, not wider than outer rims of toruli; mandibles short, bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; in female with abrupt, ovoid, subcompact, 4-segmented clava (A7-A10); sensillar formula 1-2-2-2: male antenna similar to that in female but with clava less abrupt and more slender, A3 slightly shorter than A4, latter with keel; scape in both sexes with delicate lamellae apically.

Mesosoma as wide as high; pronotal shoulders visible in dorsal view, nonangular; mesoscutum moderately convex; notauli percurrent, deeply incised, noncrenulate, not dilated posteriorly; admedian lines inconspicuous; scutellum moderately convex, subtriangular with short, not fused lateral keels and posterior part of keels very narrow, sharp; scutellar suture not foveolate; axillae rather large, hairy, subvertical, forming rather pronounced scutellaxillar pits connected to grooved lateral part of scutellar disc; grooved scutellar rim strongly hairy except medially where scutellar disc reaches posterior rim of scutellum; metastomum not foveolate, with dorsellum reduced medially, overlapped by posteromedian margin of scutellum, and visible only as 2 short keels laterad; propodeum medially with either massive bulge or 2 short parallel keels, hairy at sides; prontal groove not too deep, hairy; epomia not developed; epicnemium not developed; sternaulus not developed; mesopleural depression shallow, with deep, subhorizontal, median sulcus slanting toward fore coxa, sulcus sometimes with pits at both ends; metapleuron and sides of propodeum hairy; no brachytegic or apertural forms known; fore wing with tubular submarginal vein and truncate knob reaching about 1/3 wing length; RS+M always strongly indicated as nebulous vein, M+Cu, Cu, M, and RS less so and all of them also as distinct spectral veins; marginal cilia in fore wing moderately long; hind wing with short stem of tubular submarginal vein with about 5 hairs, and with marginal cilia slightly longer than in fore wing; legs short and rather stout, with tibial spur formula 1-2-2, and with fore spur bifid; tarsal formula 5-5-5.

Metasoma short, only moderately elongate, slightly depressed dorsoventrally, wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes transverse, longitudinally costate at meson, with hairy pits at sides, in female without horn; T2 in both sexes with 2 hairy pits anterolaterally, costate anteromedially; felt fields on S2 delicate; apex of metasoma sharply pointed in female, obtuse in male; metasoma with sharp edges, with h2 about 1/7 width of T2.

Recognition and Relationships. Aphanomerella is most similar to Tetrabaenus from which it differs principally by the presence of a nebulous RS+M in the fore wing. The 2 genera seem to be indistinguishable in all remaining character states considered important at the
generic level. However, enough biological data known for the 2 species, viz. Aphanomerella ovi Dodd and Tetrabaeus americanus (Brues), differ considerably. The former species was reared from chysomelid eggs but the latter was observed parasitizing larvae of crabronine wasps (Krombein 1964). The structure of the antenna and the striate T2 of Aphanomerella also indicate relationships to Calomerella and Pseudaphanomerus, with Aphanomerella being the more plesiomorphic genus.

**Distribution.** Endemic to Australia. We examined 2–3 species in the rather rich Australian material (ANIC).

**Biology.** *Aphanomerella ovi* Dodd was reared from eggs of *Paropsis* sp. (Coleoptera, Chrysomelidae) (Rieck 1970). We examined the voucher specimens (ANIC) and are also inclined to the identification of the host. The choice of the egg stage of the host (though not a hemipteroid one) by *Aphanomerella* is similar to known habits of *Aphonomerus* (eggs of fulgoroids) rather than *Tetrabaeus*, reported to attack larvae of crabronine wasps (Hymenoptera, Sphecidae) (Krombein 1964).

**Species described since Kieffer (1926).**

None

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**Aphonomerus Perkins**

Figs. 94(dv), 95(iv), 175(a♀), 176(a♂), 218a(fw), 218b(hw)


Type species: *Aphonomerus bicolor* Perkins, by original designation.

**Diagnosis** (♀♂). Moderately elongate to rather stocky, robust members, often light-coloured, yellow, orange to light brown; vertex rounded; occipital carina very low on occiput, not well developed in some species; eyes appearing glabrous or with only minute, scattered hairs; cheek nonstriate; antennal clava abrupt, ovoid, compact, in female with sensillar formula of 1-2-2-1; scutellar rim not differentiated but replaced by strip of dense pilosity; propodeum without foamy structures, with 3 subparallel keels or a bulge; submarginal vein of fore wing transecte, rather distant from fore margin of wing; claws in some species unevenly long; T2 without longitudinal costae or striae; felt fields on S2 moderately developed.

**Description** (♀♂). Head in dorsal view wider than long, subellipsoidal; vertex rounded; occipital carina situated very low on occiput, not well developed in some species, non-crenulate; occipital pit not developed; temples short to very short, strongly receding behind eyes; posterior ocellus at most 1d from inner orbit; OOL<LOL; eyes large, appearing glabrous or with minute, scattered hairs; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, not wider than outer rims of toruli, slightly concave, with upper margin moderately projecting; mandibles short, bidentate, clasped normally; palpal formula 2-1; antennal formula 7-8; in female with abrupt, massive, compact, ovoid clava (A7 resulting from fusion of A7–A10); sensillar formula 1-2-2-1; male antenna similar to that of female but with clava less abrupt (A8 resulting from fusion of A8–A10), A3 distinctly shorter than A4, latter with sharp carina ventrally; scape in both sexes carinate apically in some species.

Mesosoma about as high as wide; pronotal shoulders visible in dorsal view, not angular; mesocutum at most moderately convex; notauli not dilated posteriorly; scutellum rather flattened, nearly semicircular; scutellalar pits rather large, hairy, scutellar suture not foveolate; lateral keels of scutellum short or absent and posterior rim of scutellum not differentiated but often replaced by dense pilosity; metasternum not foveolate, with dorsellum weakly defined or overlapped by posteroomedian margin of scutellum; propodeum medially with 3 subparallel keels or a bulge, hairy at sides; pronotal groove shallow, almost glabrous; epicnemium not developed; sternaulus not developed; mesopleural depression
shallow, with oblique median sulcus slanting toward fore coxa; metapleuron and sides of propodeum hairy; no brachypterous or aperous forms known; fore wing with tubular submarginal vein and truncate knob reaching 1/3 wing length, vein running considerably far from fore margin of wing; RS + M in some species slightly indicated as nebulous vein, other veins indicated usually as spectral veins; marginal cilia in fore wing short to minute; hind wing with short tubular stem of submarginal vein and with marginal cilia distinctly longer than in fore wing; legs rather slender, with tibial spur formula 1-2-2 and with fore spur bifid; tarsal formula 5-5-5, claws in some species unevenly long.

Metasoma only slightly longer than wide, rather depressed dorsoventrally, wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes strongly transverse, subtrapezoideal, often longitudinally costate medially, with 2 hairy pits laterally, in female without horn; T2 in both sexes with 2 hairy pits anterolaterally, rarely with short longitudinal keel anteromedially, never with long striae at meson; felt fields on S2 moderately developed; apex of metasoma broadly pointed in female, obtuse in male; metasoma with sharp edges, with lt2 about 1/8 width of T2.

**Recognition and Relationships.** This is one of the classical and best recognized genera of platygastrid wasps. However, its higher classification created a problem for some early authors. Perkins (1905) and Kieffer (1926) classified it in Baeinae, whereas Dodd (1914a) correctly recognized its place in the Platygastrinae. The erroneous classification of *Aphanomerus* in the Baeinae was due to a striking resemblance (convergence) of the female antennae of those 2 groups. *Aphanomerus* appears related most closely to *Aleyroctonus* and rather distantly also to *Pseudaphanomerus* all of which tend to have a compact, ovoid clava in females (fused A7–A10). However, some species of *Aphanomerus* have 3 faint sutures on the clava, indicating the original 4 segments, i.e. A7–A10. The sensillar formula 1-2-2-1 also indicates the original 4 segments of the clava.

**Distribution.** Australia, New Guinea, New Zealand, Sulawesi (Celebes).

**Biology.** Several species were reared from eggs of fulgoroids (e.g. Ricaliidae, Flatidae).

**Keys to Species.** World (Kieffer 1926).

**Species described since Kieffer (1926).**

None

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**AUSTROMERUS GEN. NOV.**

Figs. 98(dv), 99(lv), 168(a Q), 169(a  ), 220a(fw), 220b(hw), 231(dv), 232(dv)

Type species: *Austromerus grandis* sp. nov. (described below), by present designation.

**Diagnosis (♀ ♂).** Squat, robust species with short, sessile metasoma; occipital carina low on occiput; antennal clava of female moderately abrupt, 3- to 4-segmented, with clavomeres distinctly separated and with sensillar formula of 1-2-1; antennal clava of male less abrupt, 5-segmented, with clavomeres distinctly separated; notauli absent but anterolateral pits present; scutellar rim not defined; propodeum with some foamy structures; submarginal vein of fore wing tubular; RS + M usually nebulous, rarely absent; T2 without striae or costae; S1 often with foamy structures; felt fields of S2 rather well developed.

**Description (♀ ♂).** Head from above moderately to distinctly wider than long, subellipsoidal to almost lens-like; vertex rounded to subacute; occipital carina noncrenulate, situated low on occiput, strong medially, weak at sides or absent; occipital pit not developed but occiput in some species sharply precipitous and concave; temples short to almost absent, strongly receding behind eyes; posterior ocellus about 1d distant from inner orbit; OOL < LOL; eyes appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, not wider than outer rims of toruli, without raised margins and anteclypeus as short lunate strip; mandibles short,
bidentate, clapsed normally; palpal formula 2-1; antennal formula 10-10; in female with moderately abrupt, 3- to 4-segmented clava; sensillar formula 1-2-1; in male antenna similar to that in female but with only moderately abrupt, 5-segmented clava, with A3 as long as or clearly longer than A4, latter with inconspicuous carina ventrally; scape in both sexes distinctly carinate apically, at most with minute lamellae at apex.

Mesosoma short and broad, about as high as wide; pronotal shoulders well developed in dorsal view, subangular, cervical part not protruding; mesoscutum rather flattened; notauli absent but anterolateral pits present; scutellum flattened, levelled with mesoscutum, subtriangular to semicircular, with deep transscutal, noncrenulate suture anteriorly; axillae usually large, scutellaxillar pits more or less deep, with lateral keels narrow and sharp, interrupted into 2 parts; posterolateral margin of scutellum weakly defined, noncrenulate, reaching all around disc to axillae, or very pronounced, broad, covered with dense pilosity; scutellar rim not defined; metasternum not foveolate, with dorsellum weakly defined and usually concealed under pilosity of scutellum; propodeum mediadially, posteriorly and at sides with foamy structures, otherwise hairy; pronotal groove narrow, deep, more or less hairy, pronotum near cervical part with dense patch of pilosity; epicnemium not developed; sternaulus not developed; mesopleuron without distinct declivity but somewhat depressed, with deep, median, horizontal, nonslanted, sulcus; metapleuron and sides of propodeum hairy; no brachypterous or aperous forms known; fore wing with tubular submarginal vein and truncate knob surpassing basal 1/3 of wing length; Rs + M usually present as nebulous vein, M + Cu, M, Cu, and Rs often indicated as nebulous veins; marginal cilia in fore wing short; hind wing with short tubular stem of submarginal vein and with cilia distinctly longer than in fore wing; legs slender, with tibial spur formula 1-2-2, and with fore spur bifid; tarsal formula 5-5-5.

Metasoma short and broad, sub sessile, only slightly longer than wide, considerably depressed dorsoventrally, considerably wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes broadly transverse with elevated, short, median, glabrous keel, densely hairy at sides, in female without horn; S1 often with foamy structures anterolaterally; T2 in both sexes anteromedially with narrow, transverse depression filled with very dense, short pilosity, tergite not striate; S2 with felt fields rather well developed; apex of metasoma not particularly pointed in female, obtuse in male; metasoma with sharp edges, with lt2 1/6 - 1/8 width of T2.

**Recognition and Relationships.** This new genus appears most similar to *Helava* and is the more plesiomorphic of the 2 genera, as indicated by the clearly separate clavomeres of both sexes. The latter character state indicates that *Austromerus* is basal to a more advanced group of related genera such as *Aphanomerus* and *Aleyroctonus*, possibly also *Alfredella* and *Amirus*.

The type species (*A. grandis*) is rather different from several other species known to us from Australia. Individuals of these species are generally much smaller than those of *A. grandis* (about 0.50 to only 0.33 in length); the head is more globular, with longer temples and a rounded vertex, the mesosoma is narrower, the scutellar disc subtriangular, with narrower and less defined posterolateral margin; the foamy structure medially in the propodeum is more rectangular, not V-shaped; the wings are more elongate, with a paler discal cloud in the fore wing, and the marginal cilia are much longer than in *A. grandis*. The structure of metasoma and antenna, however, is very similar in all species.

**Etymology.** From *austr-* (Latin) meaning southern and here referring to distribution in Australia. The gender is masculine.

**Distribution.** The present known range of *Austromerus* appears to be restricted to Australia.

**Biology.** Host and habits are not known.
Species described since Kieffer (1926).

grandis Masner and Huggett, presently described, Australia

Austromerus grandis sp. nov.

Figs. 98(dv), 99(lv), 168(a♀), 169(a♂), 220a(lw), 220b(lw), 231(dv), 232(dv)

Diagnosis (♀♂). Largest member of the genus, squat, pilose, with lenticular head and very short temples; lower 1/2 of frons with pronounced transverse wrinkles; A3 in both sexes very long; cervical part of pronotum with patch of yellowish pilosity; lateral keels of scutellum placed far laterad and each interrupted medially; posterolateral margin of scutellum very broad, reaching axillae, margin and axillae filled with dense, yellowish pilosity; propodeum with V-shaped, foamy, posteromedian edge; fore wing with large, dark median cloud and pronounced black hairs on disc at end of submarginal vein.

Description. Female. Length 1.60 mm. Body black, with T1 dark brown; appendages dark brown, with radicle, flagellum, tarsi, and proximal and costal apices of femora and tibiae lighter; wings fuscous, especially median part of fore wing.

Head in dorsal view almost 3 times as wide as long (66:28), lens-like; frons moderately convex; lateral parts of hypercoppical carina, posterior and lower orbits forming together sharp edge; temples very short, as narrow strip behind large eyes; POL:LOL:OOL = 11:8:5; posterior ocelli slightly more than 1d from inner orbits; scape distinctly longer than interorbital space (46:37); eyes glabrous; vertex below hypercoppical carina with rough concentric striae; head in lateral view much higher than long (52:28); eyes very large (25:36), with concave posterior orbit, bean-shaped; frons evenly arched; toruli slightly protruding and upper part of gena disappearing behind eye; edge of gena indistinct, not crenulate and malar space almost 1/2 eye height (17:36); head from in front wider than high (66:52), broadly subtriangular; interorbital space subequal to eye height (37:36); lateral edges of interantennal process conspicuous, and clypeus laterally distinctly delimited by sharp edges; head densely punctate, punctures interconnected with fine lines; lower 1/2 of frons with conspicuous transverse wrinkles reaching inner orbits and arched down around toruli, frons medially without punctures or hairs, shining; otherwise head covered with dense, silvery pilosity.

Antenna (Fig. 168) with A1 coriaceous, with meshes elongate; A1 to radicle as 46:6; antennomeres in proportions: 46:10; 13:4; 18:4; 5:4; 3:4:5; 4:5; 7:7; 9:5:9; 11:9; 13:5:7.

Mesosoma slightly wider than high (60:58), subrectangular; mesonotum somewhat flattened, pronotum anteriorly rather straight and pronotal shoulders pronounced, subangular; admedian lines barely indicated as very small pits; lateral margins of mesoscutum adjacent to tegulae as very sharp edges; scutellar disc almost flat, forming 90° angle to very broad postero-lateral margin reaching axillae; posterolateral margin and axillae covered with dense, yellowish-white, woolly pilosity; scutellaxillar pits large, weakly defined laterally due to lateral keels not being fused into 1 keel on each side of scutellum, but separated into 2 short, narrow ridges; mesoscutum and scutellar disc with dense, decumbent pilosity and punctate sculpture as on head, around scutellar margin hairs longer, erect; propodeum with median V-shaped foamy structure or 2 modified triangular keels; pronotal groove covered by dense, woolly, yellowish pilosity, at upper end pilosity forming patch; pronotum otherwise (except posteromedially) with dense, rather long, silvery hairs; mesopleuron only with very deep median horizontal sulcus and densely silvery hairy at acetabular and postpectal areas; metapleuron divided medially by deep horizontal groove and covered by dense, rather long, silvery hairs; posterior edge foamy, yellowish.

Fore wing clearly surpassing tip of metasoma, not especially broad (145:57); submarginal vein rather far from fore margin of wing and marginal cilia very short; M + Cu, RS + M, RS, M, and Cu rather conspicuous as nebulosus veins and to lesser extent as
spectral veins; wing disc rather densely hairy, with large, dark, median cloud and especially around knob of submarginal vein, hairs pronounced, black; hind wing (115:35) rather broad, with marginal cilia less than 1/8 wing width and r-m rather distinct; stem of submarginal vein rather long, with about 7 hairs; legs long and slender, with dense grey pilosity.

Metasoma slightly shorter than rest of body (80:90), slightly wider than high; T1 much transverse (16:60), with glabrous, short but distinct neck with some few pronounced keels; laterad of neck larger pit delimited exteriorly by angular distinct crest; exterior of crest deep hollow covered with dense hairs and silvery woolly pilosity; T2 transverse (46:63), with 2 very short and very broadly triangular pits almost fused medially, filled with hairs and silvery pilosity; T3–T6 with row of hairs and tapering to blunt apex; T6 broadly triangular; S1 and basal 1/3 of S2 with very dense, whitish pilosity; laterotergites 1/6 width of T2.

Male. Similar to female to such extent that sex determination is rather difficult. Antenna (Fig. 169) is also very similar to that of female but with clava less abrupt, 5-segmented. Antennomeres in proportions: 53:10; 15:4; 19:4; 7:5; 7:5; 9:8; 10:8:5; 9:8; 10:8; 15:7; A4 with delicate, short keel ventrally. Apex of T7 broadly rounded.

Etymology. From *grandis* (Latin), great, here referring to the size of the body.

Material Examined. Holotype: ♀, Australia, NSW, Kiandra, 10 August 1962 (E. F. Riek) [ANIC]; Paratypes (all from Australia): 20♀♂, with same data as holotype (under bark); ♀, ACT, 24 February 1959 (E. F. Riek); 2♂♂, Blundell's, 7 January 1930 (L. F. Graham); 2♂♂, Lee's Spring, 1 March 1949 (E. F. Riek); ♀, NSW, Barrington Tops, 7 April 1949 (E. F. Riek); ♀, Tas., Hobart, 3 January 1953 (E. F. Riek); ♀, Vic., Mt. Buffalo N.P., 900 m, 18–19 January 1980, *Eucalyptus* forest (A. Newton, M. Thayer) [CNC, ANIC, HUGG, USNM, BMNH].

Biology. Host and habits are unknown. Some paratypes were collected under bark.

**Calomerella gen. nov.**

Figs. 81(dv), 82(lv), 146(a♀), 222a(fw), 222b(hw), 237(lv), 238(dv)

Type species: *Calomerella scutellata* sp. nov. (described below), by present designation.

Diagnosis (♀). Moderately elongate species with predominantly orange-yellow appendages; eyes distinctly hairy; antenna of female 8-segmented, with massive, compact, ovoid, 1-segmented clava (i.e. fused A8–A10) and with sensillar formula 1-2-1; notauii percurrent; scutellar suture foveolate; lateral keels of scutellum long and fused; scutellar disc subtriangular due to large postero-lateral depressions, slightly pointed-protruding postero-medially; scutellar rim strong, raised; epinotum well developed; propodeum without foamy structures; tibial spur formula 1-2-2; T2 striate anteromedially; S2 with only delicate felt fields.

Description (♀). Head from above wider than long, subrectangular; vertex rounded; occipital carina strong, complete, noncuneulate; occipital pit not developed; temples long, receding behind eyes; posterior ocellus about 1d distant from inner orbit; OOL< LOL; eyes distinctly hairy; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, not concave, with its margin moderately projecting and anteclypeus rather short; mandibles short, bidentate, clapsed normally; palpal formula 1-1; female antenna 8-segmented with massive, compact, 1-segmented, ovoid clava (A8, i.e. fused A8–A10); sensillar formula 1-2-1; scape apically only with short lamellae.

Mesosoma about as wide as high; pronotal shoulders clearly visible in dorsal view but not angular; epomia not developed; mesoscutum only moderately convex; notauii percurrent, shallow, noncuneulate, strongly converging posteriorly; admedian pits distinct;
axillae present as large, subvertical, hairy, triangular fields; scutellum rather flattened, subtrapezoidal, with arc of large foveae at scutellar suture, with long, fused lateral keels, and with 2 large depressions posterolaterally; scutellar disc subtriangular (due to 2 posterolateral depressions), slightly pointed-protruding posteromedially and with strong, raised posterior rim; metanotum either with very fine foveoles or nonfoveolate, with dorsellum weakly defined; propodeum medially with 2 subparallel keels, hairy at sides; pronotal groove deep, sparsely hairy; epicnemium well developed, reaching almost spiracle; sternaulus not developed; mesopleuron not particularly excrave, with subhorizontal, deep sulcus slanting anteriorly toward fore coxa; metapleuron and sides of propodeum hairy; no brachypterous or apterous forms known; fore wing with tubular submarginal vein and truncate knob reaching about 1/3 wing length; other veins at most as spectral veins; marginal cilia in fore wing short; hind wing with short tubular stem of submarginal vein and with marginal cilia slightly longer than in fore wing; legs rather short, with tibial spur formula 1-2-2, and with fore spur bifid; tarsal formula 5-5-5.

Metasoma clearly longer than wide, only moderately depressed dorsoventrally, wider than high; in female with 6 visible tergites; T1 transverse, with longitudinal costae medially and dense pilosity laterally, without horn; T2 with 2 hairy pits anterolaterally, distinctly striate anteromedially; felt fields on S2 very delicate; apex of metasoma broadly triangular in female; metasoma with sharp edges, with T2 about 1/5 width of T2.

**Recognition and Relationships.** *Calomerella* is classified in the cluster of genera characterized by a trend toward an ovoid, compact, 1-segmented clava in the female, also rarely in the male antennae. *Calomerella* has only A8-A10 fused, with A7 free, and represents a more primitive stage of the above trend, compared with a more advanced stage found in *Aphanomerus* and *Pseudaphanomerus*. All 4 clavomeres (A7-A10) are fused into a compact clava in females of the latter 2 genera. *Calomerella* differs from *Aphanomerus* primarily in the structure of the scutellum (foveolate scutellar suture, form of lateral keels, scutellar rim, etc.) and sculpturing of T2, with long striae anteromedially. *From Pseudaphanomerus*, this new genus differs by the nonfoveolate scutellar rim and by the almost cylindrical (nondepressed) body. Some relationships may exist between *Calomerella* and *Parabaeva*, based on similarities in scutellar structure (in winged forms), but the 2 genera differ amply in the structure of the antennal clava (subcompact, 4-segmented in *Parabaeva* versus compact, 1-segmented in *Calomerella*) and the structure of the metasoma (T1 fused with T2 and S1 with S2 in *Parabaeva* versus distinctly separate in *Calomerella*).

**Etymology.** From *calo-* (Greek), meaning beautiful and here referring to the rich sculpturing of the mesosoma, the scutellum in particular. The gender is feminine.

**Distribution.** *Calomerella scutellata* (described below) is known to us from very distant localities in the United States and Canada. Specimens of *Calomerella* were recently examined from Mexico (Guerrero). With only a few individuals available we prefer to treat this genus as Nearctic-Neotropical in distribution.

**Biology.** The hosts and habits are unknown.

**Species described since Kieffer (1926).**

*scutellata* Masner and Huggert, present description, USA

**Calomerella scutellata sp.nov.**

Figs. 81(dv), 82(lv), 146(a), 222(a-fw), 222(b-hw), 237(lv), 238(dv)

**Diagnosis (a).** Small, somewhat elongate black species, with yellowish legs and antennae; head with hairy eyes and clava compact; notauli finely impressed and admedian pits present; scutellar suture strongly foveolate and axillae large, subvertical; scutellum posterolaterally with 2 large depressions, posterior rim strong, raised, and scutellar disc subtrian-
gular, with minute but distinct point postremodially; metanotum scarcely foveolate; 2 median keels on propodeum subtriangular; pronotal groove deep and narrow; prepectus large, reaching spiracle; mesopleural depression with sulcus very narrow and deep; T1 and T2 anteromedially elevated, with strong foveolate costae and deep lateral hairy depressions.

**Description. Female.** Length 0.95 mm. Colour of body blackish, with legs and antennae yellowish; proximal 1/2 of antennae, last tarsal segment, and especially femora darker, with coxae still darker; wings virtually hyaline.

Head in dorsal view about twice as wide as long (28:17), frons only gently arched and occiput very concave; temples about 1/3 length of eyes (4:13) and evenly curved; POL:LOL:OOL = 7:4:1:5; scape longer than interorbital space (16:12); head in lateral view higher than long (25:17), with frons and vertex evenly curved; gena rather broad, only delicately carinate in its upper half; eye rather round (15:12) and malar space rather long, yet shorter than eye height (9:15); head from in front subtriangular, slightly wider than high (28:25), with cheeks moderately arched, head with rather deep, scattered punctures, with distinct, dense pilosity and fine meshed coriaceous reticulation, except just above toruli; sculpture lateral of toruli somewhat wrinkly or rugulose.

Antenna (Fig. 146) with A1 coriaceous-reticulate, A1 to radicle as 16:2; antenno-meres in proportions: 16:3.5: 7.2:5: 3.5:2: 1.5:2: 1.5:2: 1.5:3: 14.6.

Mesosoma as wide as high (26:26), longer than wide (33:26), and midlobe anteriorly with distinct small admedian pits placed almost twice as far from each other as from notaular pits; side lobes laterally with distinctly thickened edge and inwardly distinctly grooved transcutellar suture also distinctly grooved along interior edge; scutellaxilar pits large but weakly defined due to pronounced foveolae of scutellar suture; posterior part of lateral keels rather sharply pointed; scutellum twice as wide as long (15:7), with large, deep, hairy posterosilateral depressions almost reaching to scutellaxilar pits; mesoscutum and scutellum with same pilosity and sculpture as on head but sculpture slightly finer; pronotal shoulders with denser and more pronounced sculpture similar to that on vertex; metanotum with delicate to inconspicuous foveolae; dorsellum laterally delimited by thicker, elevated humps or very short ridges and between them surface slightly unevenly sculptured; propodeum with keels subtriangularly dilated posteriorly and smooth between keels; side of pronotum, except close to pronotal groove, with distinct pilosity and sculpture as on vertex; pronotal groove hardly dilated ventrally, narrow, deep and evenly pilose; mesopleuron below tegula and median sulcus of mesopleural depression with several longitudinal, delicate ridges, not reaching anterior edge of pleuron, also some few ridges below sulcus; lower 1/4 of mesopleuron with same sculpture and pilosity as on mesoscutum; acetabular and precoxal carinae simple but rather distinct; metapleuron covered entirely with rather long, silvery hairs, except close to dorsal margin.

Fore wing rather narrow (90:35), surpassing tip of metasoma by 1/4 of its length; especially RS, M, and Cu visible as spectral veins; wing disc with dense pilosity; hind wing (75:13) with marginal cilia 1/4 – 1/5 wing width and submarginal vein with 1–2 hairs.

Metasoma slightly longer than mesosoma and clearly longer than wide (43:24), spatulate; T1 (6:15) medially raised, strongly costate and laterally broadly and deeply depressed; T2 about as long as wide (23:24), anteromedian part slightly raised and projecting 1/2 of tergite; with pronounced costae reaching to about posterior 1/2 of tergite; anterolateral, somewhat elongate pits deep, covered by greyish pilosity; tergite posterolateral to pits with few hairs, otherwise smooth and shining; T3–T6 tapering to apex, virtually smooth and shining and hind margin of tergites with scattered hairs; anterior margin of S1 raised and with pronounced costae, hairy behind.

**Male.** Unknown.
Etymology. The specific name is the Latin adjective *scutellatus*, derived from the noun *scutellum*.

Material Examined. Holotype: ♀, USA, Maryland, Patuxent Wildlife Center, 22 August - 6 September 1979 (M. Schauff, E.E. Grissell) [CNC No. 19477]; Paratypes (♀♂): ♀, USA, Michigan, Kalamazoo Co., Gull Lake Biol. Station, 9 August 1970 (R.L. Fischer); ♀, USA, Arizona, Cochise Co., Cave Creek Canyon, 5000 ft., 3 August 1977 (L. Masner); ♀, USA, Arizona, Cochise Co., Chiricahua Mts., South-Western Research Station, 1525 m (V. Roth); ♀, USA, Illinois, Tolon, 24 August 1977 (M.E. Irwin); ♀, USA, Maine, Madison Co., Lincoln, 7–24 September 1982 (E.T. Armstrong); 3 ♀♂, USA, Michigan, Ann Arbor, 23 August 1982 (L. Huggert); ♀, Canada, Ont., Walpole I., 25 August 1982 (L. Huggert) [CNC, HUGG].

Recognition and Relationships. No substantial variation has been observed among the few but widely scattered individuals. The foveolation on metanotum is slightly better indicated in some to almost invisible in other individuals. The apical tip on the scutellar disc is better developed in the holotype and some paratypes, less pronounced in remaining paratypes.

Biology. The host and habits are unknown. All individuals were collected in late summer, in rather open, sunny biotypes.

**Errholium gen. nov.**

Figs. 104(dv), 105(lv), 186(a♀), 187(a♂), 227al(fw), 227bh(fw), 241(dv), 242(dv)

Type species: *Errholium piceum* sp. nov. (described below), by present designation.

Diagnosis (♀♂). Minute, richly ornamented species, often with light coloured bodies, some species with polymorphic individuals; antennal formula 10–10, female with rather abrupt 3-segmented clava, with at least A8 and A9 protruding outwardly, male with clava less abrupt; pronotum almost straight posteromedially and here rim-like; midlobe of mesoscutum straight anteriorly; notauli percurent (winged individuals); scutellar suture foveolate; scutellar rim distinct, foveolate; propodeum medially with 2 longitudinal keels or keels reduced; epicnemium not present; fore wing of winged individuals rather narrow, nearly paddle-shaped, usually with dark transverse band at meson, featherly, with long marginal cilia; submarginal vein of fore wing reaching almost 0.50 wing length; T2 striate anteromedially.

Description (♀♂). Head in dorsal view wider than long, subglobose or subellipsoid; vertex rounded, in 1 species subacute medially; occipital carina strong, rim-like, non-crenulate; occipital pit not developed; temples rather long, strongly receding behind eyes; ocelli in low triangle, posterior ocellus 0.5–3d distant from inner orbit; OOL < LOL; ocelli rudimentary or absent in apterous individuals; eyes with few scattered minute hairs; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front withclypeus subtriangular, about as wide as outer rims of toruli, rather convex, with front margin projecting; anteclypeus short, spindle-shaped; mandibles short, bidentate, clasped normally; palp formula 1–1; antennal formula 10–10; in female with rather abrupt 3-segmented clava, with at least A8 and A9 protruding outwardly; sensillar formula 1–1–1; male antenna similar to female but with clava less distinct, A3 shorter than A4, latter with carina; scape in both sexes not carinate, without lamellae apically.

Mesosoma only slightly wider than high; pronotal shoulders well developed in dorsal view, noangular, almost straight posteromedially and here rim-like; epomia not developed; mesoscutum only slightly convex, with midlobe almost straight anteriorly; notauli in winged individuals percurent, sharply incised, non-crenulate, strongly converging and often slightly dilated posteriorly; scutellar suture with distinctly pronounced foveolae; axillae reduced to subhorizontal triangles interior of rather delicate, fused lateral keels; scutellar
disc moderately convex, nearly semicircular, with distinct posterior rim, more or less distinctly foveolate inwardly; metanotum foveolate, with dorsollum completely concealed under posterior margin of scutellum; propodeum deeply concave, medially with 2 short, posteriorly divergent keels, or keels strongly reduced and propodeum with grooved nucha more pronounced, densely hairy at sides; pronotal groove rather deep, sparsely hairy; epicnemium not present; sternausus usually well developed; mesopleural depression rather shallow, horse-shoe-shaped, with deep horizontal median sulcus; metapleurion and sides of propodeum hairy; brachypterous and aperous individuals occur with various degrees of reduction of mesosoma, usually with mesoscutum and scutellum fused, metanotum absent and pronotum enlarged; fore wing in winged individuals rather narrow, nearly paddle-shaped, usually with dark transverse band at meson, feathery, with long marginal cilia; submarginal vein tubular with rounded knob reaching almost 1/2 wing length; spectral veins hardly indicated; marginal cilia in fore wing unusually long, including most of fore margin of wing, about 1/2 wing width; hind wing with moderately long, tubular rudiment of submarginal vein and with marginal cilia about as long as wing width; legs rather short and stout, with tibial spur formula 1-1-1, and with fore spur bifid; tarsal formula 5-5-5.

Metasoma rather short, only slightly elongate, considerably convex, both dorsally and ventrally, moderately wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes transverse, subrectangular, with longitudinal grooves and small hairy pits laterally in female without horn; T2 in both sexes with 2 small hairy pits anterolaterally, with distinct costae and striae anteromedially, in some species reticulate in posterior half, distinctly longer than following tergites combined; felt fields on S2 delicate; metasoma with rather blunt edges, with t2 about 1/5 width of T2.

**Recognition and Relationships.** *Errulum* appears most similar to *Alloptota*. Females of the 2 genera share a similar structure of the antennae, and members have a long, tubular submarginal vein in the fore wing. Also, these 2 genera are the only platgyastrid wasps known to us to parasitize coccids or mealybugs. Members of *Errulum* are distinguished from those of *Alloptota* by the presence of notaui, normally clasped mandibles (not scissor-like), scutellar rim well developed, narrow t2, and by the longitudinal sculpture of T2.

**Etymology.** The genus is named in honour of Mr. Errol W. Valentine (formerly NZAC, Auckland) for the discovery of the first species of this beautiful genus. The gender is neuter.

**Distribution.** *Errulum* is, in all probability, endemic to New Zealand. We examined about 7 species, mostly light coloured, from numerous localities on both islands. Apparently, this new genus replaces *Alloptota* in New Zealand as the latter was not found here.

**Biology.** Errol Valentine (personnal communication) reared 1 species from *Inglisia* sp. (Coccididae) and observed twin embryonic development involving a normal winged female with a dwarf, aperous, blind male inside the same host skin. He also noticed considerable polymorphism among the females, ranging from normally winged to short-winged and eventually aperous individuals. Males may be either normally winged, or dwarfed. The dwarf males are probably short-lived as they were seldom collected in the field; they seem to die in the host skin after mating with the twin female.

**Species described since Kieffer (1926).**

*Errokum piceum* Masner and Hjugert, present description, New Zealand

**Errokum piceum sp.nov.**

Figs. 104(dv), 105(lv), 186(a.9'), 187(a.9'), 227a(fw), 227b(hw), 241(dv), 242(dv)

**Diagnosis** (9). Stout, dark brown species with dark, transverse band in fore wing; frons below anterior ocellus smooth; propodeum medially much narrowed, with keels short and strongly converging anteriorly, with nucha longitudinally costate; T2 with costae and striae
extending medially to about middle of tergite, posterior 1/2 of T2 appearing smooth, with extremely fine, almost inconspicuous cariaceous microsculpture.

**Description. Female.** Length 0.91 mm. Body dark brown, with T1 lighter, reddish-brown; antennae brown; legs light brown, with apices of tibiae and all tarsi yellowish-brown; transverse band in fore wing light brown.

Head in dorsal view transverse (31:17), with scattered, semidecumbent silvery hairs; vertex and occiput above occipital carina evenly cariaceous, sculpture ending abruptly before posterior ocelli, not reaching anterior ocellus; eyes distinctly longer than temples (11:6); ocelli very small, posterior ones distant from inner orbits by about 3d; POL:LOL:OOL = 14:8.3; head in lateral view higher than long (21:18), with frons only moderately convex, eyes suboval (8:11), postgena with only very fine cariaceous sculpture and malar space subequal to eye height (10:11); head from in front wider than high (31:27); interorbital space distinctly wider than eye height (21:11); arched wrinkle right above toruli extending at sides past outer rims of toruli; frons lustrous smooth, almost glabrous, with only few small hairs below anterior ocellus.

Antenna (Fig. 186) with A1 with extremely fine cariaceous sculpture, A1 to radicle as 18:2; antennomeres in proportions: 18:3; 5:3:5; 2:2; 1:5:2; 1:5:2:5; 2:3; 6:6; 4:5:6:5; 6:6.

Mesosoma short and broad, only slightly wider than high (31:29), only moderately convex dorsally; pronotum with scattered pilosity, cariaceous dorsally, gradually smoother at sides; mesoscutum evenly cariaceous as occiput; notauli strongly converging posteriorly and here only slightly broadened, parapsidal lines abbreviate anteriorly; scutellum wider than long (22:10), with cariaceous sculpture as on mesoscutum, with posterior rim strong, projecting, with pronounced foveolae along scutellar suture; in dorsal view scutellar rim covering metanotum and anteromedian part of propodeum and its short keels; posterolateral corners of propodeum mostly obscured by pilosity; nucha longitudinally costate; mesopleuron almost entirely smooth and glabrous except for dense patch of hairs below sternaulus, with sternaulus better developed anteriorly; metapleuron with very dense pilosity and with no apparent sculpture.

Fore wing clearly surpassing tip of metasoma, much longer than wide (80:24), with longest marginal cilia nearly 1/2 wing width, with dark band starting in front of knob and reaching posterior 2/3 of wing; submarginal vein 1/2 wing length (40:80); M + Cu, RS + M, and RS inconspicuously indicated as spectral veins; hind wing with longest marginal cilia almost equal to wing width.

Metasoma short, as long as head and mesosoma combined (50:50), only slightly elongate (50:33), wider than high (33:22); T1 transverse (6:19), with strong longitudinal costae medially and with hairy pits laterally, with several long bristles at sides; T2 only slightly longer than wide (35:33), almost glabrous; T3–T6 very short, smooth, with 1 row of silvery hairs each; S2 finely cariaceous, particularly at sides, with scattered hairs all over; It2 about 1/5 width of T2.

**Male.** Unknown.

**Etymology.** From *piceus* (Latin) meaning dark, in reference to the dark brown colour of the body.

**Material Examined.** Holotype: ♀, New Zealand, OL, Makarora, 21–24 January 1978, Malaise trap in Notofagus forest (S. and J. Peck) [NZAC]; Paratypes: 5 ♀ ♀ ♀, with same data as in holotype [CNC, HUGG]; ♀, New Zealand (South I.) Dun Mt., 2000 ft., 25 January 1931 (E.S. Gourlay) [NZAC].

**Recognition and Relationships.** *Errortium piceum* belongs to the species-group characterized by the darker colour of the body and by the propodeum being distinctly narrowed at meson, with the propodeal keels very short, strongly converging anteriorly, and with the nucha well developed, grooved. One very melanic, undescribed species of this group
is known to us from Lake Rotoiti (Nelson Lakes N.P., South Island). However, other undescribed species in New Zealand are more light-coloured, testaceous or light brown. The latter species form a group in which the propodeum is better developed medially, with keels subparallel, well visible in dorsal view.

Little variability was observed in the type series of *E. piceum*, except for slightly lighter colour in some paratypes.

**Biology.** Unknown.

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**FIDIOBIA ASHMEAD**

Figs. 51(lv), 52(dv), 53(lv), 54(dv), 55(dv), 64(dv), 155(a♂), 156(a♀), 211a(fw), 211b(hw), 212a(fw), 212b(hw), 240(dv)


**Diagnosis (♀♂).** Squat and stocky to elongate, spindle-like species with body slightly to considerably depressed dorsoventrally, usually melanized, rarely xanthic, often with bright coloured appendages; vertex rounded; temples rather long; posterior ocellus in most species very close to inner orbit; antenna of most species with 3-segmented clava, clava less abrupt in males; mesoscutum considerably flattened; notaule (if developed) abbreviates anteriorly, gradually dilated posteriorly, rarely notaule not dilated but strongly converging posteriorly or notaule not developed; axillae reduced to minute depressions; scutellar disc strongly flattened, transverse to subrectangular with simple transcutal suture; scutellar rim not developed; propodeum with foamy structures and with 2 short median keels; fore wing in most species with short tubular submarginal vein, and with marginal cilia moderately long, minute or absent; tibial spur formula 1,2-2; T2 of most species with 2 depressions anterolaterally but no striae anteromedially; T2 broad, about 0.50 width of T2; felt fields on S2 not developed.

**Description (♀♂).** Head from above wider than long, subellipsoidal; vertex rounded; occipital carina delicate, usually not well developed medially, noncrescentate; occipital pit not developed; temples rather long; strongly curved behind eyes; posterior ocellus in most species remote from inner orbit only by 0.5–1.0d, rarely contiguous with latter and hence OOL<LOL, in few species posterior ocellus more remote from inner orbit, with OOL equal to LOL; ocelli rudimentary or absent in apterous forms; eyes appearing glabrous but under high magnification with scattered minute hairs; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, slightly concave, not wider than outer rims of toruli, with upper margin sharp and projecting; interantennal process minute, mandibles short, bidentate, clapsed normally; palpal formula 1,1; antennal formula in most species 9-9, in some 9-10 or 10-10; in female with abrupt, noncompact, 3-segmented clava and sensillar formula 1,2-2; males of most species with antenna similar to female but with clava less abrupt, in some species male antenna subclavate to nonclavate, A3 or A4 produced exetroventrally; scap carinate, in some species with distinct transparent lamellae apically, ventral lamella considerably expanded in few species.
Mesosoma distinctly wider than high, strongly depressed dorsoventrally in some species; pronotal shoulders clearly visible in dorsal view nonangular, epomia not developed; mesoscutum considerably flattened; notaui (if developed) abbreviate anteriorly, rather shallow but sharply incised, noncereolate, gradually dilated posteriorly till almost triangular, rarely notaui not dilated but strongly converging posteriorly, or notaui not well defined or absent; scutellum strongly flattened, transverse, subrectangular, with simple transcutal suture, with axillae reduced to minute depressions situated anterolaterally, with strong lateral keels and with posterior margin without distinct rim; metanotum nonfoveolate, with dorsellum weakly defined, rarely dorsellum covered with foamy structures forming subtriangular process; propodeum medially with 2 short parallel keels, in some species laced or covered with massive foamy structures, posterior margin of propodeum in most species laced with foamy structures reaching up to spiracles, anterodorsal and anterolateral parts of propodeum with short pilosity; pronotal groove rather deep and glabrous; epicnemium in most species absent or reduced to rudiment right above fore coxa, rarely better developed; sternaulus either well developed, rudimentary, or absent; mesopleural depression usually shallow or not well defined, mesopleuron often with transverse ridges below tegula; metapleuron partly glabrous anteriorly, partly hairy posteriorly or with minute patch of foamy structure above hind coxa; fore wing in most species with short tubular submarginal vein terminating in rounded knob not surpassing basal 1/4 of wing length, in some species vein as short as tegula or entirely absent, however, in some species vein much longer till surpassing basal 1/3 of wing length, other veins absent or at most spectral; marginal cilia in fore wing short in most species, rarely absent, disc in some species with spinulose microtrichia or reticulate sculpture; hind wing with short submarginal vein basally and with rather long marginal cilia; wings shortened in several and absent in 1 species; legs rather short and stout, with tibial spur formula 1-2-2 (inner spur of mid and hind tibia minute) and with fore spur bifid; tarsal formula 5-5-5.

Metasoma always strongly depressed dorsoventrally, subrectangular in most species, rarely spindle-shaped, smooth and mostly glabrous; in female with 6, in males with 8 visible tergites of which some may be telescoped under large T2; T1 in female without horn or hump, in both sexes either strongly transverse and subrectangular, or trapezoidal, with anterior margin much narrowed, with few costae and some pilosity; T2 in most species with 2 depressions with fine pilosity anterolaterally, with no costae or striae anteromedially; T2 either about as long as following tergites combined or distinctly longer, with some tergites telescoped under its posterior margin; felt fields on S2 not developed; metasoma in most species with indistinct edges, with It2 broad, about 1/2 width of T2.

Recognition and Relationships. This is a large and truly worldwide genus known to us by numerous undescribed species. In the past, some peripheral species were given generic rank as reflected by the above synonymy. For example, forms with the body strongly depressed dorsoventrally were treated as independent genera (Fahringeria, Platylothropia). At first we were inclined to recognize some of these names and even intended to propose further new names. Fortunately, extensive material worldwide with several critical intermediate species became available to us and we adopted the present broader concept of Fidiobia. Eventually, we decided also to include in Fidiobia species with an antennal formula other than 9-9, and also species with a posterior ocellus considerably remote from the inner orbit. The relative length of the submarginal vein of the fore wing also differs, from species with the vein slightly exceeding the basal 0.33 of the wing length, to species with the vein only 0.14 of the wing length (most species), to as short as the tegula, or with the vein completely absent (some undescribed African species).

The most primitive members of Fidiobia have an antennal formula of 10-10, the OOL equal to or slightly shorter than the LOL, the submarginal vein of the fore wing long, surpassing the basal 0.33 of the wing length, the propodeum with no foamy structures and
the metasoma posterior to T2 with all tergites exposed and clearly visible, not concealed under T2, and with T1 broadly subrectangular. The transformation series toward more apomorphic members involve an antennal formula of 9-10 and 9-9, the OOL gradually shortened until the posterior ocellus is almost contiguous with the inner orbit, the submarginal vein of the fore wing gradually shortened until absent in 1 undescribed species, propodeum with foamy lacing along the posterior margin until predominantly covered with a massive foamy structure forming a strong process medially (covering the median keels), metasoma with T1 gradually longer and becoming trapezoidal, and tergites posterior to T2, very narrow, gradually concealed (telescoped) under T2. There is a remarkable species-group in Africa with several undescribed species, notable for strong longitudinal ridges on both the posteromedian part of the mesoscutum (with no notaui) and the scutellum. The massive foamy structures of the propodeum also cover the dorsellum; 1 species of this group shows no trace of submarginal vein in the fore wing.

The closest relatives of Fidiobia are Platystasius, Plutomerus, and Neobia, of which Platystasius is considered more pleiomorphic, and Plutomerus and Neobia more apomorphic when compared with Fidiobia. The limits between Fidiobia and Platystasius were not well understood in the past (Nixon 1969; Loiacono 1982), however, the shape of the notaui seems to distinguish the 2 genera conveniently. The notaui are narrow, nondilated, percurrent, and almost parallel in Platystasius. Members of Fidiobia exhibit a considerable range of notaular structure. Notaui, if developed, are not percurrent, abbreviate anteriorly and then broadly dilated posteriorly, if not dilated then strongly converging posteriorly, or the notaui are not developed. Plutomerus differs from Fidiobia in specialized cephalic structures involving the sharply crested vertex, narrow temples, and strongly expanded scape. Neobia differs from Fidiobia in longitudinal sculpture of T2 and the position of ocelli.

**Distribution.** Worldwide.

**Biology.** Primary solitary endoparasites in eggs of weevils (Curculionidae) and leaf beetles (Chrysomelidae).

**Keys to Species.** Palearctic spp. (Szabo 1958; Kozlov 1978).

**Species described since Kieffer (1926).**
- asina (Loiacono) 1982, Chile; from *Platystasius*, **comb.nov.**
- benjami (Nixon) 1969, Kenya; from *Platystasius*, **comb.nov.**
- bonariensis (Brèthes) 1916, Argentina; not in Kieffer (1926)
- citri (Nixon) 1969, Jamaica; from *Platystasius*, **comb.nov.**
- coorgensis Mukerjee 1981, India; belongs to *Leptacis* Forster (Platygastrini) **comb.nov.**
- drakei (Ogloblin) 1944, USA; from *Triclavis gallicola* (Szelényi) 1938, Hungary; from *Platyliotropa*; synonym of *Fahringeria synergorum* Kieffer, **syn.nov.**, types examined by senior author
- phryne (Debauche) 1947, Belgium; from *Rosneta*; considered synonym of *F. tatrae* Szelényi (Jansson 1956)
- pronotata Szabo 1958, Hungary
- tatrae Szelényi 1941, Czechoslovakia; considered synonym of *F. rugosifrons* Crawford (Szabo 1958)

**HELAVA GEN.NOV.**
Figs. 96(dv), 97(lv), 170(a♀), 171(a♂), 172(a♀), 173(a♂), 225a(fw), 225b(hw), 239(dv)
**Type species:** *Helava alicola* sp.nov. (described below), by present designation.

**Diagnosis** (♀♂). Short, squat, melanic members with slender legs and conspicuously long wings and smooth, hairy bodies; antennal formula 10-10, antenna clavate in both sexes,
clava abrupt, subcompact, spindle-shaped, 4-segmented (rarely 3- or 2-segmented), or clava ovoid, almost compact 3-segmented; notauli usually not developed; scutellum with abundant pilosity, with scutellar rim not defined and with very short lateral keels; propodeum in most species with thick foamy structures, median keels not developed; epomium not developed; mesopleural depression rather shallow; fore wing with long, tubular submarginal vein and truncate knob and other veins (RS + M, M + Cu, M, Cu, and RS) dark, nebulous; wings reduced or absent in several species; tibial spur formula 1-2-2; metasoma short and squat, only slightly longer than wide, highly convex dorsally; T2 with narrow strip of dense pilosity along anterior margin, smooth and glabrous, nonstriate; felt fields on S2 well developed.

**Description** (♀ ♂). Head from above wider than long, subellipsoidal; vertex rounded but hyperoccipital carina more or less developed in some species; occipital carina strong medi-ally, noncrenulate, reduced at sides and not reaching down to mandibles; occipital pit not developed; temples long, receding behind eyes; posterior ocellus 0.5–2d distant from inner orbit; OOL < LOL; ocelli diminished in wingless or shortwinged individuals; eyes hairy; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, flat, not wider than outer rims of toruli, and with anterolateral corners not protruding; mandibles short, bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; in female with abrupt, subcompact, spindle-shaped, 4-segmented (rarely 3-segmented) clava, or with ovoid, almost compact 3-segmented clava; sensillar formula 1-2-2-1 or 1-2-2; male antenna with distinct subcompact, spindle-shaped clava, or clava ovoid, clava 4- or 3-segmented, in 1 species 2-segmented, A3 shorter than A4, latter with sharp carina ventrally; scape in both sexes not carinate, without lamellae apically.

Mesosoma about as wide as high; mesoscutum moderately convex; notauli usually not developed, sometimes indicated posteriorly as shallow depressions, in 1 species perr-current; scutellum moderately convex, pillow-shaped, subcircular, separate medially from mesoscutum by plain, noncrenulate transcutal suture, with no crenulae along margins but with dense pilosity, especially posteriorly, with no posterior rim and with very short lateral keels usually concealed under pilosity; metanotum nonfoveolate, with dorsellum not defined; propodeum in most species entirely covered with thick, pale, foamy structures, these rarely reduced to narrow strips behind spiracles and along posterior margin and here notched or widely interrupted medially and propodeum weakly to predominantly densely hairy; median propodeal keels not developed; pronotal groove deep, with dense pilosity; epicnemium not developed; sternaulus absent; mesopleural depression rather shallow, sloping down to median transverse sulcus; metapleuron hairy in contrast with foamy structures on sides of propodeum; in flightless individuals pronotum considerably developed dorsally, mesoscutum and scutellum reduced, metanotum absent, in 1 species scutellum fused with mesoscutum and mesopleuron without median transverse sulcus, wings may be stump-like, reaching only base of T2 or absent; fore wing in winged individuals long, to extremely long, often generally infuscate; submarginal vein tubular, with truncate knob reaching about 1/3 wing length; other veins nebulous, especially RS + M, M + Cu, M, Cu, and RS, indicated as dark lines, almost reaching wing margin; marginal cilia in fore wing rather long; hind wing with short, tubular stem of submarginal vein, often with nebulous r-m and with long marginal cilia; legs rather long and slender, with tibial spur formula 1-2-2 and with fore spur bifid; tarsal formula 5-5-5, with slender tarsomere.

Metasoma in most species short and squat, only slightly longer than wide, rarely moderately elongate, highly convex dorsally, in female with 6, in male with 8 visible tergites; T1 in both sexes very broad and short, broadly subtrapezoidal, covered with dense pilosity sometimes interrupted medially by glabrous keel, in female without horn; T2 in both sexes with dense strip of pilosity anteriorly, rest of T2 smooth and glabrous, not
striate, in some species T2 with short glabrous keel anteromedially flanked by 2 shallow depressions; S1 in some species with foamy structures similar to those on propodeum; felt fields on S2 well developed; apex of metasoma not particularly pointed in female; metasoma with sharp edges, with laterotergites 1/5 – 1/7 width of T2.

Recognition and Relationships. The squat habitus of Helava is very reminiscent of members of Amitus. However, the 2 genera are distinguished at once by the relatively complete wing venation found in Helava compared with the veinless wings found in Amitus. However, Helava is most closely related to Austromerus, from which it differs principally in having the antennal clava of both sexes subcompact. The degree of fusion of clavomeres in Helava is also a convenient character state for distinguishing 2 rather distinct species groups in the genus. The first group (represented by H. alticola), considered more pleiomorphic, is composed of members with spindle-shaped, subcompact 4-segmented clava in both sexes (in 1 undescribed species from Chile 3-segmented in female and 2-segmented in male). This group is further characterized by a stronger development of the foamy structures on the propodeum, the sides in particular. The generally larger members of this group show no tendency toward reduction of wings.

The second species group of Helava (all species undescribed) is composed of members with an ovoid, subcompact 4-segmented clava in females (sutures between clavomeres are very delicate in some species) and ovoid, subcompact 3-segmented clava in males. The foamy structures on the propodeum in this group are usually reduced to only the margins of the propodeum (much reduced at sides) and a substantial part of propodeum is hairy. The generally smaller members of this group show a considerable tendency toward wing reduction particularly in the paramo formation of the high Andes. Several brachypterous species are known to us from the paramo in Ecuador and 1 apterous species from the paramo in Venezuela. The degree of wing reduction is correlated with reduction of the foamy structures on the propodeum so that wingless individuals from the paramo of Venezuela have the propodeum entirely hairy, without foamy structures. Also, in the latter species the mesosoma is largely reduced, with the mesoscutum and scutellum fused into 1 sclerite and the metanotum absent. The only species outside the New World known to us is from Tasmania (undescribed), and belongs to the second species group of Helava.

Etymology. Named in honour of Jussi Helava (Ottawa), who collected the first species known to us. The gender is feminine.

Distribution. The material studied (all in CNC) contains 14 species, 13 from South America (from Patagonia to Colombia and Venezuela along the Andes) and 1 from Tasmania. In equatorial South America the members occur in elevations ranging from 1800 m to well over 4000 m, i.e. from the lower montane forest to the treeless paramo. The only species known from Tasmania is confined to cool temperate forests.

Biology. The hosts are unknown, however, the senior author recently examined a single female specimen of Helava (sp. nov. Vlug coll., Wageningen, The Netherlands), reared by the late Hille Ris Lammers, reportedly from a mummy of an aphid, Nunquenaphis sp., associated with Nothofagus sp. in Chile. The escape hole in the mummy corresponds perfectly with the body diameter of the wasp. If this host record is correct then Helava would be the first platygastrid known to attack aphids. Because the southern beesches (Nothofagus), and the aphids of the genus Nunquenaphis Blanch are restricted in South America to regions south of Santiago (Chile), the species of Helava outside this range could be associated with other genera of aphids. Aphids of various species were abundant on plants in the paramos of Venezuela and Ecuador where several species of Helava were collected recently.

Species described since Kieffer (1926).

alticola Masner and Huggert, present description, Colombia, Equador, Peru
**Helava alitica nov.**

Figs. 96(dv), 97(lv), 172(a, 7), 173(a, d), 225a(fw), 225b(hw), 239(dv)

**Diagnosis** (♀). Blackish species with brownish appendages; vertex not carinate, rounded, with no tubercles behind eyes, evenly hairy between posterior ocelli and its crest; frons almost glabrous, with delicate reticulate microsculpture; antennal clava spindle-shaped, 4-segmented; notauli not developed; propodeum almost entirely covered with foamy structures; fore wings exceeding tip of metasoma by 1.5 × its length.

**Description. Female.** Length 1.30 mm. Body black, with antennae and legs brownish, fore legs, knees, and tarsi of all legs lighter; fore wings rather infuscate, veins brownish.

Head in dorsal view strongly transverse (43:22), with frons almost straight; temples shorter than length of eye (7:14); ocelli in very low triangle, with posterior ocellus slightly more than 1d distant from inner orbit; POL:LOL:OOL = 15:7:3; vertex and temples covered with fine but rather dense, short, semidecumbent pilosity on very fine coriaceous microsculpture, posterior (sloping) part of vertex glabrous and polished; posterior part of head with arched occipital carina, carina sharp and well developed medially, fading at sides, hardly reaching midway to mandibles; head in lateral view distinctly higher than long (38:22), with outer orbit slightly concave and frons only moderately convex; eye large, bean-shaped, much higher than long (25:15), and malar space hairy, shorter than eye height (10:25); head from in front wider than high (43:38); interorbital space shorter than both eye height (21:25) and scape (21:33); frons below ocellar triangle almost glabrous, with only 1 row of sparse, minute hairs along inner orbits, shining but with delicate coriaceous sculpture (better seen at angle) except for small perfectly smooth area right above toruli; interantennal process not developed; inner rims of toruli sharply projecting.

Antenna (Fig. 172) with A1 to radicle as 33:2:5; antennomeres in proportions: 33:5:5; 12:3:5; 9:2; 5:5:3; 5:3:5; 5:4; 8:6; 6:6; 5:6; 6:5.

Mesosoma as wide as high (50:50), wider than head (50:43), rather arched dorsally, predominantly hairy; mesoscutum slightly wider than long (43:35), mostly hairy and with fine coriaceous sculpture except posteroomedially and in notaular areas; admedian and parapsidal lines not developed; notauli not impressed but indicated posteriorly as smooth and glabrous streaks; axillae densely hairy; scutellum slightly wider than long (25:20), mostly glabrous anteromedially but with scattered hairs in posterior half and with very dense zone of hairs at sides, with delicate coriaceous sculpture in anterior half, almost smooth posteriorly; metanotum smooth and glabrous, with hairy dorsum; propodeum almost entirely covered with foamy structures except for minute circular region adjacent to foramen magnum; sides of pronotum partly with scattered pilosity, partly glabrous and polished; mesepisternum highly polished, with no ridges under tegula, predominately glabrous except for hairy zone ventrally and above midcoxa; metapleuron smooth, with dense pilosity; all coxae considerably hairy.

Fore wing rather elongate (180:70), surpassing tip of metasoma by 1.5 × length of the latter, with evenly scattered microtrichia on disc; M + Cu, RS + M, RS, M, and Cu indicated as nebulous veins, RS + M the darkest; marginal cilia as 1/11 wing width; hind wing narrow (14:27), with r-m as darker line and with marginal cilia about 1/3 wing width.

Metasoma only slightly longer than wide (60:57), shorter than rest of body (60:75); T1 strongly transverse (46:10), with strong median wedge-shaped glabrous keel, otherwise T1 hairy, with distinct patches of grey structures in lateral corners; T2 transverse (57:40), polished, and glabrous, except for massive uninterrupted band of greyish structures and longer pilosity along anterior margin, with no keel at meson; T3–T6 smooth, with 1 median row of hairs each, T6 broadly triangular and not distinctly pointed at apex.

**Male.** Basically identical to female except for structure of antennae and metasoma; antenna (Fig. 173) with antennomeres in proportions: 33:5; 10:3.5; 4:3; 7:3; 5:3.5; 5:4; 7:5; 6:5.5; 6:5.5; 7:5.
Etymology. *Alticola* (in Latin), meaning an inhabitant of high altitudes, here a reference to the known life zone of this Andean species (2800–4100 m).

Material Examined. Holotype: ♂, *Colombia*, Prov. Caldas, 5º15’N and 76º25’W, 3300–3500 m, 5 April 1973, sweeping vegetation in elfin forest (J. Heleva) [CNC No. 19478]; Paratypes: 50 ♀♂, with same data as in holotype [CNC, SNM, BMNH, HUGG]; Ecuador: 38 ♀♂, Prov. Napo, Quito-Baeza Road, 4000–4100 m, 10–24 February 1983, sweeping of vegetation and pan traps in paramo (L. Masner, M. Sharkey); 83 ♀♂ as above but caught in March 1979 (W.R. Mason); ♂, Tulcan, Carchi, 2800 m, 27 June 1969 (L. Pena); 17 ♀♂, Prov. Napo, above Papallacta, 3200–3500 m, 14, 21 February 1983, pan traps and sweeping of vegetation in paramo and elfin forest (L. Masner, M. Sharkey); Peru: ♂, Prov. Cuzco, 13º40’S and 70º45’W, 2900 m, 18 January 1973 (J. Helava); Prov. Cuzco, 13º40’S and 70º45’W, 3500–3600 m, 19 January 1974 (J. Helava).

Recognition and Relationships. In spite of the relatively wide range of distribution along the Andes (Colombia–Peru) no substantial variability has been encountered. Individuals may vary in total body length from 0.8 to 1.4 mm.

Biology. Host and habitats are unknown. Individuals were swept from bushes in elfin forests as well as on herbaceous plants in the treeless paramo in the Andes (3000–4000 m) of equatorial South America. Numerous individuals were also collected here in yellow pan traps.

*Inostemma Haliday*

Figs. 17(lv), 18(lv), 19(dv), 20(lv), 21(lv), 135(a♂), 136(a♂), 200(a-fw), 200b(hw)


Type species: *Brachinostemma mediterraneum* Kieffer, by original designation. Synonymy by Masner (1964b).


Diagnosis (♀♂). Moderately elongate to very slender, almost spindle-like, melanic species; OOL clearly shorter than LOL; eyes glabrous; eye orbits (inner and outer) not raised; noncylindrical; inner rim of torulus not particularly raised; antennal clava of females only moderately abrupt, cylindrical, usually 4-segmented, rarely 3- or 5-segmented and with sensillar formula usually of 1-1-1-1, rarely 1-1-1; male antenna nonclavate, thread-like; pronotal shoulders rounded; epomia not developed; lateral keel of scutellum raised, meeting scutellar rim at almost right angle; scutellar disc subquadratic to subrectangular; fore wing with tubular submarginal vein terminating in rounded knob; T1 in females usually with hump or horn for housing of ovipositor; S2 with no felt fields.

Description (♀♂). Head from above wider than long, subrectangular, rarely subglobose; vertex rounded, more or less concave in females with very long horn on T1; occipital carina strong, complete, distinctly foveolate above gena; occipital pit not developed; temples well developed, relatively long, with pointed processes laterally in few species; OOL<LOL; posterior ocellus usually 1/2d, rarely 1d from inner orbit, or almost contiguous with eye; eyes appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus considerably variable, short,
often concave, wider than high, with upper margin often projecting; mandibles short, bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; in female A2–A4 usually elongate, A5 and A6 diminished and clava rather moderately abrupt, cylindrical, 4-segmented, rarely 3- or 5-segmented, A10 not wider than preceding clavomeres; sensillar formula usually 1-1-1-1, rarely 1-1-1; male antenna nonclavate, thread-like, antennomeres 3-10 with short hairs, A4 specialized as sexsegment, with carina ventrally; scape in both sexes with sharp dorsal and particularly ventral edges often forming transparent lamellae shielding A2–A6 if antenna in geniculate posture.

Mesosoma usually only slightly wider than high; mesocutum rather flattened dorsally or even slightly excavate medially in females with long horn; notauli percurrent, often dilated posteriorly, noncrenulate, converging posteriorly; scutellar disc subquadratic to subrectangular due to angular posterolateral corners and straight to concave posterior part of disc, scutellar suture with foveolae and scutellaxillar pits rather large, lateral keels parallel or slightly diverging posteriorly, posterior rim usually foveolate; scutellum slightly to deeply excavate medially in females with long horn; metanotum unarmed, not foveolate, with dorsellum not distinctly differentiated, propodeum usually with 2 short, weakly defined median keels; pronotal groove usually distinctly impressed and hairy at both ends; epicnemium not developed; sternaulus not developed; mesopleural depression deep, subtriangular; metapleuron and sides of propodeum hairy; no apterous or brachypterous forms known; fore wing with tubular submarginal vein and rounded knob reaching about 1/3 wing length, other veins at most spectral; marginal cilia in fore wing very short and microtrichia on disc variable, sparse or rather dense, wings sometimes considerably infuscate; hind wing with short, tubular stem of submarginal vein and with marginal cilia slightly longer than in fore wing; legs slender, with tibial spur formula 1-1-1 and with fore spur distinctly trifid; tarsal formula 5-5-5.

Metasoma elongate, distinctly depressed dorsoventrally, wider than high; in female with 6, in male with 8 visible tergites; T1 with longitudinal costae or striae medially, hairy at sides, in females of most species with hump or horn of various length, horn often long and curved, leaning on mesosoma, reaching or surpassing vertex of head; hump or horn not developed in males; T2 in both sexes with deep, hairy pit or pits anteriorly from which more or less pronounced longitudinal striation extends backward; S2 with 2 deep, large pits anterolaterally and with striation extending backward, felt fields not developed; T6 in female triangular, sharply pointed apically; metasoma with sharp edges, with t12 rather narrow, 1/3 – 1/5 width of T2; ovipositor sheaths not extruded in female.

**Recognition and Relationships.** The content and limits of this largest genus, best known for the horn-like process on T1 of the females of most species, were variably interpreted in the past, as reflected by the above generic synonymy. Most problems resulted because the horn is not developed or developed only as a hump in some plesiomorphic species (*Inocerota, Brachinitstemma*). Similarly, *Acerota*, originally described without included species, was misinterpreted by American authors by including *A. carvae* (a species without a horn), which was designated later as the type species, but which actually belongs to *Inostemma*. *Ceratopsis*, proposed for species with expanded scapal lamellae, is interpreted here as merely an apomorphic extreme of a trend that exists in various degrees throughout *Inostemma*. *Prosinostemma* Kieffer (type species: *P. nigerrimum* Kieffer, new emendation) is believed to be established on a teratological female specimen in which 2 antennomeres are either fused or approximated and the antenna appears as only 9-segmented. Unfortunately, we were not able to examine the type of *nigerrimum* and prefer to treat *Prosinostemma* as a genus dambum.

Being a large, worldwide genus, *Inostemma* contains numerous, mostly undescribed bizarre peripheral species. An African species group has members with the scutellar disc sharply bispinose dorsally; a group of Australian species has a short, massive horn on T1
covered with dense, sharp spines; 1 unusually smooth species from New Caledonia has the scutellum perfectly flattened, with the posterolateral corners barely protruding; *I. oculare* has a sharp horizontal ledge in the upper 1/2 of the eye, etc. These extreme character states are purposely accentuated here so that genera are not established for such species, thereby leaving *Inostemma* paraphyletic. Another taxonomic problem, this time on the species level, concerns variations in the length and shape of the process (hump or horn) on T1, a character state generally used as a criterion for the species separation in *Inostemma*. Considerable variability among individuals of *I. acuminatum*, a short-horned species in Europe, was observed by the senior author. A high degree of sexual dimorphism also precludes proper sex associations, particularly in nonreared material.

*Inostemma* appears related to both *Sacespalus* and *Iphitrachelus*. The 3 genera share an identical structure of S2, with no felt fields, but with 2 large pits situated anterolaterally, from which striation extends backward. Yamagishi (1982) doubted the validity of *Sacespalus* as an independent genus, pointing to the presence or absence of a tubular submarginal vein in the fore wing as the only difference between *Inostemma* and *Sacespalus*. We agree with Yamagishi on this point but believe that the 2 genera could be conveniently separated on structures of the eye orbit and epomia. Species of *Sacespalus* have both the inner and particularly the outer eye orbit raised and often crenulate and the epomia always distinctly developed. Such character states are not known to us to exist among the species of *Inostemma*. We also are not aware of any intergrading species between these 2 genera. *Sacespalus* appears as the more apomorphic genus, largely because of the reduction of the submarginal vein in the fore wing as well as for the specialized structure of the eye orbit and the epomia.

**Distribution.** A worldwide genus, with numerous species, mostly undescribed.

**Biology.** The members are parasitic in gall midges (Cecidomyiidae) (Marchal 1906; Myers 1927; Szélényi 1938b). We speculate that females with long horn attack hosts in niches with difficult access, where a longer ovipositor is a definite advantage.

**Keys to Species.** Palearctic spp. (Szélényi 1938b), Czechoslovakia (Tomsik 1950), European USSR (Kozlov 1978), India (Mukerjee 1981).

**Species described since Kieffer (1926).**

Asterisk (*) indicates an emendation in gender (neuter in *Inostemma*)

- **abnormale** Tomsik 1950, Czechoslovakia
- **acuminatum** Tomsik 1950, Czechoslovakia
- **acuticorne*** Musil 1958, Czechoslovakia
- **africanum** Ghesquière 1939, Zaire
- **ambilobei** (Risbec) 1955, Madagascar; from *Trisinostemma*, **comb. nov.**
- **anomalatianum*** Mukerjee 1981, India
- **apsyllae** Austin 1984, India
- **austriacum** Szélényi 1938b, Austria, Yugoslavia
- **berijamum*** Mani 1975, India
- **biconcavum** Tomsik 1950, Czechoslovakia
- **biroi** Szélényi 1938b, Hungary
- **brevicornu** Vikberg 1965, Finland
- **contariniae** Szélényi 1938b, C. Europe
- **coorgense*** Mukerjee 1981, India
- **curtum** Szélényi 1938b, Hungary
- **dalhauesianum*** Mukerjee 1981, India
- **dhirrhopo** Kozlov 1974, Mongolia
- **discessus** (Szélényi) 1938b, Hungary
- **dryope** Kozlov 1974, USSR (Far East)
frivaldszkyi Szelényi 1938b, Hungary
galatea Kozlov 1974, Mongolia
glyphyra Kozlov 1974, Mongolia
gossipiella Kozlov 1974, USSR (C. Asia)
hemicerus Tomsik 1950, Czechoslovakia
hookpari Ko 1980, Korea
hyperici Debauche 1947, Belgium
indicum* Mani 1941, India
leguminicolorae Fouts 1923, USA (not recorded in Kieffer [1926])
leonardi (Fouts) 1925, USA (not recorded in Kieffer [1926])
manevali Debauche 1947, Belgium
matsutama Yoshida and Hirashima 1979, Japan, Korea
nelgiense* Mukerjee 1981, India
ittelum Sundholm 1970, S. Africa
oculare Austin 1984, India
pannonicum* (Szelényi) 1938b, Hungary
porteri Brethes 1919, Chile (not recorded in Kieffer [1926])
quinguearticulatum Szelényi 1938b, Hungary
reticulatum Szelényi 1938b, Hungary
rugosum Sundholm 1970, S. Africa
senegalense* Risbec 1950, Senegal
seoudis (Ko) 1965, Korea (Hirashima, 1984)
shennottahense* Mukerjee, 1981, India
staryi Masner 1955, Czechoslovakia
szabopatayi Szelényi 1938b, Hungary
yuasai Ishii 1953, Japan

IPHITRACHELUS WALKER

Figs. 24(dv), 25(lv), 137(a♀), 138(a♂), 202a(fw), 202b(hw)

Iphitrachelus Walker 1835. Ent. Mag. 3: 273. Type species: Iphitrachelus lar Walker, by
monotypy.

Diagnosis (♀♂). Gracile, minute, melanic species with contrasting light-coloured appendages and base of metasoma; occipital pit well developed; eyes with large ommatidia; clypeus large, concave, and smooth; toruli situated relatively far from mouth; antennal formula 8-10; female antenna with A8–A10 fused in compact clava, and with sensillar formula of 1-1-4; male antenna with A3–A10 with long, erect bristles; scutellar disc separated from mesoscutum by deep, broad, smooth, transverse groove; propodeum with foamy structures; fore wing broad, subtruncated apically; tarsal formula 4-4-4; fore spur distinctly combed; metasoma with rather blunt edges; laterotergite wide; felt fields on T2 not developed.

Description (♀♂). Head from above slightly to strongly wider than long, subellipsoidal; vertex rounded; occipital carina strong, complete, often crenulate, in some species posterolaterally projecting backward; occipital pit well developed, situated posteromedially in front of occipital carina; temples long, strongly curving behind eyes; ocellar configuration various, posterior ocellus from almost contiguous with inner orbit to distant from latter by 1–2d and hence OOL/LOL ratio also variable, with OOL shorter, equal to or longer than LOL; eyes appearing glabrous, with ommatidia almost raspberry-like; head in lateral view with malar sulcus not developed and cheeks not striate, with toruli relatively far from mouth due to large clypeus; head from in front with clypeus large, concave, smooth, wider than outer rims of toruli; mandibles rather long, bidentate, clasped normally; palpal formula 1-1; antennal formula 8-10; in female with A8–A10 fused in solid,
1-segmented clava (counted as A8), with sensillar formula 1-1-0; in male antenna non-clavate, with at least some segments knot-like constricted, A3–A10 with long erect bristles; scape in both sexes with distinct large-meshed reticulation, sharply carinate both dorsally and particularly ventrally and here often expanded in wide, transparent lamella, shielding most of antenna in geniculate posture.

Mesosoma only slightly wider than high; pronotal shoulders well developed in dorsal view, nonangular, and epomia not developed; mesoscutum rather convex; notauli percussion, deeply and sharply incised, noncrenulate, usually distinctly dilated posteriorly and here also strongly converging; parapsidal lines usually well developed; scutellar disc convex, with deep, smooth, transverse groove anteromedially and with 2 deep scutellumaxillary pits anterolaterally, with strong, converging lateral keels often pointed at apices, projecting backward; tegulae relatively large, sculptured as mesoscutum; metanotum not foveolate; propodeum at least partly with foamy structures, these either forming median keels or irregular foamy cover of entire propodeum; pronotal groove usually deep, glabrous, with ventral end broadened and bearing hole leading toward fore coxa; epicnemium not developed; sternaulus not developed; mesopleural depression large and very deep, usually subtriangular; metapleuron and parts of propodeum hairy, or propodeum partly covered at sides by foamy structures; no brachypterous or aperic forms known; fore wing rather short and broad, subtruncated apically, with tubular submarginal vein and minute knob not reaching basal 1/3 of wing length, with other veins not developed; marginal cilia in fore wing usually extremely short, only rarely longer; hind wing with short stem of tubular submarginal vein and with marginal cilia slightly longer than in fore wing; legs rather short, with tibial spur formula 1-1-1 and with fore spur distinctly combed; tarsal formula 4-4-4.

Metasoma relatively short, slightly elongate, highly convex, in lateral view about as wide as high; in female with 6, in male with 8 visible tergites; T1 in both sexes transverse, often with foamy structures medially, or with two parallel keels or with dense, long pilosity, in female without horn; S1 with rudimentary foamy structures; T2 in both sexes almost glabrous, with 2 glabrous pits anterolaterally, not distinctly striate; felt field on S2 not developed but sternite anterolaterally with 2 deep pits; metasoma with rather blunt edges, with laterotergites wide, about 1/2 width of T2.

**Recognition and Relationships.** This genus was almost always properly interpreted, mainly because of the tetramerous tarsi, believed to be unique among platygastrid wasps. However, the discovery of a Neotropical member of Allotropa with tetramerous tarsi (see under Allotropa) has proven this belief to be false. Nevertheless, Iphitchrachus remains a very distinct genus because of character states other than the tarsal formula. The unusual sensillar formula 1-1-0 of the female clava, the deeply pectinate fore tibial spur, and the large clypeal depression sufficiently define the genus. The presence of occipital pit, the large clypeal depression, and the structure of S2 with no felt fields brings Iphitchrachus close to Acerotella. The structure of S2 is also shared with Inostema and Sacespalus.

Two species groups can be recognized in Iphitchrachus. The presumed plesiomorphic group with I. lar has members with only moderate development of semitransparent foamy structures on the propodeum and T1 with 2 glabrous keels. The apomorphic gracilis-group comprises members with increasing development of whitish or yellowish foamy structures on most of propodeum, often also with foamy patches on T1 and S1, or with patches on T1 replaced by long, dense hairs.

**Distribution.** This is a truly worldwide genus with species described or known to us from all major regions, except Chile. Some species appear to have unusually wide range of distribution (Masner 1976a).

**Biology.** Host and habits are unknown. The members seem to prefer forest habitats and are rather strong fliers, caught often in Malaise traps.

Species described since Kieffer (1926).
africanus Huggert 1976, Zaire
canadiensis Masner 1976a, Canada
foutsi Jackson 1966, USA
gracilis Masner 1957, Czechoslovakia (♂) (♀; Masner 1958)

**Isolia Foerster**

Figs. 65(fv), 65a(fs), 70(dv), 163(♀), 164(♂), 207a(fw), 207b(hw), 258(dv)


**Diagnosis** (♀ ♂). Robust, stocky, usually light coloured species; OOL subequal to LOL; frons above toruli without transverse ledge; interantennal process moderately developed; mandibles short, strong, with lower edge upcurved apically; female antenna with abrupt 3-segmented clava; male antenna thread-like; pronotal shoulders well developed; notaulli not sharply incised, abbreviated anteriorly; scutellum broadly transverse, subrectangular, with scutelluxilar pits reduced to points and scutellar rim not defined; propodeum with foamy structures; fore wing with no tubular veins and with microtrichia transformed into minute, semi-erect spiculae; fore spur combed; metastoma short and broad, with laterotergite rather wide and with no felt fields on S2.

**Description** (♀ ♂). Head from above strongly transverse, distinctly wider than long, subellipsoid; vertex rounded or formed but acute medially between posterior ocelli; occipital carina weakly defined laterally, weakly crenulate medially; occipital pit not developed; temples long, but strongly receding behind eyes; posterior ocellus clearly remote from inner orbit by at least 2d; OOL about as long as LOL or slightly longer; eyes appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus small, slightly concave, not wider than outer rim of toruli, with front margin arched; not transverse ledge above toruli and interantennal process rather moderate; mandibles short, strong, bidentate, with lower edge upcurved apically, mandibles clasped normally; palpal formula 1-1; antenna formula 10-10; in female with abrupt, massive, 3-segmented clava; sensillar formula 1-2-2, sensilla minute and deeply embedded; male antenna thread-like, with A3 longer than A4, latter with ventral keel; scape in both sexes moderately carinate, without lamellae apically.

Mesosoma wider than high; pronotal shoulders well developed in dorsal view, non-angular, epomia not developed; mesoscutum rather flattened; notauli incomplete, at most indicated posteriorly, not sharply incised, shallow, distinctly dilated, noncrenulate; scutellum considerably flattened, broadly transverse, subrectangular, often costate longitudinal, with simple transcutal suture, with scutelluxilar pits reduced to almost points situated far laterad, with strong lateral keels and with posterior rim not defined; metanotum not foveolate, with dorsoleum weakly defined; propodeum with rich foamy structures posteriorly, posterolaterally, and medially, with median keels also formed by foamy structures; pronotal groove deep, glabrous; epinotium not developed; sternaustus strong and complete; mesopleural depression shallow, not clearly defined, mesopleuron with few transverse ridges below tegula; anterior parts of mesopleuron and propodeum almost glabrous, with foamy structures posteriorly; no brachypterous or aperous forms known; fore wing with no tubular veins, with short submarginal stem of submarginal vein without knob, M + Cu and Cu faintly nebulous; marginal cilia in fore wing absent and microtrichia on disc transformed into minute, semi-erect spiculae; hind wing with very short tubular stem of submarginal vein, with short marginal cilia and with spiculate microtrichia on disc; legs rather
short, with femora rather strong; tibial spur formula 1-2-2, and fore spur combed; tarsal formula 5-5-5.

Metasoma short and broad, rather depressed dorsoventrally, much wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes strongly transverse-trapezoidal, noncostate, with abundant pilosity, in female without horn; S1 with foamy structures laterally; T2 with anterolateral corners expanding, without pits or striae, with deep, transverse, hairy groove anteriorly; felt fields on S2 not developed; apex of metasoma broadly triangular in female, obtuse in male; metasoma with sharp edges, with lt2 less than 1/3 width of T2.

**Recognition and Relationships.** *Isolia* is classified in a cluster of genera composed of *Pulchrisolia*, *Afrisolia*, and *Sceliotrachelus*. It is perhaps most closely related to *Pulchrisolia* from which it differs by the lack of a transverse ledge from the lower fronts, the moderate development of the interantennal process, as well as the lack of a tubular submarginal vein in fore wing. *Afrisolia* differs from *Isolia* at once by its specialized notauali and also by the presence of a distinct, tubular submarginal vein in the fore wing. The differences between *Isolia* and *Sceliotrachelus* are rather difficult to appreciate as the latter genus is known only in the male sex of a single species, the mesosoma of which is obviously affected by the wing reduction. For the present we interpret *Isolia* as members with nonsclerotized anterior margin of hind wings and the apex of the middle tibia with no external projection.

**Distribution.** *Isolia* is apparently restricted to the Old World, with species described in the Palearctic region from Europe to Mongolia; undescribed species were seen from South China, India, and Thailand. Surprisingly, no species has been so far recorded from Africa, where the above mentioned relatives are well represented.

**Biology.** Hosts and habits are unknown. However, members were frequently encountered in predominantly open, dry, grassland, sometimes taken from soil.

**Keys to Species.** Palearctic spp. (Kozlov 1978; Alekseyev 1979).

**Species described since Kieffer (1926).**

- *biroii* Szabo 1959, Crete
- *foersteri* Szabo 1959, Hungary
- *longistriata* Alekseyev 1979, USSR
- *mongolica* (Kozlov) 1972, Mongolia; from *Sceliotrachelus*, comb. nov.
- *striatitertitis* Szabo 1962, Hungary

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**ISOSTASII FOERSTER**

Figs. 43(dv), 44(dv), 45(lv), 111(a)?, 112(a?'), 203(atw), 203(btw), 252(dv)


**Diagnosis** (? a'). Moderately elongate but stocky, melanic species; OOL subequal to or longer than LOL; antenna of both sexes with moderate to strong, nonabrupt clava; mesosoma strongly arched dorsally; scutellum with pits large, hairy; scutellar rim well developed, rounded; fore wing rather short, with tubular submarginal vein terminating in rounded knob; metasoma considerably convex both dorsally and ventrally, female with only 3 visible tergites; lateral edges of metasoma weak to indistinct; felt fields on S2 well developed.
Description (♀ ♂). Head from above wider than long, subrectangular to subglobose; vertex rounded, not excavate; occipital carina well developed, not crenulate; occipital pit not developed; temples well developed, in few undescribed species with pointed processes laterally; OOL distinctly greater than 1d, either equal to or greater than LOL; eyes pilose, with minute scattered or distinct, longer hairs; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, broad, and concave, with upper margin rim-like protruding, distinctly wider than outer rims of toruli; mandibles rather long, bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; antenna in female with strong, semi-abrupt, 3- to 5-segmented clava, with A10 usually longer and wider than A9; sensillar formula 1-1-1 or 1-1-1-1; male antenna short, subclavate to strongly clavate, then clava not abrupt, 5- to 7-segmented, antennomeres 3–10 with short hairs. A4 not particularly modified sexually, usually larger than A3; scape in some species (♀ ♂) apically with both dorsal and ventral apical lamellae for housing of A2.

Mesosoma usually strongly arched dorsally, as high as wide, in few species slightly flattened, mesoscutum with or without notauli; scutellum usually considerably arched, pillow-shaped, convex, to (rarely) conical, rarely flattened, with 2 large hairy scutellaxillar pits anteriorly, with distinct lateral keels and rounded posterior rim, crenulate inwardly in some species; metanotum not foveolate, with dorsellum only slightly differentiated; propodeum usually with 2 parallel median keels, rarely with keels converging posteriorly and here almost confluent, sides of propodeum hairy; pronotal groove indistinct, shallow, defined only in ventral corner and here hairy; epicnemium not developed; sternaulus weakly developed or absent; mesopleural depression large, diffuse, and shallow; metapleuron and sides of propodeum densely hairy; no apterous or brachypterous species known; fore wing not too long, with tubular submarginal vein terminated in rounded knob reaching about 1/3 wing length, other veins at most as spectral veins; marginal cilia in fore wing moderately long; hind wing with short tubular stem of submarginal vein and with rather long marginal cilia; legs slender, with tibial spur formula 1-2-2 and with fore spur bifid; tarsal formula 5-5-5.

Metasoma elongate, considerably convex both dorsally and ventrally, especially in female; in female with only 3, in male with 8 visible tergites; T1 in female without horn; T2 in both sexes with short incisions anterolaterally, without striae, and anterior margin between incisions long, straight; felt fields on S2 well developed; apex of metasoma sharply pointed in female, rounded in male; metasoma with edges weak to indistinct, with laterotergites 1/3 – 1/5 width of T2.

Recognition and Relationships. Isostasis was generally well interpreted by most authors mainly because of the peculiar structure of the female metasoma. The visible apical tergite of the female metasoma is actually a syntergite, the fusion of T3–T5. T6 and the almost hyaline T7 are internal and visible only in individuals with an inflated metasoma (e.g. result of improperly operated pan traps). In males, the apical 2 or 3 tergites are very narrow, tightly appressed or partly fused, and sometimes difficult to observe. The breakline indicating the laterotergites is also very delicate. In 1 undescribed Chilean species (CNC) the male antenna is almost filiform, with A4–A10 not wider than A2, and A3 rather large, triangularly arched. This Chilean species also has the pronotal groove better defined, although narrow, with the ventral hairy area larger, extending more dorsally. When compared with most species of this genus, the above Chilean species is clearly more primitive.

Isostasis is closely related to Rao mainly because of the similar apomorphic structure of the female metasoma in the 2 genera. Isostasis differs from Rao primarily by the clavomeres being not flattened ventrally and also by the apical segment of tarsi not being enlarged. The 2 genera also differ in the structure of the scutellum; the scutellar disc is more convex to almost conical in Isostasis but flattened in Rao, and the scutellaxillar pits
are much larger in Isostasius than in Rao. Isostasius shows also some relationships to Acrosteia, mainly because of the ocellar configuration and the structure of the propodeum.

**Distribution.** Worldwide; specimens were examined from all major geographic areas.

**Biology.** The members with known biology parasitize gall midges (Cecidomyiidae).

**Keys to Species.** European USSR (Kozlov 1978).

**Species described since Kieffer (1926).**
- apillosioculus Szabo 1981, Hungary
- billamelliscapus Szabo 1981, Hungary
- crassus Brues 1922, Guiana (not recorded in Kieffer [1926])
- hyalinfemnis Szabo 1981, Hungary
- pillosioculatus Szabo 1981, Hungary
- poroticus Mukerjee 1981, India
- rigocentis Szabo 1981, Hungary
- seoulis Ko 1965, Korea; see Inostemma

**Magellanium gen. nov.**
Figs. 37(dv), 38(lv), 133(a, c, µ), 134(a, µ), 199a(fw), 199b(hw)

Type species: Magellanium furviceps sp. nov. (described below), by present designation.

**Diagnosis** (♀ ♂). Elongate, slender, mostly light coloured species with conspicuously long appendages (especially scape) and long wings; occipital carina strong, almost rim-like, with smooth, shiny lunate strip below carina; lateral keels of scutellum raised, conspicuously converging and acutely projecting posteriorly; mesopleuron virtually without depression, grooves, or sulci; fore wing with submarginal and RS + M veins nebulous; tibial spur formula 1-1-1; T1 with strongly raised median longitudinal keel, in lateral aspect keel with distinct circular perforation near anterior margin.

**Description** (♀ ♂). Head from above wider than long, subrectangular; vertex rounded; occipital carina strong, complete, almost rim-like, noncrenulate, with smooth, shiny lunate strip below it; occipital pit not developed; temples long, receding behind eyes; ocelli in low triangle, posterior ocellus about 1.5d distant from inner orbit; OOL<LOL or OOL only slightly shorter than LOL; eyes appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with raised, broad interantennal process concave medially, with pronounced lateral margins, and with clypeus moderately long, about as wide as outer rims of toruli, anteclypeus deeply concave, shiny, and both clypeal and anteclypeal margins rim-like projecting; mandibles short, bidentate. clasped normally; palpal formula 1-1; antennal formula 10-10; scape in both sexes extremely long and slender, much longer than height of head and width of interorbital space, noncarinate and without lamella apically; female antenna with semi-abrupt 4- to 5-segmented cylindrical clava, with sensillar formula either 1-2-2-2 or 1-2-2-2-1; male antenna with flagellum either very slender and filiform, or with A6–A10 slightly clavate, A4 with carina ventrally.

Mesosoma as high as wide; pronotal shoulders rather easily visible from above, nonangular, and epomia absent; mesoscutum moderately arched; notaui perrcurrent, noncnenulate, gradually dilated posteriorly; parapsidal lines weakly developed; scutellar disc convex, subcircular, with 2 large hairy scutellalar depressions anteroflaterally; scutellar suture smooth, noncrenulate, and axillae rather large, subvertical; lateral keels strong, raised, fused, conspicuously converging and acutely projecting posteriorly; posterior rim of scutellum rather wide, finely crenulate inwardly; metanotum nonfoveolate, with well differentiated plate-like subrectangular dorsellum; propodeum medially with 2 sharp, long, parallel, glabrous keels and with sharply raised lateral keels, hairy in between; pronotal
groove rather shallow but broad, with only scanty minute hairs; epicnemium not developed; sternaulus absent; mesopleuron virtually without depression, without grooves or sulci, with lower part rather convex and with few transverse ridges under tegula; metapleuron with dense, long pilosity; no brachypterous or apterous forms known; fore wing very long, large, with submarginal and RS + M veins nebulous, with RS + M most heavily pigmented, distal part of M + Cu nebulous, and submarginal vein slightly exceeding basal 1/3 of wing length; marginal cilia in fore wing moderately long; hind wing with short nebulous stem of submarginal vein and with marginal cilia slightly longer than in fore wing; legs very long, slender, with all femora distinctly attenuate proximally, with tibial spur formula 1-1-1 and with fore spur bifid; tarsal formula 5-5-5.

Metasoma elongate, considerably depressed dorsoventrally, wider than high; in female with 6, in male with 8 visible tergites; T1 elongate-trapezoidal, about as long as wide, with strongly raised median longitudinal keel, in lateral aspect keel with distinct circular perforation near anterior margin, T1 laterally with 2 large hairy pits flanking median keel, without horn in female; T2 in both sexes with 2 large hairy pits anterolaterally and with raised median keel or shortly costate anteromedially; felt fields on S2 moderately to strongly developed; apex of metasoma sharply pointed in female, obtuse in male; metasoma with sharp edges, with t1/2 narrow, about 1/8 width of T2.

Recognition and Relationships. *Magellanium* is placed in the cluster of Gondwanic or southern genera comprising *Proplatygaster*, *Almargella*, *Zelostemma*, and *Annetella*. It seems to be most closely related to *Zelostemma* from which it differs principally by the more plesiomorphic sensillar formula (1-2-2-2 or 1-2-2-2-2 vs. 1-1-1-1-1) but also by the more apomorphic tibial spur formula (1-1 vs. 1-2-2). The structure of T1 with perforated median keel in *Magellanium* is truly unique among all its relatives. Unfortunately, only a few species of this new genus are known to us not permitting more definite conclusions on its relationships.

Etymology. Named in honour of Ferdinand Magellan, the discoverer of the Fuegian (Magellanic) part of Chile, where 1 undescribed species of this new genus is braving the harsh climate. The gender is neuter.

Distribution. So far we examined 3 species (of which 1 is described below), all from the Valdivian or Magellanic part of Chile.

Biology. Host and habits are unknown. All species were collected in *Nothofagus* forests.

Species described since Kieffer (1926).

*furviceps* Masner and Huggert, present description, Chile

*Magellanium furviceps* sp. nov.

Figs. 37(dv), 38(lv), 134(a₅), 199a(fw), 199b(hw)

Diagnosis (♂). Elongate, brownish species with black head, large wings, and long, slender, light legs; eyes slightly protruding; frons bulging and temples somewhat shorter than length of eyes; upper part of gena in lateral view broad; notauli percurrent and midlobe hardly produced posteromedially, truncate; scutellar disc circular, elevated, with rather delicate crenulae on broad posterior rim; propodeal keels wide apart, smooth in between and connected posteriorly by sharp, transverse ridge; median keel of T1 in lateral view anteriorly with distinct, circular perforation; T2 with large, hairy anterolateral pits and anteromedian part with irregular short costae.

Description. Male. Length 1.0 mm. Colour chestnut brown, with head blackish and legs and antenna yellowish, with flagellum slightly darker; wings slightly infuscate.
Head in dorsal view wider than long (31:20); frons rather bulging; occiput very concave and eyes rather protruding; temples slightly shorter than 1/2 length of eyes and strongly curved; POL:LOL:OOL = 10:4:3; scape distinctly longer than interorbital space (25:19); head in lateral view higher than long (28:20), with frons strongly bulging; interantennal process rather protruding and upper part of gena very broad, only slightly shorter than length of eye; eye oval (15:11) and malar space less than 1/3 eye height (4:15); head from in front subcircular, wider than high (31:25), with cheeks little arched; head smooth and shining, with very delicate, rather large-meshed reticulation almost obliterate medially on frons, with microsculpture better developed on vertex; head with scattered, not too short hairs, except medially on frons and a distinct row of hairs along inner orbits.

Antenna (Fig. 134) with A1 to radicle as 25:3; antennomeres in proportions 25:3; 7:3; 5:2; 6.5:3.5; 3:2; 3.5:2.5; 4:3.5; 4.5:4; 4.5:4; 7:4; A4 subtriangular, curved with exterior carina and small tooth; flagellum slightly clavate.

Mesosoma longer than broad (47:30); admedian pits small, as close to each other as to notauliar pits; midlobe truncate apically, hardly projecting over transcutal suture; mesoscutum covered with distinct but not too dense, decumbent hairs and with delicate coriaceous microsculpture on sidelobes and posterior margin of midlobe; axillae smooth and shiny, confluent to depressed anterolateral part of circular, elevated scutellar disc; scutellaxillar pits thus large, continuing as grooves between scutellar disc and sharply raised lateral keels; posterior part of straight lateral keels distinctly converging backward; posterior scutellar rim rather broad, horizontal, with delicate crenulae inwardly; scutellum about 1/2 as long as mesoscutum (11:25), with extremely delicate coriaceous sculpture, with rather long hairs, especially laterally and anterolateral depressed part of scutellum with patch of very dense pilosity; dorsellum well defined, glabrous, rather long and slightly concave, notched medially; propodeum medially rather long, glabrous between keels and length of keels subequal to width between them; median keels posteriorly sharply pointed and semiconnected by raised posterior margin of propodeum; nucha distinct, virtually smooth, without sculpture; prorotal groove with rather small hairy spots at each end and dorsal 1/2 of pronotum with rather long, not too dense hairs; acetabular carina delicate but postpectal carina more conspicuous; metapleuron, especially posterodorsally, raised, with pronounced edge.

Fore wing (Fig. 199a) large (120:48), surpassing tip of metasoma by 2/5 its length; especially RS + M but also RS, M + Cu, Cu, and M visible as nebulous veins; M + Cu and Cu also as distinct spectral veins; disc of wing densely hairy and marginal cilia about 1/12 wing width; hind wing rather narrow (85:12), with marginal cilia about 1/4 wing width and trace of submarginal vein rather long, with several short hairs.

Metasoma longer than wide (55:27), somewhat longer than mesosoma (55:47), narrow anteriorly; T1 slightly transverse (11:15), comparatively long, medially elevated with several irregular costae and anteriorly elevated keel constricted, perforated by circular hole; T2 longer than wide (30:27), with distinct irregular striation on anteromedian elevated part; anterolateral hairy pits about 1/4 length of T2; T3–T7 combined about 1/2 length of T2, smooth and shining, with transverse row of scattered hairs.

Etymology. From furvus (Latin) meaning dark, dusky, and caput (Latin, head), in reference to the dark head of this species.

Material Examined. Holotype: ♂, Chile, Prov. Osorno, 4 km E Anticua, 430 m, 12–26 December 1982, interception trap (A. Newton, M. Thayer) [CNC No. 19479]; Paratypes: 2♂ 2♀, with same data as in holotype [CNC, HUGG].

Biology. Host and habits are unknown.
**Metaclisis Foerster**

Figs. 32(dv), 33(lv), 56(lv), 57(dv), 113(a♂), 114(a♂), 115(a♂), 194a(fw), 194b(hw), 195a(fw), 195b(hw)


**Diagnosis** (♀♂). Moderately elongate to almost robust, usually melanic species; cheek with distinct fan of striae often obscuring malar sulcus; palpal formula 2-1; clavomeres of female antenna with single sensillum; notauli percurnent; scutellar suture foveolate; propodeum medially with two keels converging anteriorly, propodeum hairy, with no foamy structures; epicnemium well developed; fore wing with long tubular submarginal vein terminating in forked knob, RS + M nebulous, present in most species; shortwinged or apterous species occur; T2 striate basally in most species; felt fields of S2 usually well developed; ovipositor sheaths exposed and sclerotized in most species.

**Description** (♀♂). Head from above transverse, subellipsoidal or subrectangular; vertex rounded; occipital carina well developed, often foveolate above gena; occipital pit absent; temples well developed; OOL usually shorter than LOL, rarely equal to or even longer than LOL, posterior ocellus usually 0.5–1.5d distant from inner orbit, rarely 2–3d from inner orbit, in some micropterous species reduced and considerably remote from inner orbit (6d), or absent; eyes with fine or distinct hairs; head in lateral view with malar sulcus well developed but often obscured by fan of striae radiating from base of mandible; head from in front with clypeus not wider than outer diameter of foruila, upper margin of clypeus \-shaped and clypeus therefore more or less triangular, with median part usually declivous, rarely convex, and with anterolateral corners sharply protruding in some species; mandibles short, bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10, female clava moderately to abruptly 2- to 4-segmented, rarely clava indistinct and antenna almost filiform, A10 rarely larger or longer than preceding clavomeres; sensillar formula usually 1-1-1 or 1-1-1-1, rarely 1-1; male antenna penicillate or filiform, rarely subclavate, A4 with outer carina and/or apical-outier corner expanded; scape noncarinate, with no lamellae apically.

Mesosoma wider than long, moderately to distinctly depressed in some species; mesoscutum rather flattened; notauli percurnent, often dilated posteriorly, strongly converging in front of scutellum, rarely crenulate on bottom; scutellum almost semicircular, with posterior margin rounded, scutellar suture with distinct row of foveolae, with scutellar rim and corresponding row of foveolae along posterior margin, with lateral keels short, almost parallel; metametum foveolate or without foveolae, with dorsellum not well differentiated; propodeum pubescent, without foamy structures, with 2 convergent keels medially, usually forming a A-shaped excision; pronotal groove usually deep and hairy; epicnemium well developed; metapleural depression deep, almost triangular; metapleuron and sides of propodeum pilose; in micropterous species mesosoma strongly reduced but pronotum well developed dorsally, scutellum fused with mesoscutum, metanotum absent and propodeum often not notched posteromedially, rarely with pointed keel medially; in winged species submarginal vein in fore wing tubular, rather long, well exceeding basal 1/3 of wing length, with terminal knob usually truncate or even forked, often suffused with surrounding infuscation; RS + M vein nebulous, indicated at most as pigmented streak, M + Cu, Cu, and RS indicated in some species as nebulous veins; marginal cilia in fore wing rather short; hind wing with short stub of tubular submarginal vein, rarely with r-m vein as nebulous streak with marginal cilia moderately long; legs slender, with tibial spur formula 1-2-2 and with fore spur subtrifid; tarsal formula 5-5-5.
Metasoma moderately to distinctly elongate, rather depressed dorsoventrally, and much wider than high; in female with 6, in male with 8 visible tergites; T1 in female without horn but in some species with distinct hump formed at junction with T2 and with corresponding suture running across top of hump; T2 basally with distinct striae, rarely with 2 shallow hairy depressions, in some apterous species without striae; felt fields on S2 usually well developed; T6 in female sharply triangular, S6 in some species considerably elongate, sword-like; ovipositor sheaths almost always partly extended and sclerotized; metasoma with sharp edges, with laterotergites rather narrow, only 1/6 or 1/7 width of T2.

**Recognition and Relationships.** The taxonomic limits of this relatively large genus were not properly understood in the past. Foerster (1856) distinguished Monocria from *Metaclisis* in the female sex only by the elongate A10 in *Monocria*, i.e. a character state with considerable degree of variation among species of *Metaclisis*. The senior author examined the original specimen in Foerster's collection (Naturhistorisches Museum, Wien) upon which Foerster built his concept of *Monocria*; this species, undoubtedly belonging to *Metaclisis*, was also collected by the senior author near Prague (National Museum, Prague). Unfortunately, Foerster (1856) did not describe the above species but instead included *Inostemma aitina* Walker in *Monocria* of which the former became the type species through monotypy. Masner (1965), after examination of the type of *I. aitina*, transferred this species to *Isostasius*, thereby making *Monocria* a junior synonym of *Isostasius*. Foerster (1861) later described 2 species in *Monocria*, 1 of which was transferred to *Metaclisis* by Vlug (1973). Without examining the type of *Inostemma quindia* Walker, Kieffer (1914) erected for it his *Parinostemma* to which Szele (1938b), without examination of types, also transferred *Inostemma hispida* Walker and *Inostemma ocalea* Walker. Masner (1965), after examination of the type of *I. quindia*, treated *Parinostemma* as a junior synonym of *Metaclisis*. Eventually, *I. ocalea* and *I. hispida* were classified in *Metaclisis* and *Inostemma* respectively by Vlug and Graham (1984), who studied the type material in the collections of Haliday and Walker.

*Metaclisis* can be best recognized on the basis of the distinctly fan-like striae cheeks in all of its members. The fore wing has at least RS + M distinctly pigmented (nebulus) and the ovipositor sheaths in the female are always partly exposed and well sclerotized. The keels on the propodeum converge anteriorly into a V-shaped structure and the scutellar suture is foveolate. Being a large genus (though with most of its species still undescribed), *Metaclisis* contains also rather aberrant, peripheral species. In the high Andes of South America (Venezuela, Colombia, Ecuador, Peru) and in the cool temperate zone of Chile numerous species are shortwinged or apterous (both sexes). Some Chilean species are bright orange-yellow, whereas the high Andean (3000–4000 m) species are usually melanistic, often with A10 in the female distinctly elongate, almost bean-like curved. The mesosoma of these species is often largely modified, with some sclerites fused and the propodeum with only single median keel. T2 has 2 small deep pits but no striae anteriorly. At first, we were inclined to treat these flightless species in a separate genus but intergrading species were discovered later, mostly from Chile, linking these species to the main core of *Metaclisis*. It is interesting to note that wing reduction in *Metaclisis* is not known outside South America. The high Andean fauna contains yet another extreme among the members of *Metaclisis*. Right here in the zone of elfin forests (below the paramo zone) some species have exceptionally long, deeply infuscate wings, with all veins very dark, nebulous (Fig. 194a). Some of these species have individuals that are also noted for their large size.

**Distribution.** The entire temperate zone of the Palearctic and Nearctic regions, the mountains of Central and South America, including Chile.

**Biology.** Hosts are unknown in most species, but a few rearings indicate that the associations will be with gall midges (Cecidomyiidae). The biology of *M. phragmitis* Debauche
is known in detail (Roskam 1986). Species of *Metaclisis* are most commonly collected in spring from various shrubs and trees (Masner 1981).

**Keys to Species.** European USSR (Kozlov 1978); Nearctic spp. (Masner 1981).

**Species described since Kieffer (1926).**
- *acercola* Masner 1981, Canada
- *acerina* Masner 1981, Canada, USA
- *aceris* Masner 1981, Canada
- *acuta* Masner 1981, USA
- *alticola* Masner 1981, USA
- *annae* Masner 1981, USA
- *attenuata* Masner 1981, USA
- *borealis* Masner 1981, Canada
- *ensifer* Masner 1981, USA
- *filicornis* Masner 1981, Canada
- *longula* Masner 1981, USA, Canada
- *masoni* Masner 1981, Canada
- *montagnei* Maneval 1936, France
- *phragmitis* Debauche 1947, Belgium
- *pumilio* Masner 1981, Canada, USA
- *striatitergis* Szabo 1959b, Hungary
- *sulcata* Masner 1981, Canada, USA
- *triangulara* (Tomsik) 1950, Czechoslovakia, **comb.nov.** (from *Parinostemma*)
- *verna* Masner 1981, Canada
- *vernalis* Masner 1981, Canada, USA

**Nanomerus gen.nov.**

Figs. 87(lv), 88(pr), 93(dv), 182(α itespace 2), 214α(-fw), 214b(hw)

Type species: *Nanomerus spinulus* sp.nov. (described below), by present designation.

**Diagnosis** (?). Gracile, minute, melanic species; ocelli clustered together in tight triangle, OOL several times longer than LOL; female antenna 9-segmented, with semi-abrupt, 3-segmented clava and with sensillar formula 1-1-1; scutellar suture foveolate; scutellar rim well developed; median keels of propodeum strong, spike-like, projecting posteriorly; propodeum hairy, without foamy structures; epicenemium not developed; fore wing remarkably long, with nebulous submarginal vein, and very long marginal cilia; tibial spur formula 1-1-1; fore tibial spur simple; T2 with short costae but no striae anteriorly; felt fields on S2 inconspicuous.

**Description** (?). Head from above wider than long, subellipsoidal; vertex subangular, occipital carina fine, noncrenulate; occipital pit not developed; temples moderately long, subangularly receding behind eyes; ocelli clustered together in tight triangle, with LOL = 1d, posterior ocellus 4d distant from inner orbit and OOL 4 times longer than LOL; eyes appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus rather high, convex, subtriangular, not wider than outer rims of toruli, with clypeal margin arched and slightly projecting; mandibles short, bidentate, clasped normally; female antenna 9-segmented, with semi-abrupt, 3-segmented clava, with A9 not pointed but oval with truncate apex; sensillar formula 1-1-1; scape not carinate, with no lamellae apically.

Mesosoma about as wide as high, pronotal shoulders moderately developed dorsally, nonangular, epomia absent; mesoscutum only slightly arched; notauni developed only posteriorly, sharply incised, noncrenulate, not dilated, strongly convergent posteriorly, flanking posteromedian apex of midlobe that projects slightly over anterior margin of scutellum;
scutellum subtrapezoidal, considerably convex, with scutellar suture foveolate, with lateral keels diverging posteriorly, and with posterior margin crenulate inwardly and rim well developed; metanotum finely foveolate, with dorsellum concealed by posterior rim of scutellum; propodeum medially with 2 strong, widely separated, subparallel keels distinctly pointed posteriorly, propodeum otherwise hairy; pronotal groove rather deep, virtually glabrous; epicnemium not developed; sternaulus not developed; mesopleuron medially with broad depression, sloping into deep pit situated near posterior margin of mesopleuron (in front of metapleuron); metapleuron and side of propodeum hairy; no brachypterous or apterous forms known; fore wing remarkably long, without tubular veins, with nebulous submarginal vein very close to fore margin and with darker spot indicating knob; marginal cilia in fore wing extremely long, including upper arc, hence wing feathery in appearance; hind wing with rudiment of submarginal vein and with marginal cilia rather long; legs rather slender, with tibial spur formula 1-1-1 and fore spur simple; tarsal formula 5-5-5.

Metasoma only slightly elongate, wider than high; T1 in female without horn, broadly trapezoidal, with longitudinal costae medially, hairy at sides; T2 with short costae and small, shallow pits anteriorly, not striate anteromedially; felt fields on S2 inconspicuous; metasoma with sharp edges, with h2 about 1/4 width of T2.

Recognition and Relationships. This very distinct new genus can be compared with Amentis and Alfredella. It is more plesiomorphic in the structure of the antennae than members of the above 2 genera but more apomorphic in relation to Alfredella because of the reduced submarginal vein in the fore wing. The position of the ocelli, as well as the simple fore tibial spur, are character states truly unique among all genera known to us. The shape and the structure of the median keels on the propodeum are considered highly specialized, making the recognition of Nanomerus very clear.

Etymology. From nanus (Latin) referring to the minute, gracile habitus.

Distribution. One species (described below) is known to us from Chile.

Biology. Host and habits unknown.

Species described since Kieffer (1926).
spinulus Masner and Huggert, present description, Chile

Nanomerus spinulus sp.nov.
Figs. 87(lv), 88(pr), 93(dv), 182(a¿), 214α(fw), 214b(hw)

Diagnosis (?). Very small, blackish species with lighter appendages; A9 bluntly oval and A7–A8 subtriangular; head and mesosoma with rather large-meshed reticulation and few hairs; notauli distinct in posterior half and midlobe here smooth and shining; scutellum convex, subtrapezoidal, constricted anteriorly, scutellar suture foveolate, posterior rim foveolate inwardly; median keels of propodeum strong, spike-like projecting over posterior margin of propodeum, sharply pointed; mesopleural depression with deep pit situated posteromedially; fore wing with unusually long marginal cilia around entire arc; T2 with very short costae medially and minute pits anterolaterally.

Description. Female. Length 0.75 mm. Blackish-brown, with metasoma slightly lighter; legs with coxae and antenna dirty yellow, with distal part of flagellum darker; wings subhyaline, with inconspicuous fumose spot below knob of submarginal vein.

Head from above almost twice as broad as long (27:14), with eyes somewhat protruding; frons rather arched and occiput only weakly concave; temples subangularly curved, clearly shorter than eyes (5:7); POL:LOL:OOL = 3:2:8; scape slightly shorter than interorbital space (18:19); head in lateral view higher than long (22:14), with frons strongly arched, and interantennal process very small, hardly projecting; vertex subangular, with occiput rather straight and upper part of gena broad; eyes oval (11:8), with rather large
ommatidia and malar space about 1/2 of height of eye (6:11); head from in front slightly, broadly oval, wider than high (27:22), with cheeks only moderately arched; rim of clypeus projecting and anteceps seen from below as large, concave, lunate area; head with open, rather large-meshed reticulation, coarse on occiput; except medially on frons, head with sparse, scattered hairs and more densely hairy on lower cheeks and frons.

Antenna (Fig. 182) with A1 to radicle as 18:3; antennomeres in proportions: 18:3; 6:3; 4:2; 3:5:2; 3:5:2; 3:5:2.5; 6:5; 6:5.5; 7:4:5; A9 ovoid, with broad, truncate apex and A7–A8 distinctly subtriangular.

Mesosoma longer than wide (37:25); admedian pits almost inconspicuous, closer to each other than to notaular pits; scutellum rather large (8:15), distinctly constricted anteriorly, thus anterior and posterior parts of lateral keels conspicuously angled (zig-zag), with axillae seemingly pushed rather far laterad; mesoscutum and scutellum with few scattered hairs and large-meshed reticulation; sculpture on midlobe fades out posteriorly, posterior 1/2 of lobe smooth and shining; scutellar disc with patches of delicate reticulation anterolaterally, otherwise smooth; dorsellum very short, almost completely reduced; median keels on propodeum slightly converging anteriorly, wider apart than their length (6:4) and also median part of propodeum hairy; propodeal nucha rather distinct, not too long; pronotum rather hairy laterally above narrow pronotal groove; acetalbar carina delicate and postpectal carina fine but distinct; postero dorsal corner of mesopleuron at base of hind wing pronounced, thickened and posteroventral edge of pleuron just below very deep pit slightly raised; postero dorsal edge of metapleuron conspicuous, elevated.

Fore wing slightly sublanceolate (95:30), projecting by more than 1/2 its length behind apex of metasoma; submarginal vein delicate, running only by its diameter from fore margin of wing, its apical knob bent slightly downward; especially M + Cu, RS + M, and RS seen diffusely as nebulous veins; marginal cilia on upper arc of wing only slightly shorter than on lower arc, longest cilia about 1/3 wing width; hind wing rather narrow apically (65:9), unusually short, with 1 hair on stem of submarginal vein and with cilia subequal to width of wing; fore spur very long and slender, with only 1 apical point.

Metasoma subequal to rest of body (35:40), clearly longer than wide (35:20) and narrower than mesosoma (20:25); T1 broadly transverse (4:15), with anteromedian edge upcurved, with distinct but rather fine costae in anterior half, laterally depressed, with scattered, longer hairs; T2 (20:20) smooth and lustrous except for narrow median area with very short costae, on each side with minute shallow pits with short pilosity; T3–T6 forming rather pointed apex, if combined slightly shorter than T2, with single, transverse row of scattered longer hairs each.

**Male.** Unknown.

**Etymology.** From spinula (Latin), a diminutive of spina, referring to the spike-like projecting posterior apices of keels on the propodeum.

**Material Examined.** Holotype:♀, Chile, Prov. Valdivia, 4 km E Anticura, 270 m, 19–25 December 1982, interception trap (A. Newton, M. Thayer) [CNC No. 19480].

**Biology.** Host and habits not known.

**Neobia gen. nov.**

Figs. 58(dv), 157(a♀), 215a(fw), 215b(hw)

Type species: *Neobia badia* sp. nov. (described below), by present designation.

**Diagnosis (♀).** Dorsoventrally depressed, minute, light-brownish coloured species; posterior ocellus distinctly remote from inner orbit; OOL only slightly shorter than LOL; antenna with abrupt 3-segmented clava and with sensillar formula 1-2-2; notauli absent; scutellum flattened dorsally; scutellar rim not defined; propodeum without foamy structures; epicnemium not developed; fore wing with long, tubular submarginal vein; marginal
cilia of fore wing moderately to extremely long; T1 and T2 with distinct longitudinal costae medially; felt fields on S2 not developed; lt2 about 1/2 width of T2.

**Description** (?). Head from above wider than long, suboval; vertex rounded but rather steeply angled; occipital carina weakly developed, noncrenulate; occipital pit not developed; temples rather short, strongly receding behind eyes; posterior ocellus distant from inner orbit by at least 3d; OOL only slightly shorter than LOL; eyes small, subcircular, appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus small, slightly concave, not wider than outer rim of toruli, with outer margin not projecting, distance between toruli slightly less than their diameter; mandibles short, bidentate, clasped normally; palpal formula 1-1; female antenna 9-segmented, with abrupt massive 3-segmented clava; sensillar formula 1-2-2; scape with sharp margins but no distinct lamellae.

Mesosoma distinctly wider than high; pronotal shoulders visible in dorsal view, nonangular, epomia not developed; mesoscum strongly flattened; notaui absent; scutellum flattened, broadly semicircular, separate from mesoscum by simple noncrenulate suture, with scutellaxillaar pits pushed to extreme corners, with rather short, fused lateral keels and with posterior margin not rim-like; metanotum not foveolate, with dorsellum weakly defined; propodeum hairy at sides, with glabrous median area, median keels usually weakly defined; mucha usually distinct; pronotal groove shallow, glabrous; epicnemium not developed; sternalus either absent, or more or less developed; mesopleural depression arched; metapleuron mostly glabrous; sides of propodeum hairy; wings either vestigial (1 species) or fully developed, rather narrow, with tubular submarginal vein and rounded knob not exceeding 1/3 wing length, other veins hardly developed; marginal cilia in fore wing often remarkably long, including upper arc, or only moderately long; hind wing with rudiment of tubular submarginal vein and with marginal cilia about as long as wing width; legs rather short, with tibia spur formula 1-1-1 and with fore spur bifid; tarsal formula 5-5-5.

Metasoma moderately elongate, rather depressed dorsoventrally, wider than high; in female with 6 visible tergites; T1 in female without horn, transverse-trapezoidal, with distinct longitudinal costae medially, hairy pits and few bristles laterally; T2 longer than following tergites combined, constricted anteriorly, with distinct longitudinal costae anteromedially and indistinct glabrous pits anterolaterally; felt fields on S2 not developed; metasoma with sharp edges, with lt2 slightly less than 1/2 width of T2.

**Recognition and Relationships.** This genus is very closely related to *Fidioobia* in its present broader concept and its validity is rather problematic. After some deliberation we preferred to treat this group of species, restricted to the New World, as a separate genus, based on metasomatic character states not found in *Fidioobia*. The structure of T1, with longitudinal costae, and the similar, longer costae on T2 will characterize *Neoobia* when compared with *Fidioobia*. The remarkably long marginal cilia of the fore wing, as well as the posterior ocellus being considerably remote from the inner orbit as encountered in *N. badia*, is feared to be only of specific and not generic value.

**Etymology.** The prefix neo- and the stem -bia refer to the New World where members of *Neoobia* are distributed.

**Distribution.** In addition to *N. badia*, a few species are known to us from South America and 1 species from North America (North Carolina).

**Biology.** The hosts and the habits are unknown, however, it is highly probable that members attack eggs of weevils (Curculionidae), i.e. the type of biology known in *Fidioobia* species.

**Species described since Kieffer (1926).**

*badia* Masner and Huggert, present description, Venezuela, Colombia, Ecuador, Trinidad, W.I.
Neobia badia sp. nov.
Figs. 58(dv), 157(fv), 215a(fw), 215b(hw)

Diagnosis (♀). Small, shiny, brown to light brown species with short stocky legs and antennae; wings slightly infuscate, with very long marginal cilia and wings rather narrow, somewhat angled proximally; posterior ocellus about 4d from inner orbit; vertex and mesoscutum with rather large-meshed delicate reticulation; propodeal keels fine, wide apart; mesopleural depression rather deep, subtriangular, and precocoxal carina much produced backward; T1 with distinct anterior rim and 4–5 strong median costae; T2 clearly elevated anteromedially, here with median longitudinal depression and some costae and lateral pits rather long, about 1/4 – 1/3 length of T2.

Description. Female. Length 0.63 mm. Body light brown; base of T2 lighter than T3–T6 and clava darker than rest of antenna; wings infuscate and eyes blackish.

Head from above much wider than long (20:11), broadly oval; frons much arched and occiput rather concave; temples gently curved, about 1/2 length of eyes; posterior ocellus about 4d distant from inner orbit; POL:LOL:OOL = 6:4:4; scape slightly shorter than interorbital space (12:14); vertex with delicate, rather large-meshed reticulation and scattered not too short hairs; head in lateral view higher than long (17:11), with upper frons slightly depressed and lower frons rather strongly convex; gena carinate and upper part of gena at temples distinctly angulate; eye rather small, subcircular (8:6), and malar space subequal to eye height (7:8); head from in front wider than high (20:17), subtriangular, with vertex and cheeks somewhat arched; interorbital space larger than eye height (14:8); whole frontal part of head appearing smooth but with very delicate, rather large-meshed reticulation, with some hairs and above toruli with some fine transverse wrinkles.

Antenna (Fig. 157) with fine, large-meshed reticulation on A1; A1 to radicle as 12:1.5; antennomeres in proportions: 12:3; 4.5:2.5; 1.5:1.5; 1:1.5; 1:1.5; 1:2.5; 4.5:5; 2.5:5; 4.5:4.5.

Mesosoma distinctly wider than high (20:14); pronotal shoulders rather narrowly visible from above; notaui not developed but traced by broader, inconspicuous depressions with obliterate sculpture and parapsidal lines hardly indicated; scutellum rather long, slightly more than 1/2 mesoscutum (7:12); lateral keels of scutellum narrow, fine, about 1/2 as long as scutellar disc; scutellaxillar pits reduced to very narrow triangles in front of extreme lateral parts of scutellar suture; dorsellum about 4 times as wide as long, with fine lateral keels, hidden under arched, almost rim-like posterior margin of scutellum; mesoscutum with rather larger-meshed fine reticulation, scutellum smooth and both with scattered moderate hairs; median smooth, glabrous area of propodeum rather wide, short, with fine lateral slightly diverging keels; much distinct with short keels; pronotal groove very narrow and shallow, with wider, somewhat hairy area in ventral corner; mesopleuron with delicate transverse keels above subtriangular depression and bulging part below depression with wrinkled sculpture; dorsal edge of metapleuron sharp and just below it a deep, silvery hairy, slightly oblique groove.

Fore wing just surpassing tip of metasoma and rather narrow (53:14), slightly angled in proximal third; submarginal vein rather long compared with length of wing (15:53); wing disc with rather scattered hairs and apically wing with very long marginal cilia, about 1/2 width of wing (6:14); only M + Cu and base of Cu as distinct spectral veins; hind wing (57:7) very narrow, angled in basal quarter; sternum of submarginal vein very short, with 1–2 short hairs, marginal cilia very long, subequal to width of wing.

Metasoma elongate-oval, slightly longer than rest of body (33:30), T3–T6 slightly depressed and curved upward; T1 (4:9) with distinct hairy pits laterally, with 4–5 pronounced median costae, rather distinct lunate groove anteriorly and postero-medially distinctly elevated; T2 clearly longer than wide (20:16), anteromedially distinctly elevated, with median, longitudinal, shallow groove and some costae; lateral to groove rather long.
and narrow pits about 1/4 – 1/3 length of T2; T3–T6 forming rather blunt triangle, about 1/2 length of T2 and apex of T6 broadly rounded; lt2 slightly less than 1/2 width of T2.

**Male.** Unknown.

**Etymology.** The specific name is the Latin adjective *badia* (a, um), referring to the brownish-reddish colour of the body.

**Material Examined.** Holotype: ♀, Venezuela, Merida Prov., Merida-Sta. Rosa, 2000 m, May–June 1981, pan trap (A. Briceno); left antenna, legs, and pair of wings on slide [CNC No. 19481]; Paratypes: ♀, Trinidad, W.I., Curepe, Sta. Margarita, Circular Rd., 23 March – 13 April 1974, pan trap (F.D. Bennett); 2 ♀ ♀, Colombia, Prov. Meta, Villavicencio, Quebrada Susumuko, 1000 m, 5 March 1972, soil litter (S.B. Peck); 2 ♀ ♀, Ecuador, Prov. Napo, 5 km W El Chapo, 1700 m, 11 February 1983 (L. Masner and L. Huggert); ♀, Ecuador, Prov. Pichincha, Tinalandia, 800 m, 2 February 1983 (L. Huggert).

**Recognition and Relationships.** In spite of considerable geographic distances of the few specimens examined only very little variation has been observed. Some individuals are paler, almost honey coloured.

**Biology.** Host and habits are unknown. Some individuals were taken from soil or in pan traps.

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**Oligomerella gen. nov.**

Figs. 47(dv), 48(lv), 158(a ♀), 216a(fw), 216b(hw)

Type species: *Oligomerella donnae* sp. nov. (described below) by present designation.

**Diagnosis (♀).** Stocky, robust, somewhat dorsoventrally depressed species; OOL shorter than LOL; malar sulcus delicate; cheek fan-like striate; antennal clava abrupt, massive, 3-segmented, with sensillar formula 1-2-2; scape sharply carinate ventrally but with only narrow lamella; scutellar suture foveolate; scutellar rim not well developed but with foveolae inwardly; propodeum with some foamy structures; epicnemium not developed; fore wing with tubular submarginal vein; tibial spur formula 1-2-2; T1 trapezoidal; T2 with deep, broad pit anteromedially; felt fields on S2 rather large; lt2 narrow.

**Description (♀).** Head from above wider than long, suboval; vertex rounded; occipital carina delicate, noncrescinate, complete; occipital pit not developed; temples rather short, strongly receding behind eyes; posterior ocellus about 1d distant from inner orbit; OOL<LOL; eyes with minute hairs; head in lateral view with malar sulcus delicate and with cheeks fan-like striate; head from in front with clypeus short, slightly concave, shining, distinctly narrower than outer rims of rather wide toruli, with raised lateral keels forming inner rims of toruli; mandibles short, bidentate, clasped normally; palpal formula 2-1; female antenna 10-segmented with massive abrupt 3-segmented clava; sensillar formula 1-2-2; scape rather broad and short, sharply carinate ventrally, with narrow lamella.

Mesosoma short and stocky, about as wide as high; pronotal shoulders clearly visible in dorsal view, not angular, epomia not developed; mesoscutum only moderately convex; notaum percurent, noncrescinate, rather shallow but deeply incised, distinctly broadened posteriorly; scutellum rather flattened, broadly trapezoidal, scutellar suture foveolate, lateral keels long, posterior rim not well developed but distinctly foveolate inwardly; axillae rather large, forming scutellaxillar pits; metanotum nonfoveolate, with dorsellum defined as short, rectangular plate; propodeum posteromedially and at sides with foamy structures, these structures also forming median longitudinal keels, propodeum otherwise hairy, pronotal groove rather shallow; epicnemium not developed; sternaulus not developed; mesopleural depression deep, subtriangular; metapleuron and sides of propodeum hairy; no brachypterous or apterous forms known; fore wing with tubular submarginal vein and truncate knob surpassing basal 1/3 of wing length, other veins indicated as traces; marginal
cilia in fore wing moderate; hind wing with short tubular stem of submarginal vein and with marginal cilia slightly longer than in fore wing; legs rather short and stout, with tibial spur formula 1-2-2 and with fore spur trid; tarsal formula 5-5-5.

Metasoma short, subsessile, considerably depressed dorsoventrally, much wider than high; in female with 6 visible tergites; T1 strongly transverse, trapezoidal, noncostate but with very short median keels flanked by 2 subrectangular pits, hairy at side, without hump or horn; T2 with deep, very broad pit anteromedially, not striate medially but with delicate striae anterolaterally; felt fields on S2 rather large, well developed; apex of metasoma broadly rounded; metasoma with sharp edges, with lt2 about 1/6 width of T2.

Recognition and Relationships. Oligomerella is most similar to Platygastoides with which it shares the body habitus, the massive 3-segmented antennal clava of the female, and a broad, subsessile metasoma. It differs from the latter genus by having a simple scape with only a narrow lamella, a tubular submarginal vein in the fore wing, and above all, by the striate cheek, and the fine yet distinct malar sulcus. Oligomerella donae is generally more plesiomorphic than members of Platygastoides, possibly its plesiomorphic sister-group. Unfortunately, so far only a single species, O. donae, is known, not permitting more definite opinion.

Etymology. From oligos (Greek), meaning a few, indicating the relative rarity of individuals.

Distribution. Australia (Victoria).

Biology. Unknown.

Species described since Kieffer (1926).

donae Masner and Huggert, present description, Australia

Oligomerella donae sp. nov.
Figs. 47(dv), 48(lv), 158(a'), 216(a fw), 216b(hw)

Diagnosis (♀). Rather stocky, blackish species with lighter metasoma; cheeks striate and frons above toruli with short blunt keel; notauli sharp, percurent, arched and abruptly dilated posteriorly; scutellar suture foveolate; posterior margin of scutellum foveolate inwardly; mesopleural depression rather deep, subtriangular, propodeum with 2 median, subtriangular, foamy keels; T1 with rather large lateral pits and T2 with large transverse pit anteromedially.

Description. Female. Length 1.20 mm. Body pitch black with metasoma dark brown and T1 lightest; appendages dark yellow, antennal clava darker, wing almost hyaline.

Head in dorsal view about twice as wide as long (42:23), with frons moderately arched; temples evenly curved, less than 1/2 length of eye; POL:LOL:OOL = 12:6:3; scape subequal to interorbital space (25:23); vertex with rather rough rugulose sculpture and not too dense, rather short hairs; head in lateral view suboval, higher than long (34:23), and eye oval (20:14); gena carinate, especially in upper part, and here somewhat angular; toruli hardly protruding; malar space about 1/2 eye height (12:20); head from in front oval, wider than high (42:34); interorbital space slightly wider than eye height (23:20); lower frons just above toruli with short blunt median keel; frons covered with striae or wrinkles, concentric around toruli and spread fan-like up frons and intermixed with rugulose sculpture; lower 1/2 of frons medially without hairs.

Antenna (Fig. 158) with rough sculpture on A1; A1 to radicale as 25:3; antennomeres in proportions: 25:8; 7:4; 5:3; 3:3; 2:3; 2:3; 2:3; 2:5:5; 6:5:8; 6:8; 8:7.

Mesosoma only slightly wider than high (42:32); admedian lines barely indicated as 2 pits closer to each other than to notaular pits; notauli not straight but somewhat arched and abruptly broadened posteriorly; axillae smooth and shining without hairs and not slanting too much; anterior and posterior parts of lateral keels fused; mesoscutum and scutellum
with fine coriaceous sculpture, covered with short, rather dense pilosity arising from punctures connected with fine lines; dorsellum with fine lateral, short keels, 2 admedian delicate ones, and inconspicuous crenulation along anterior border; propodeum medially with 2 broadly subtriangular foamy keels; pronotal groove narrow, shallow, rather much widened posterolaterally and here hairy; mesopleuron dorsally glabrous, with 1 big and some short longitudinal ridges, ventrally with rather dense silvery pilosity; metapleuron above middle subdivided by pronounced longitudinal groove; dorsal and posterior parts of metapleuron distinctly separated from propodeum by foamy ridge or edge; nucha distinct, with strong costae.

Fore wing clearly surpassing tip of metasoma and rather broad (110:46); submarginal vein not too far from fore margin and marginal cilia short; M + Cu, RS + M, and base of Rs indicated as fine nebulose veins, especially M + Cu and Cu also as spectral veins; disc of wing rather densely hairy; hind wing (87:19) with marginal cilia about 1/6 wing width; stem of submarginal vein rather indistinct, with 2–3 hairs.

Metasoma as long as rest of body (60:60); T1 (9.33) anteriorly almost straight, very slightly pronounced forward, with sharp rim also bordering lateral pits; T2 clearly wider than long (30:45), narrower anteriorly than posteriorly and with about 6 very short keels; T3–T6 shorter than T2 (22:30), forming a blunt triangle, but T6 rounded, not triangular; T3–T6 with transverse row of fairly long hair; T2 laterally at striaion with some alutaceous sculpture and T3–T6 with delicate rugulosity.

**Male.** Unknown.

**Etymology.** The specific name is derived from the name of the type locality, Mt. Donna Buang (Victoria).

**Material Examined.** Holotype: ♀, Australia, Victoria, Mt. Donna Buang, 1200 m, 11–17 January 1980, *Eucalyptus–Nothofagus* forest (A. Newton, M. Thayer) [ANIC].

**Biology.** The host and habits are unknown. The holotype was taken from lichens and moss on a live *Nothofagus cunninghamii*.

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**Orseta gen. nov.**

Figs. 35(dv), 36(lv), 131(a♀), 132(a♂), 198a(fw), 198b(hw), 235(h)

Type species: *Orseta ornata* sp.nov. (described below), by present designation.

**Diagnosis** (♀ ♂). Short, stocky, rather depressed melanic species, richly ornamented with crenulation; malar sulcus developed but partly obscured by strong fan of striae on cheek and lower frons; clypeus concealed under strong, sharp, keel-like interantennal process; antennal formula 9-10; antennal clava of female with abrupt, 3-segmented clava, with sensillar formula 1-1-1; scutellar suture, scutellar rim, and metanotum distinctly crenulate; propodeum without foamy structures with 2 median, parallel keels; epinotum large; fore wing with tubular submarginal vein terminating in upcurved knob, almost touching fore margin of wing; T2 with strong fan of costae anteromedially; felt fields on S2 well developed.

**Description** (♀ ♂). Head from above strongly transverse, subglobe; vertex rounded; occipital carina strong, complete, almost always crenulate; occipital pit not developed; temples not too long, strongly receding behind eyes; ocelli in low triangle, posterior ocellus distant from inner orbit by less than 1d; OOL<LOL; eyes with short dense hairs; head in lateral view with malar sulcus partly obscured by strong fan of striae on cheeks and lower frons between lower orbit and base of mandible; head from in front with clypeus reduced, concealed under strong, sharp, arched interantennal keel, continuing upward between toruli and lower frons; mandibles short, bidentate, clasped normally; palpal formula 1-1; antennal formula 9-10, female antenna with abrupt, 3-segmented clava (A7–A9), with sensillar
formula 1-1-1; male antenna thread-like, with A3 longer than A4, A4 with sharp carina and apical point, A3–A10 with dense hairs; scape without distinct lamellae apically.

Mesosoma distinctly wider than high and flattened dorsally; pronotal shoulders clearly visible in dorsal view, not angular; mesoscutum rather flattened; notauli percurrent, non-crenulate, very narrow anteriorly, distinctly broadened posteriorly; scutellum rather flattened and broadly semicircular, with row of deep crenulae along scutellar suture; lateral keels very short, fused; posterior rim of scutellum prominent, thick, distinctly crenulate inwardly; axillae rather large, subhorizontal; metanotum foveolate or crenulate, with dorsellum weakly defined; propodeum without foamy structures, with 2 parallel glabrous median keels wide apart, propodeum hairy at sides, with distinct, foveolate nucha posteromedially; pronotal groove very narrow, glabrous; epicnemium large, almost reaching to spiracle; sternaulus weakly defined; mesopleural depression large and deep, upper part of mesepisternum (below tegula) with numerous transverse ridges; metapleuron and sides of propodeum hairy; no wingless or shortwinged forms known; fore wing with tubular submarginal vein reaching about 1/3 wing length; vein terminating in narrow, elongate knob, slightly upcurved and strongly approximated toward fore margin of wing; some other veins indicated only as spectral veins; marginal cilia in fore wing short; hind wing with short stem of tubular submarginal vein basally and with marginal cilia distinctly longer than in fore wing; legs rather short and stout, with tibial spur formula 1-1-1 and with fore spur trid; tarsal formula 5-5-5.

Metasoma short and stout, considerably depressed dorsoventrally, distinctly wider than high; in female with 6, in male with 8 visible tergites; T1 in female without horn; T2 in both sexes with strong fan of costae anteromedially and dense hairy areas anterolaterally, in some species also net-like reticulate in posterior half; T3–T6 with distinct fine reticulation and pilosity; felt fields on S2 well developed; apex of metasoma not distinctly pointed in female; metasoma with sharp edges, with laterotergites 4-6 times shorter than maximal width of T2.

**Recognition and Relationships.** *Orseta* is similar to *Metaclisis*, largely because of the striate cheek and the presence of a malar sulcus. Members of *Orseta* can be reliably distinguished from those of *Metaclisis* by the presence of a strong interantennal process that continues between toruli into a sharp point, the 9-segmented antenna of the female, and the absence of a nebulous RS + M from the fore wing. The strong interantennal process alone makes *Orseta* unique among all genera known to us. The advanced sensillar formula (1-1-1), palpal formula (1-1), and the tibial spur formula (1-1-1) indicate that *Orseta* is a generally apomorphic genus.

**Etymology.** An euhenic anagram. The gender is feminine.

**Distribution.** Specimens were examined from Nearctic, Neotropical, and Australian (incl. New Zealand) regions.

**Biology.** Host and habits are unknown.

**Species described since Kieffer (1926).**

*ornata* Masner and Huggett, present description, North America

**Orseta ornata sp. nov.**

Figs. 35(dv), 36(lv), 131(aomedical), 132(aomedical), 198a(fw), 198b(hw), 235(h)

**Diagnosis (♀♂).** Stocky black species, with lighter appendages; head transversely subglobose, with densely hairy eyes, occipital carina strongly crenulate, cheeks with strong fan of striae and interantennal process raised as keel, bent down toward mouth; mesoscutum slightly flattened, with notauli delicate anteriorly; scutellar suture and posterior rim of scutellum with pronounced crenulae; propodeal keels subparallel, rather far apart and
shining, with wrinkly sculpture in between; prepectus almost reaching spiracle; mesopleuron with strong, transverse striae below tegula and a couple of deep pits posterolaterally; T2 with fan of costae anteromedially, with longest costae reaching posterior third, tergite otherwise smooth and glabrous.

Description. Female. Length 1.10 mm. Black, with antennae dark brown and legs light brown; wings hyaline.

Head from above strongly transverse (23:40), with frons rather arched and occiput much concave; temples arched, about 1/3 as long as eye; POL:LOL:OOL = 13:6:1; scape equal to interorbital space (21:21); head in lateral view higher than long (30:23), with upper gena somewhat angular and gena with pronounced, crenulate occipital carina reaching mandible; frons rather bulging and interantennal process very pronounced as sharp, arched keel; eyes subcircular, only slightly higher than long (18:16) and malar space about 1/2 eye height (11:18); head from in front broadly oval to subtriangular, wider than high (40:30), with vertex and genae gently arched; sharp interantennal process continuing as fine line to anterior ocellus; head, including on frons, and eyes, with dense, short pilosity; head rather mat due to fine coriaceous reticulation.

Antenna (Fig. 131) with A1 to radicle as 21:2; antennomeres in proportions: 21:4; 6:3; 5:2; 2.5:2.5; 2.5:3; 2:3; 6:6; 5:5:6; 6:5.

Mesosoma rather broad, slightly longer than wide (49:42), and distinctly wider than high (42:30); admedian pits very small, inconspicuous, about as far from each other as from notaular pits; scutellaxilair pits only moderately large and not very deep due to axillae being rather horizontal; lateral keels of scutellum very narrow, short, and distinctly angular; scutellum about 1/2 as long as mesoscutum (12:25) and much wider than long (30:12); dorsetum very short and broad as transverse row of 5–6 feep hexoeval conceale under posterior rim of scutellum; mesoscutum and scutellum with same pilosity and sculpture as head but with meshes slightly larger; propodeal keels rather far apart, subparallel, and propodeum deeply excavate between them; keels shorter than median, glabrous, somewhat irregularly sculptured excavate area; pronotal groove diffuse, with small hairy spot in posteroventral corner; dorsal and posterior part of pronotum with dense pilosity and coriaceous sculpture, upper central part shining, glabrous, and almost smooth; mesopleuron with some pilosity and distinct sculpture below large median depression; acetabular and postpectal carina virtually absent; metapleural pilosity rather long and dense, silvery.

Fore wing moderately broad (84:41), just surpassing tip of metasoma; especially M but also RS and Cu indicated as spectral veins; wing disc with short, rather dense pilosity and marginal cilia only about 1/16 wing width; hind wing (72:16) with marginal cilia about 1/4 wing width.

Metasoma clearly shorter than rest of body (45:65) and clearly longer than wide (45:39); T1 (8:27) broad, with raised anterolateral edge and conspicuous costae on median distinctly elevated area; T1 laterally with rather long and dense silvery pilosity; T2 (32:39) with pronounced fan of median costae reaching posterior 1/3 of tergite; T2 anterolaterally without pits but with triangular area, about 1/2 length of tergite, covered by rather dense, long pilosity and some coriaceous sculpture, otherwise T2 without sculpture; T3-T6 with transverse row of hairs and fine coriaceous sculpture all over.

Male. Length 1.20 mm. Essentially identical to female except for antennal and metasomatic structures. Antenna (Fig. 132) with A1 to radicle as 19:2; antennomeres in proportions 19:4; 6:3:5; 8:3:5:3; 6:3:5; 5:5:3; 5:5:3; 5:5:3:5; 8:3:5: flagellum rather bristly, hairs slightly more than 1/2 width of segments; A4 with sharp carina ending in small point in apical 1/5 of segment.

Etymology. The specific name is the Latin adjective ornatus (a, um) referring to the rich ornamentation of the body, the crenulations in particular.

Recognition and Relationships. Smaller individuals tend to have the head more narrow and more rounded, with the occipital carina less crenulate. In some individuals the notaui may be very narrow anteriorly and barely visible. The foveolation or crenulation in the scutellar area and the costae or striation on the metasoma are also less pronounced in smaller individuals and the legs are lighter, yellow.

Biology. The host and habits are unknown. Most individuals were caught in open, grassy habitats in late summer or early fall.

**Parabaeus Kieffer**

Figs. 73(dv), 74(lv), 75(lv), 78(dv), 79(lv), 80(dv), 139(a♀), 140(a♂), 141(a♂), 174(a♂), 219a(fw), 219b(hw), 255(dv), 256(vv), 257(dv)


**Diagnosis** (♀♂). Short, stocky, highly convex, or spindle-like, elongate species, usually aterous, rarely microterous or fully winged, mostly xanthic or light brown in colour; posterior ocellus contiguous with inner orbit; ocellar triangle high; cheek and postgena with deep longitudinal excavation for housing of scape; antennal clava of both sexes ovoid, subcompact, 4-segmented; sensillar formula of female clava 1-2-2-1; mesosoma of flightless species subrectangular, with most sclerites fused, in some species with sharp spines or points in scutellar and propodeal regions; fore wing with short rudiment of submarginal vein, without apical knob, wing mostly glabrous, pachymerium-like, with marginal cilia developed abruptly in posterior 0.30; metasoma highly convex both dorsally and ventrally; T1 fused with T2 and S1 with S2 into solid sclerite; felt fields on S2 not developed; T2 extremely narrow.

**Description** (♀♂). Head from above slightly wider than long, subglobular; vertex rounded; occipital carina strongly developed at sides and here often crenulate, in some species weakly developed medially or absent; temples often narrow to almost absent between posterior orbit and occipital carina, better developed toward postgena and here strongly bulging; posterior ocellus contiguous with inner orbits, ocellar triangle high, OOL < LOL; eyes appearing glabrous or with minute hairs, moderately to distinctly obliquely ovoid and longer than high in some species; head in lateral view with malar sulcus not developed and cheeks not striate; viewed from behind at 45° angle cheeks and postgena with deep longitudinal excavation (for retention of scape) bordered ventrally by sharp rim of occipital carina and dorsally by sharp transverse edge starting from toruli; head from in front with clypeus moderately high, slightly convex, about as wide as outer rims of toruli, with anterior margin (anteclypeus) subrectangular and often projecting over upper edge of mandibles; mandibles short, bidentate, clasped normally; palpal formula 1-1; antennal formula 7-10(11) if 4-segmented clava counted as 1 segment; female with massive abrupt subcompact clava (A7–A10), with sutures between clavomeres deeply curved; sensillar formula 1-2-2-1; male antenna with clava similar to that of female, in some species with 6 segments
between scape and clava and thus antenna 11-segmented, with A5 modified, in some species with only 5 segments between scape and clava and the antenna 10-segmented.

Mesosoma in shortwinged and winged species about as wide as high, subcylindrical; pronotal shoulders well developed, with strong complete epomia in form of sharp transverse carina, epomia continuing down on sides of pronotum toward fore coxa; mesoscutum slightly convex, subtriangular; notaulli absent; scutellum separate from mesoscutum by deep simple suture, with scutellar suture composed of arc of foveolae, scutellar disc not particularly convex but prominent, subpentagonal, with posterolateral corners sharply angular and posteromedian margin projecting, with lateral keels fused into rough lateral edges of scutellar disc, and with posterior rim not clearly defined; metanotum foveolate, with dorsellum not defined but partially overlapped by posterior margin of scutellum; propodeum without foamy structures, deeply excavate mediately, with strong posterolateral corners truncate-projecting; pronotal groove shallow, glabrous; spiracle on pronotum spike-like projecting, situated well within pronotum; ecinemium not developed; sternalus strong, complete; mesopleural depression not well developed, with no sulcus medially; metapleuron divided by oblique carina starting above hind coxa into 2 parts, viz. lower, triangular glabrous one and upper, larger hairy one; fore wing rather narrow, almost paddle-shaped, with short rudiment of submarginal vein without knob apically, wing partly glabrous, yellowish and parchment-like, with only few scattered microtrichia and with distinct dark transverse zones; marginal cilia absent in anterior 2/3 of wing, abruptly developed in posterior 1/3 of wing, and here rather long; hind wing with short stem of submarginal vein and with long marginal cilia along lower and apical margins.

Mesosoma in apterous species subrectangular, with most sclerites fused or obliterated; pronotum strongly developed dorsally in some species, with more or less distinct transverse carina in anterior part, separated from mesoscutum by distinct suture and corresponding ridge, or fused with mesoscutum; mesoscutum fused with scutellum, metanotum, and propodeum into solid shield, often with distinct reticulate sculpture, or with 3 sharp points in scutellar region; propodeum rather receding in some species, concealed under posterior margin of fused mesosoma, or exposed particularly posterolaterally and here projecting into sharp spikes; suture between pronotum and mesopleuron sometimes reduced, pronotal groove shallow, glabrous; spiracle on pronotum protruding, pointed; prepectus and tegula not developed; mesopleural depression not defined, mesopleuron either differentiated or fused with metapleuron; sternalus strong and complete; metapleuron usually divided from mesopleuron, either entirely hairy or with oblique keel running up from above hind coxa and hence divided into smaller anterior glabrous part and larger hairy posterior part; legs rather slender, with tarsal formula 5-5-5 and tibial spur formula 1-1-1 and with fore spur bitid, with apices of femora carinate ventrally, to receive base of tibiae when legs flexed.

Metasoma from short, ovoid, to elongate till spindle-like, highly convex both dorsally and ventrally and about as high as wide; metasoma in both sexes with T1 and S1 fused with T2 and S2, respectively, and hence with only 5 visible tergites in female and 7 in male; anterior margin of metasoma carinate or with anterolateral corners sharply angular, rarely with several deep pits, with scattered pilosity, in females of some species with moderate to massive hump fitting in posteromedian excavation of mesosoma; large syntergite in some species with longitudinal keels or striae; apical tergite and sternite in females either broadly triangular or distinctly elongate, sword-like, in males broadly truncate; felt fields on S2 not developed; metasoma with acute edges, with laterotergites extremely narrow.

**Recognition and Relationships.** *Parabaenus* was originally classified by Kieffer (1910) in the Baeini of the Scelionidae, where it was left by all subsequent authors until Masner (1976b) pointed out that it belongs more properly to Platygastridae. The latter view is upheld also in this paper, particularly after the discovery of fully winged members in the
Neotropical region. The wrong classification of *Parabaeus* in the Baenini may be explained by the far reaching convergence among the aperous members of Scelionidae and Platygastridae. The absence of a malar suture, the bidentate mandibles, and the lack of the long, upcurved bristles on the apical tergite in the female will confirm the placement of *Parabaeus* in the Platygastridae. Because of the structure of the antennae, *Parabaeus* appears related to genera such as *Aphanomerus*, *Terabaeus*, and particularly to *Calomera*.

*Parabaeus* is unique among all genera treated in this paper in having T1 and S1 fused with T2 and S2, respectively, and also in having a broad excavation on the cheek and postgena, presumably for retention of the scape. These 2 character states are considered strong apomorphies, most probably caused by the presumed terricolous or subterranean habits of the members. Species of *Parabaeus* may be aperous, with the mesosoma largely modified, with most sclerites fused into the box-like trunk, or micropterous, or with wings normally developed though without tubular veins. Males in some species are truly unique in having the antenna 11-segmented, with A5 modified into a sexsegment, i.e. a state not encountered in the Platygastridae.

There are 2 rather well defined species-groups in *Parabaeus*. The first group is confined to the Old World (Africa-Australia) and comprises forms with the propodeum unarmed posteriorly or posterolaterally. No winged members are known in this group. The second group, restricted to the New World, has members with the propodeum armed with points, spikes, or truncate posteriorly. This group contains shortwinged or fully winged species. Old World species are usually darker, drab-coloured brownish, piceous, whereas the New World species are lighter, bright-coloured, golden-yellow or orange.

**Distribution.** The present known distribution may suggest a southern (Gondvanic) origin of *Parabaeus*, with species described or known to us from Africa (Seychelles, South Africa, Malawi, Kenya), Australia (W. Australia), South America (Brazil, Argentina, Peru, Venezuela), Central America (Panama, Costa Rica, Mexico), and Florida (The Keys). One species was described from Oligocene Baltic amber (Brues 1940) and another undescribed species is known to us from the Late Oligocene amber of Chiapas (Mexico).

**Biology.** The host and habits are unknown. Some aperous members were collected by sifting or pan trapping.

**Species described since Kieffer (1926).**
- kiefferi DeSantis 1970, Argentina
- lenkoi DeSantis 1960, Brazil
- machadoi Risbec 1970, Angola; belongs to *Angolobaeus* Kozlov (Scelionidae) (Kozlov 1970)
- pusillus Brues 1940, Oligocene amber

**PLATYGASTOIDES DODD**

Figs. 49(lv), 50(dv), 159(a♀), 160(a♂), 161(a♂♂), 204(a♀♂), 204b(hw), 205a(fw), 205b(hw)


**Diagnosis (♀ ♂).** Robust, stocky species, rather depressed dorsoventrally; head with deep, scattered punctures; posterior ocellus distinctly remote from inner orbit; eye large, bulging; female antenna with 3-segmented clava, male antenna 4-segmented, clava more abrupt in female, in male A3 much shorter than A4; scape of both sexes with ventral side expanded into broad, semitransparent lamella shielding rest of antenna in geniculate posture; scutellum slightly to considerably flattened; scutellar suture foveolate; scutellar disc almost pointed posteromedially; propodeum with 2–3 longitudinal keels medially, or with single
wedge-like keel, with foamy structures in some species; fore wing with nebulous submarginal vein and with rather long microtrichia on disc and long marginal cilia; short-winged forms more frequent than fully winged ones; metasoma broadly spatulate, usually strongly depressed dorsoventrally; T1 broad, subrectangular; T2 usually as long as following tergites combined; felt fields on S2 moderately developed.

**Description** (♀ ♂). Head from above wider than long, subellipsoidal or subglobose; vertex rounded; occipital carina strong, complete, sometimes crenulate; occipital pit not developed; temples rather short, strongly receding behind eyes; posterior ocellus at least 1d (usually more) remote from inner orbit; OOL either longer or shorter than LOL; eyes large, bulging, appearing glabrous, sometimes with minute scattered hairs; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short and rather broad, deeply concave, with front margin strongly projecting forward; mandibles short, bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; in female with abrupt massive 3-segmented clava; sensillar formula either 1-2-2 or 2-2-2; male antenna similar to that of female but with clava 4-segmented, less distinct. A3 much shorter than A4, latter with carina ventrally; scape in both sexes distinctly carinate, with ventral side expanded into broad, semitransparent lamella shielding rest of antenna in geniculate posture.

Mesosoma slightly to distinctly wider than high; pronotal shoulders clearly visible and strongly developed dorsally, particularly in shortwinged species, nonangular, epomia not developed; mesoscutum slightly to considerably flattened, rarely concave; notaui either percurrent, abbreviate or absent, rarely crenulate, often broadened posteriorly, set wide apart, sometimes subparallel; scutellum slightly to considerably flattened, transverse, with scutellar suture foveolate, with strong lateral keels, with distinct row of foveoleae along posterior margin, with scutellar disc almost pointed posteromedially; metanotum in fully winged individuals foveolate, with dorsellum weakly defined, not foveolate in shortwinged individuals; propodeum medially with 2 or 3 longitudinal keels or with single, wedge-like keel, often with yellowish foamy structures; pronotal groove shallow, glabrous; epineurium reduced to rudiment situated ventrally; sternaclus either well developed and complete or abbreviate or absent; mesopleural depression generally shallow, usually with deep median, horizontal sulcus (sulcus rarely absent), and some transverse striae under tegula, rarely striae horseshoe-shaped in anterior part of mesopleuron; metapleuron and sides of propodeum hairy; brachypeterous forms more frequent than fully winged forms, in some species wings reduced to minute scales, not longer than tegula; in winged forms fore wing usually infuscate, with submarginal vein rudimentary (nebulous), not terminating in distinct knob, with rather long, scattered microtrichia on disc, and considerably long marginal cilia; hind wing with short rudiment of submarginal vein, and with marginal cilia longer than in fore wing; legs rather short, stocky, with tibial spur formula 1-1-1, and with fore spur trid; tarsal formula 5-5-5.

Metasoma broadly spatulate, moderately to distinctly elongate in some species, usually strongly depressed dorsoventrally, always flattened dorsally, distinctly wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes broadly transverse, subrectangular to subtrapezoidal, with foamy structures in some species, usually elevated anteromedially, hairy at sides, in female without horn; S1 in some species with foamy structures; T2 in both sexes with hairy depressions anteriorly and few striae anterolaterally, not striate at meson; following tergites combined about as long as T2, usually with rough sculpture or deep punctures; felt fields on S2 moderately developed; metasoma with sharp edges, with l12 1/4 – 1/6 width of T2.

**Recognition and Relationships.** *Platygastoides* was properly interpreted by all authors except Mukerjee (1981); see footnote under *Plutomerus*. Dodd's (1914b) statement about the distinct submarginal vein of the fore wing should be qualified in that the vein is never...
tubular but rather nebulous, with at most a blurred knob at the apex. In some species there is hardly any trace of a submarginal vein, but other veins are seen as spectral veins if viewed at a particular angle. The scutellar disc is more or less pointed posteromedially, in some species divided by a raised, longitudinal median keel. The propodeum, lower margins of the metapleuron, T1 and S1 may all have foamy structures, which are usually yellowish in colour. Metasomal tergites and sternites may often have zones of deep punctures or rough sculpture of various kinds, apparently of taxonomic value at species level.

*Platygastoides* is similar to *Oligomerella*, possibly to *Zelandonota* and *Zelamerus*. Members of *Platygastoides* are distinguished from *Oligomerella donacae* by their nonstriate cheeks, the absence of a malar sulcus, expanded ventral lamella of the scape, and the reduced submarginal vein of the fore wing. *Platygastoides*, as a whole, can be considered as a rather derived-specialized genus. The scapal lamella is least developed in an undescribed species from New Caledonia (CNC) and reaches its maximum in some shortwinged species from the Australian mainland.

**Distribution.** *Platygastoides* may soon become the largest platygrad genus in Australia although only 3 species are known at present; some 30 species are now recognized in ANIC, Canberra. The senior author examined also numerous species from Tasmania, Victoria, New South Wales, West Australia, Queensland, and New Caledonia. No members were recorded from New Guinea or generally west of New Guinea.

**Biology.** The hosts and habits are unknown. Numerous individuals were taken by pitfall traps (primarily in tropical Queensland), sifted from leaf litter, duface, mosses, etc. However, both shortwinged as well as fully winged individuals are frequently swept or caught in Malaise traps. The ovoid habitus of members may indicate that *Platygastoides* attacks eggs of some tericolous beetles.

**Keys to Species.** Australian spp. (Kieffer 1926).

**Species described since Kieffer (1926).**

*indicus* Mukerjee 1981, India; see *Plutomenus*

**PLATYSTASUS NIXON**

Figs. 59(dv), 60(lv), 151(a), 152(a), 209a(fw), 209b(hw)


**Diagnosis** (♀ ♂). Brownish, elongate species with body strongly depressed dorsoventrally; female antenna with subabrupt, 3-segmented clava, male antenna without distinct clava; notauli percurrent, narrow, sharply incised, not dilated posteriorly, wide apart and subparallel; scutellaxillar pits extremely small; scutellar rim not defined; propodeum without foamy structures; epinotum developed; fore wing with tubular submarginal vein; metasoma strongly depressed, almost foliaceous; T2 with 2 small hairy pits and fine striae anteriorly; eld fields on S2 indistinct.

**Description** (♀ ♂). Head from above wider than long, subellipsoidal; vertex rounded; occipital carina rather delicate, noncrenulate; occipital pit not developed; temples rather short, strongly receding behind eyes; posterior ocellus 0.5–1d distant from inner orbit; OOL < LOL; eyes appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with Clypeus very short, slightly concave, not wider than outer margin of toruli; mandibles short, bidentate, clapsed normally; palpal formula 1-1; antennal formula 10-10; female antenna with subabrupt 3-segmented clava;
sensillar formula 1-2-2; male antenna gradually incrassate toward apex, without distinct clava, with A3 and A4 subequal, A4 with keel ventrally; scape in both sexes finely carinate, without distinct lamellae apically.

Mesosoma distinctly wider than high, considerably depressed dorsoventrally; pronotal shoulders in dorsal view rather narrow, nonangular, epomia not developed; mesoscutum distinctly flattened; notaui percurrent, narrow, noncrenulate, sharply incised, not broadened posteriorly, set wide apart and subparallel; scutellum strongly flattened, transverse subrectangular, with simple transcutal suture anteriorly, with scutellary pits reduced, situated in extreme corners, with sharp lateral keels and with posterior margin without distinct rim; metanotum not foveolate, with dorsellum weakly defined as smooth rectangular area; propodeum with 2 parallel keels medially, hairy at sides; pronotal groove shallow, almost glabrous; epicnemium developed; sternalus rather well developed; mesopleural depressions deep under median horizontal sulcus, mesopleuron usually with transverse striae in upper part, metapleuron and sides of propodeum hairy; no brachypterous or aperous forms known; fore wing with tubular submarginal vein and slightly forked knob not surpassing basal 1/3 of wing length; marginal cilia in fore wing rather short; hind wing with short tubular stem of submarginal vein, and with marginal cilia not distinctly longer than in fore wing; legs rather short and stout, with tibial spur formula 1-2-2, and with fore spur bifid; tarsal formula 5-5-5.

Metasoma moderately to distinctly elongate, almost spindle-shaped in females, strongly depressed dorsoventrally, almost foliaceous and much wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes broadly trapezoidal, with small hairy pits anterolaterally, usually striate longitudinally, in female without horn; T2 in both sexes with 2 small hairy pits and fine striae nearby, T2 as long as or shorter than following tergites combined; felt fields on S2 indistinct; metasoma with rather blunt edges, with T2 1/4–1/5 width of T2.

**Recognition and Relationships.** Recently (Nixon 1969; Loiacono 1982), the concept of *Platystasius* was blurred with *Fidiobia*. However, *Platystasius* is distinguished primarily by the structure of the notaui that are percurrent, subparallel, sharply incised, and not broadened posteriorly. In *Fidiobia*, the notaui are usually abbreviated anteriorly and strongly broadened posteriorly, or entirely absent, rarely strongly converging posteriorly. The 2 genera also differ in the structure of T2 (striae in *Platystasius*, nonstriate in *Fidiobia*) and the absence (*Platystasius*) or presence (most species of *Fidiobia*) of foamy structures on the propodeum. Nevertheless, the 2 genera are closely related and the differences between them remain rather subtle. The structure of the notaui, the well developed epicnemium, the absence of foamy structures on the propodeum, and the nonclavate antenna of males of *Platystasius* are all considered more plesiomorphic than in *Fidiobia*.

**Distribution.** A few species are described from Europe but we also examined species from Canada and Central Australia. Most species remain apparently unknown and the present distributional range is incomplete.

**Biology.** All members are most probably parasitoids in flattened eggs of beetles deposited under bark, in dead wood, etc. *Platystasius transversus (P. strangioliophagus)* was reared from eggs of a longicorn beetle (Nixon 1937).

**Keys to Species.** Palearctic spp. (Sundholm 1958; Kozlov 1978).

**Species described since Kieffer (1926).**
- antennatus Sundholm 1956, Sweden (as *Anopediella*)
- sinus Loiacono 1982, Chile; see *Fidiobia*
- benjami Nixon 1969, Kenya; see *Fidiobia*
- citri Nixon 1969, Jamaica; see *Fidiobia*

**Diagnosis** (♀ ♂). Robust, melanic, predominantly glabrous species; head in dorsal view distinctly wider than long, lens-like, coarsely sculptured; vertex acute, blade-like; occiput deeply excavate, precipitous; temple reduced to sharp edge behind eye; OOL only slightly shorter than LOL; antennal clava 3-segmented, more abrupt in female than in male; scape of both sexes with remarkably expanded ventral lamella shielding rest of antenna in geniculate posture; scutellar rim not defined; metanotum mostly covered with foamy structures; propodeum almost entirely covered with massive foamy structures; fore wing with tubular submarginal vein; T2 covering almost all following tergites; T2 very broad.

**Description** (♀ ♂). Head from above distinctly wider than long, lens-like; vertex acute, blade-like; occiput deeply concave, precipitous; occipital carina modified to step above foramen magnum; occipital pit not developed; temples reduced to sharp edge as continuation of acute vertex; posterior ocellus distinctly remote from inner orbit by about 1.5d; OOL slightly shorter than LOL; eyes large, appearing glabrous, with only extremely short microtrichia; head in lateral view with malar sulcus absent, cheeks not striate and with toruli only slightly protruding; head from in front with clypeus very short, slightly concave, not wider than outer rims of toruli, toruli very close together, with only sharp ridge in between; mandibles short, bidentate, clasped normally; palpal formula 1-1; antennal formula 9-9; female antenna with abrupt, massive, 3-segmented clava; sensillar formula 1-2-2; male antenna similar to female but with narrower clava, A3 modified (sexsegment), distinctly longer than A4; scape in both sexes with remarkably expanded ventral lamella shielding rest of antenna in geniculate posture.

Mesosoma distinctly wider than high; pronotal shoulders clearly visible in dorsal view, subangular, epomia not developed; mesoscutum rather flattened; notauli almost parallel, sharply incised, noncrenulate, subparallel, not particularly broadened posteriorly; scutellum strongly flattened, nearly rectangular, several times wider than long, separate from mesoscutum by deep, noncrenulate transcutal suture, with sharp lateral keels projecting posteriorly and with posterior rim not defined; metanotum nonfoveolate, except for extreme sides covered by massive triangular foamy structure covering also mid propodeum; propodeum almost entirely covered with massive foamy structures; pronotal groove shallow, glabrous; epicnemium not developed; sternalus strong, complete; mesopleural depression almost absent, mesopleuron with several strong transverse ridges in upper half; metapleuron in upper half glabrous, in lower half with scattered long pilosity; dorsal, posterior, and ventral edges of metapleuron with thick foamy structures, structures present also between hind coxae; no brachypterous or apterous forms known; fore wing rather glassy, with scattered microtrichia on disc, with short, tubular submarginal vein with rounded knob reaching about 1/7 wing length, some other veins indicated as spectral veins; marginal cilia in fore wing absent; hind wing with only rudiment of tubular submarginal vein and with moderate marginal cilia; legs rather slender, with tibial spur formula 1-1-1, and with fore spur bifid; tarsai formula 5-5-5.
Metasoma slightly elongate, subrectangular, strongly depressed dorsoventrally, distinctly wider than high; in female with supposedly 6, in male with 8 tergites, tergites 3 and following largely retracted under T2 and not clearly visible; T1 in both sexes distinctly trapezoidal, without costae, almost glabrous, with few bristles at sides, in female with no horn; S1 with denser pilosity; T2 in both sexes rectangular, with sides almost parallel, with 2 extremely small pits anteriorly and with shallow, glabrous depression basally; posterior part of T2, following tergites, S2 and following sternites with fine dense punctures; S2 without felt fields; apex of metasoma broadly triangular in female, obtuse in male; metasoma with sharp edges, it1 with abundant pilosity, it2 broad, slightly less than 1/2 width of T2.

Recognition and Relationships. Plutomerus is superficially similar to Platygastoides, mainly because of the expanded scapal lamella and generally robust habitus. However, the true relationship is with Fidiobia, as indicated by the structure of the scutellum (simple transcutal suture and scutellar rim not defined), trapezoidal T1 and tubular submarginal vein of the fore wing. Compared with Fidiobia, Plutomerus appears generally more apomorphic because of the modified cephalic structures, viz. the crested vertex that gives the head a distinct lens-like appearance. Because of this latter character state we treat Plutomerus as a separate genus rather than a species group within Fidiobia, the members of which have subglobose head with rounded vertex. However, some undescribed species of Fidiobia known to us show other trends shared with Platygastoides; the scapal lamella is considerably expanded in 1 undescribed Mediterranean species of Fidiobia and the foamy structures on the metanotum and propodeum are remarkably developed in some undescribed Ethiopian and Oriental species of Fidiobia (CNC). The position of the ocelli, with OOL subequal to LOL in Plutomerus, is considered plesiomorphic when compared with most species of Fidiobia.

Etymology. From ploutos (Greek), in reference to the rich ornamentation of the body.

Distribution. Oriental region (India, Nepal, Taiwan, Japan).

Biology. Host and habitus unknown.

Species described since Kieffer (1926).

indicus (Mukerjee) 1981. India; from Platygastoides, comb.nov. (redescribed below)

**Plutomerus indicus** (Mukerjee) comb.nov.

Figs. 46(1v), 61(dv), 153(a♀)

Platygastoides indicus Mukerjee 1981: 72–74
Platygastoides indicus: Mani and Sharma 1982: 213–214

Diagnosis (♀). Occiput strongly vertically excavate below evenly arched, uninterrupted acute carina of vertex; temples almost absent; large, triangular foamy structure posteromedially on mesosoma, longitudinally hollowed out medially and without distinct additional longitudinal depressions laterad; 5 strong transverse ridges above mesopleural depression.

Description. Female. Length 1.20 mm. General colour of body as stated by Mukerjee (1981), but metasoma lighter than head and mesosoma; foamy structures on metanotum-propodeum not yellowish-brown but grey or dirty whitish; coxae dark brown.

Head from above strongly transverse (20:48), with frons much arched; occiput strongly concave and hollowed out below sharp vertexial carina down to occipital carina; eye orbits flange-like produced posterolaterally, slightly converging anteriorly and thus temples virtually absent; POL:LOL:OOL = 11:6:5; scape subequal to interorbital space (26:25); vertex with rough umbilicate reticulation and in extreme concave bend of occiput almost smooth and shining; except for few microrichia on eyes, head virtually glabrous; head in
lateral view with extremely bulging frons and clearly higher than long (39:25); eyes large, rather circular, with straight posteromarginal; eyes large, rather circular, with straight posteroventral margin; vertexial (hyperoccipital) carina continuing as blunt edge around eye between lower orbit and lower edge of gena almost to mouth; malar space shorter than eye height (17:22); head from in front wider than high (48:39), suboval; interorbital space wider than height of eye (25:22); whole head covered with same rough sculpture as on vertex and mandibles with several longer hairs.

Antenna (Fig. 153) with A1 distinctly reticulate; antennomeres in proportions: 26:16; 8.3; 6.2; 3.2.5; 1.5.2.5; 2.4.5; 6.5; 7.5; 5.7; 6.5; 5.5.

Mesosoma distinctly wider than high (45:34); anterior part of mesoscutum somewhat produced forward and pronotum laterally distinctly angular; transcutal suture broadened posterolaterally; lateral lobes of mesoscutum with coarse, granular sculpture and sculpture on midlobe predominantly with deep transverse crevices; tegulae finely reticulate; mesoscutum virtually without hairs; scutoscutellar suture strongly approximated to transcutal suture to form 1 deep sulcus; axillae reduced, not visible, and lateral keels of scutellum fused to 2 bars; close interior of bars, scutellum with deep elongate fovea on each side; scutellar disc convex anteriorly, 3 times wider than long, smooth and shining, with transverse row of minute hairs anteriorly and a row of more pronounced hairs posteriorly; triangular foamy structure on dorsellum and propodeum almost twice as long as scutellum (13:7) and medially with deep longitudinal depression; laterally on propodeum foamy structure conspicuously bent up; pronotum in lateral view with distinct hole ventrally at base of pronotal groove; ventral part of pronotum (i.e. pronotal groove) concave, smooth, and glabrous; upper 1/2 of pronotum with same sculpture as on head but finer; mesopleuron generally smooth and shiny, with several horizontal ridges above sternaulus, ventral of sternaulus with reticulate or granular sculpture.

Fore wing not especially broad (100:40), nebulatus veins not present but M + Cu, RS + M, Cu, and base of RS indicated as fine spectral veins; hind wing (85:20), with marginal cilia about 1/7 wing width, and short tracheate stem of submarginal vein with only 1 hair.

Metasoma subequal to rest of body in length (66:63); T1 (15:40) with anterior rim weakly developed, medially with elevation and laterad to it with irregular fovea; flexed t1 with adpressed yellowish hairs; T2 longer than wide (49:41), with 2 minute pits in basal transverse depression; lateral margins of depression prolonged backward to about middle of tergite, thus depression semirectangular in shape; t2 almost entirely with fine punctures.

Male. Unknown.

Material Examined. Holotype: ♀, India, Netarhat (Chota-Nagpur Survey), 30 November – 1–2 December 1974 (M.S. Mani and party) [USNM]; ♀, Nepal, nr. Simra Adhabhar, 600 ft., 25–28 August 1967, Malaise trap No. 21 (Canadian Nepal Expedition) [CNC].

Recognition and Relationships. Unfortunately, the type (except for 1 antenna and 1 pair of wings on a slide) is feared lost as it was not contained with other primary types received by the USNM from Agra. However, Mukerjee’s (1981) illustration and description are fairly good, so there is no problem in placing P. indicus in Plutomerus. On the other hand, we are not so sure about the conspecificity of Mukerjee’s type and our Nepalese female that was largely used for the above redescription. The holotype is obviously much larger than the Nepalese specimen (1.88 versus 1.20 mm) and has also larger wings (110 versus 87 points on our scale). In addition, we examined 2 more specimens (female from Taiwan [CNC] and male from Japan [Fukuoka]) representing in all probability an undescribed species of Plutomerus. They differ from the Nepalese specimen in having the carina on
the vertex interrupted and sinuate medially, and the occiput below it less precipitous and hence better visible from a dorsal view.

**Biology.** Unknown.

**Proplatygaster Kieffer**

Figs. 29(bv), 34(dv), 116(a,b), 117(a,c), 118(a,b), 192(a,fr), 192(b,fr)


**Diagnosis** (♀ ♂). Robust, elongate species with abundant, apressed pilosity on body; occipital carina very strong, almost rim-like; temple relatively long; malar sulcus not developed; cheek nonstriate; antennal clava of female nonabrupt, cylindrical, usually 5-segmented, with sensillar formula usually 1-2-2-2-1; A3–A10 of male distinctly elongate; scutellomeral pits large, hairy, subtriangular; scutellar suture noncrenulate; scutellar rim not well developed; propodeum without foamy structures; epinotum either well developed or nearly absent; fore wing with long, tubular submarginal vein terminating in forked knob; T1 elongate-trapezoidal, distinctly longitudinally costate over most of surface; felt fields on S2 large, oval; lt2 rather narrow.

**Description** (♀ ♂). Head from above wider than long, subrectangular, rarely subellipsoidal; vertex rounded; occipital carina very strong, complete, almost rim-like, rarely crenulate; occipital pit not developed; temples relatively long, only gradually receding behind eyes; posterior ocellus 0.5–1.5d distant from inner orbit; OOL<LOL; eyes appearing glabrous, with higher magnification with minute scattered hairs; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, as wide as or slightly wider than outer rims of toruli, almost flat, with lower margin slightly protruding; mandibles short, bidentate, clapped normally; palpal formula 2-1; antennal formula 10-10; female antenna with clava nonabrupt, cylindrical, usually 5-segmented, rarely only 3-segmented; sensillar formula usually 1-2-2-2-1, rarely 1-2-2-1 or 1-2-1; male antenna thread-like, with A3–A10 slender, cylindrical, distinctly elongate, A3 and A4 subequal, A4 with carina ventrally; scape in both sexes not carinate and without lamellae apically.

Mesosoma about as wide as high; pronotal shoulders visible from above, not angular, epomia not developed; mesoscutum only slightly convex; admedian lines present at least as pits; notaulli recurved, sharply incised, noncrenulate, in some species dilated posteriory; scutellum moderately convex, semicircular, with rather large, subtriangular, hairy, scutellomeral pits, with scutellar suture noncrenulate, with distinct lateral keels in anterior half, with deep, noncrenulate, hairy, semicircular depression in front of posterior margin, with posterior margin not rim-like; metanotum distinctly foveolate, with dorsellum nonfoveolate; propodeum medially with 2 parallel keels usually connected in posterior half by transverse keel, densely hairy at sides, with nucha glabrous and longitudinally keeled; pronotal groove deep and hairy; epinotum either well developed or nearly absent; sternaulus not developed; mesopleural depression rather shallow, with oblique sulcus better developed in posterior part; metanepisternum and sides of propodeum hairy; no brachypterous or aterous forms known; fore wing long, with long, tubular submarginal vein and deeply forked knob reaching almost 1/2 wing length, with other veins nebulosus, RS+M particularly heavily pigmented, M+Cu, M, Cu, and Rs usually less pigmented; marginal cilia in fore wing short; hind wing with relatively long, tubular stem of submarginal vein, nebulous r-m, and with marginal cilia longer than in fore wing; legs rather long and slender, with tibial spur formula 1-2-2, and with fore spur subtrifid; tarsal formula 5-5-5.

Metasoma usually only moderately elongate, rarely attenuate in female, considerably depressed dorsoventrally, much wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes elongate trapezoidal, distinctly longitudinally costate on most
surface, with sparse pilosity at sides, in female without horn; T2 in both sexes with 2 elongate hairy pits anterolaterally and with longitudinal costae or striae in anterior half; felt fields large, oval, and somewhat depressed on S2 mediolaterally; metasoma with sharp edges, with lt2 1/6 – 1/8 width of T2.

**Recognition and Relationships.** The name _Proplatygaster_ remained untreated since its erection in 1904. Our concept of the genus is based on Kieffer's diagnosis, as attempts to locate the types remained fruitless. However, we feel confident enough in our interpretation of the genus, mainly because of fine material (CNC) consisting of several species from Chile and Australia. The Chilean species appear to be generally more plesiomorphic than the single Australian species known to us. The veins RS + M, M + Cu, Cu, M, and RS in the fore wing and r-m in the hind wing are usually heavily pigmented (nebulous) in the Chilean species. The epicnemium also is better developed in the Chilean species. The single Australian species shows little of the above nebulous veins except for darker RS + M in the fore wing and its prepectus is much reduced. We expect that more species of _Proplatygaster_ will be discovered in Chile, judging by gaps that exist among the species known to us today. For this reason we included in this genus also an unusual Chilean species (CNC) with extremely slender female antenna, with 3-segmented clava and sensillar formula 1-2-1 (Fig. 118).

_Proplatygaster_ is probably the most plesiomorphic of all extant genera known to us. This is because of its relatively rich wing venation and the structure of the female antenna with a 5-segmented clava in most species. Its closest relatives seem to be _Zelosienma, Magellanium_ and _Metachiissis_. The plesiomorphic _Allostenia_, on the contrary, shows generally different habits and little relationship with _Proplatygaster_.

**Distribution.** _Proplatygaster_ is one of the few Gondwanic genera treated in this paper. The type species was described from Concepcion (Chile) and more Chilean species are known to us (CNC). One undescribed, widespread Australian (NSW, Qld) species is also known to us; however, the genus was not encountered in New Zealand.

**Biology.** One undescribed Chilean species was reared from galls of _Rhopalomyia nothofagi_ Gagne (Cecidomyiidae), associated with southern beech _Nothofagus obliqua_ (Mirb.) (Madrid 1974).

**Species described since Kieffer (1926).**

None

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**Pseudaphanomerus Szélenyi**

Figs. 83(dv), 84(lv), 149(a♀), 150(a♂), 223a(fw), 223b(hw)


**Diagnosis** (♀♂). Moderately elongate, minute, rather dorsoventrally depressed, melanic species with contrasting light-coloured appendages; head in dorsal view remarkably subrectangular; temple considerably long; posterior ocellus almost contiguous with inner orbit; antennal formula 7-10, female antenna with 1-segmented compact clava, with sensillary formula 1-2-0-0; scutellum strongly flattened dorsally; scutellar suture foveolate; scutellar rim well defined, foveolate inwardly; epicnemium well developed; fore wing with tubular submarginal vein; tibial spur formula 1-2-2; T2 costate-striate anteromedially; felt fields on S2 not defined; lt2 narrow.

**Description** (♀♂). Head from above wider than long, remarkably subrectangular; vertex rounded; occipital carina rather weak, complete, noncrenulate; occipital pit not developed; temples considerably long, thus contributing toward subrectangular shape of head in dorsal aspect; posterior ocellus almost contiguous with inner orbit; OOL<LOL; eyes hairy; head
in lateral view with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, only slightly convex, as wide as outer rims of toruli; mandibles short, bidentate, clapsed normally; palpal formula 2-1; antennal formula 7-10; female antenna with 1-segmented solid clava, consisting of fused A7–A10; sensillar formula 1-2-0-0 in that sensilla lost on A7 and A8; male antenna subclavate, with A10 incrassate and about twice as long as A9, A4 longer than A3. A4 with longitudinal carina; scape in both sexes not carinate and with no lamellae apically.

Mesosoma distinctly depressed dorsoventrally and flattened dorsally, wider than high; pronotal shoulders clearly visible from above, not angular, and epomia not developed; mesoscutum strongly flattened; admedian lines short but well developed; notauli fine, percurrent or abbreviate, not sharply incised, noncuneate, strongly converging posteriorly; scutellum strongly flattened, semicircular, with scutellar suture composed of foveolae, lateral keels distinct, with posterior rim well defined, sharp, foveolate inwardly; metanotum distinctly foveolate, with weakly defined dorsellum partly overlapped by posterior rim of scutellum; propodeum short, hairy at sides, with 2 short parallel keels mediately; mucha easily visible, crenulate, pronotal groove rather shallow but broad, with fine pilosity; epicnemium well developed; sternaus not developed; mesopleural depression rather deep with strong angular sulcus medially and with transverse ridges in upper part; metapleuron and sides of propodeum hairy; no brachypterous or apterous forms known; fore wing with tubular submarginal vein and upcurved truncate knob reaching well over basal 1/3 of wing length; other veins not developed; marginal cilia in fore wing almost inconspicuous; hind wing with short stem of tubular submarginal vein and with marginal cilia distinctly longer than in fore wing; legs short, with tibial spur formula 1-2-2 and with fore spur trifid; tarsal formula 5-5-5.

Metasoma moderately elongate, distinctly depressed dorsoventrally, much wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes transverse, longitudinally costate-striate medially, hairy at sides, in female without horn; T2 in both sexes without distinct pits anterolaterally, longitudinally costate-striate in anterior half; felt fields on S2 not defined; apex of metasoma broadly rounded in both sexes; metasoma with sharp edges, with lt2 about 1/4 width of T2.

Recognition and Relationships. *Pseudaphanomeres* is placed in the cluster of genera with subcompact to compact, ovoid antennal clava originally composed of 4 segments (A7–A10) in the female or also in the male. The clava in the *Pseudaphanomeres* female is highly advanced in that it is not only perfectly compact but the sensillar formula 1-2-0-0 indicates the loss of sensilla on A7 and A8 respectively. The male of *Pseudaphanomeres* has a normal 10-segmented antenna, with A10 only incrassate. Among the genera of the above cluster *Calomerella* appears as the closest relative of *Pseudaphanomeres*. Primarily because of the shared foveolate scutellar suture and the striation of T2. *Pseudaphanomeres* can be distinguished from *Calomerella* by the distinctly foveolate posterior margin of the scutellum, the nonpointed posterior apex of scutellum, and the reduced sensillar formula 1-2-0-0 in the female clava. The members of *Pseudaphanomeres* are generally depressed dorsoventrally, whereas those of *Calomerella* are about as wide as high.

The fossil *Trachelopteron* Brues (Oligocene Baltic amber) may be a congener with *Pseudaphanomeres* and would have priority over the latter by 1 year. However, the type of *T. angulipenne* Brues was not available for examination and is feared lost; the original description (Brues 1940) contains some problematic data, such as the peculiar structure of the wings, suggesting an artefact, caused by preservation in amber. We prefer to consider *Trachelopteron* as genus dubium.


Biology. Unknown.
Species described since Kieffer (1926).
*hyalinatus* Szelényi 1941, Hungary

**Pulchrisolia Szabo**
Figs. 66(dv), 67(lv), 165(a v), 166(a z), 208(a(fw), 208(b(hw), 249(mi), 250(mi), 251(mi)

**Diagnosis** (♀ ♂). Stocky, robust species, often brightly coloured (yellow, orange, ferruginous), with dark-banded wings; head in dorsal view strongly transverse, almost lens-like; vertex steep, subacute; OOL subequal to LOL; raised, transverse ledge right above toruli; interantennal process strongly projecting; mandible strong, almost beak-like, with lower edge upcurved; female antenna with abrupt 3-segmented clava; male antenna thread-like; pronotal shoulders strongly developed, often angulate or carinate; axillae not developed; scutellar rim not defined; propodeum with strong foamy structures; fore wing with extremely short but strong, tubular submarginal vein; microtrichia on wing disc as specialized scale-like plates; marginal cilia of fore wing absent; tibial spur formula 1-2-2; fore spur combed; metasoma short and broad, subessible; T2 without pits or striae anteromedially; S2 without felt fields and without scattered hairs; t2 about 0.30 width of T2.

**Description** (♀ ♂). Head from above strongly transverse, much wider than long, almost lens-like; vertex rather steep, subacute; occipital carina weak, noncrenulate, rudimentary at sides; occipital pit not developed; temples rather long but strongly receding behind eyes; posterior ocellus distinctly remote from inner margin by about 3d; OOL subequal to LOL; eyes rather small, appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front subtriangular, with sharp, raised, undulating, transverse ledge right above toruli, with interantennal process raised into truncate or Y-shaped projection, clypeus rather long, narrow, subtriangular, with lower margin downcurved, distinctly narrower than outer rims of toruli; mandibles long and strong, almost beak-like projecting, almost falcate, bidentate, with lower edge upcurved apically, clasp normally; antennal formula 10-10; in female with strong abrupt 3-segmented clava; sensillar formula 1-2-2, sensilla minute, deeply embedded; male antenna thread-like, with A3 longer than A4; scape in both sexes distinctly carinate but with no lamellae apically.

Mesosoma short and broad, distinctly wider than high; pronotal shoulders strongly developed dorsally, slightly to sharply angulate or carinate, rarely even serrulate; mesoscutum only slightly convex, distinctly wider than long; notauli not developed; axillae virtually invisible; scutellum rather flattened, subrectangular, often longitudinally ridged and in some species with 2 semi-erect spines situated more laterad; transcutal suture not crenulate and lateral keels strong and almost parallel; posterior rim of scutellum not defined; metanotum not foveolate, with dorsium defined by 2 short parallel keels; propodeum with strong foamy structures posteriorly and posterolaterally; pronotal groove narrow, with short hairs; epinotum not developed; sternaulus strong and complete; mesopleural depression almost nonexistent, upper 1/2 of mesopleuron with horizontal ridges; metapleuron with long hairs and posteriorly covered with foamy structures; no brachypterous or apterous members known; fore wing rather short and broad, with extremely short but strong tubular stem of submarginal vein with distinct knob apically reaching only about 1/16 wing length (subequal to length of tegula), with other veins represented at most as spectral traces; microtrichia on disc transformed into flattened-twisted upright pegs (Figs. 208, 250, 251); marginal cilia in fore wing absent; hind wing with short stem of tubular submarginal vein, in 1 undescribed species with dark pigmented fore margin, with moderate marginal cilia; legs rather slender, but femora (especially hind) considerably incrassate; tibial spur formula 1-2-2 and fore spur combed; tarsal formula 5-5-5, all tarsi long and slender.
Metasoma short and broad, subsessile, depressed dorsoventrally, much wider than high; in female with 6, in male with 8 visible tergites; T1 strongly transverse, broadly trapezoidal, densely hairy medially, with foamy structures anterolaterally, in female without horn; S1 with strong patches of foamy structures; T2 with no pits or striae anteromedially with delicate longitudinal striae anterolaterally; S2 with no felt fields and with no scattered hairs; apex of metasoma obtuse in both sexes; metasoma with moderate edges, with lt2 almost 1/3 width of T2.

**Recognition and Relationships.** Szabo (1959a) compared *Pulchrisolia* with *Isolia*, distinguishing them mainly by the maculate wings of the former and plain wings of the latter genus. Masner (1964a) examined the type of *P. maculata* (unique female) and synonymized *Pulchrisolia* with *Sceliotrachels* (known only in male sex) in the belief that they represented opposite sexes of 1 genus. More Ethiopian material has since accumulated in our collection, necessitating a critical review of the above opinion. The type of *P. maculata* was cleaned, remounted, and re-examined. Contrary to the original diagnosis (Szabo 1959a), the fore wing of *P. maculata* was found to have a short but strong, tubular submarginal vein, a transverse ledge on the lower frons above the toruli, and a strongly projecting Y-shaped interantennal process. These character states are absent in *Sceliotrachels*, which differs from *Pulchrisolia* also by having long scattered hairs on S2. As a result of these discoveries, *Pulchrisolia* is presently removed from synonymy with *Sceliotrachels* and re-instated as a valid genus.

*Pulchrisolia* belongs to a cluster of genera (*Isolia*, *Afrisolia*, *Sceliotrachels*) characterized by a combed fore spur, OOL subequal to LOL, and microtrichia on fore wing modified into scale-like pegs or spines. It differs from *Isolia* by the prominent interantennal process and the undulating transverse ledge above the toruli. *Afrisolia* differs from *Pulchrisolia* primarily by the specialized notaui.

**Distribution.** Several undescribed species were examined from continental Africa (Ivory Coast, South Africa, Zimbabwe, Somalia) and Madagascar.

**Biology.** Host and habits are unknown. However, members were often collected in pan traps, rather than by other means of sampling.

**Species described since Kieffer (1926).**

*maculata* Szabo 1959a, Tanzania

**RAO GEN. NOV.**

Figs. 13(lv), 13(a.ta), 16(dv), 123(a. ᵃ), 124(a. ᵃ), 201a(fw), 201b(hw)

Type species: *Rao psephorus* sp. nov. (described below), by present designation.

**Diagnosis** (♀ ♂). Moderately elongate, slightly depressed melanic species with finely reticulate head and mesosoma; OOL shorter than LOL; antennal formula 10-10; A7–A10 of female antenna distinctly flattened ventrally, with antennomeres loafoil rather than circular on cross section; metanotum finely foveolate; propodeum without foamy structures; fore wing with tubular submarginal vein rather remote from fore margin of wing; legs rather short and stout, strong, with tarsomere 5 distinctly incrassate, with large ariolium; metasoma moderately elongate, female with only 3 visible tergites; T2 nonstriate anteromedially; felt fields on S2 moderately developed.

**Description** (♀ ♂). Head from above wider than long, subellipsoidal; vertex rounded; occipital carina strong, complete; occipital pit not developed; temples broad, strongly receding behind eyes; posterior ocellus about 1.5 times distant from inner orbit; OOL<LOL; eyes appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with elypeus short and very broad, its margin strongly rim-like, projecting forward, and anteclypeus deeply concave, large; mandibles...
short, bidentate, clapsed normally; palpal formula 1-1; antennal formula 10-10; in female
A2–A4 elongate, A5 very small, and clava rather strong, semi-abrupt, 5-segmented (A6–
A10), with clavomeres progressively broadened toward apex, with A10 largest, as long
as A7–A9 combined, and clavomeres A7–A10 distinctly flattened ventrally; sensillar for-
mula 1-1-1-1 or 1-1-1-1-1; male antenna similar to that of female but with clava less
distinct, A3 much shorter than A4, latter with sharp carina ventrally, and A10 slightly
shorter than in female; scape with short lamellae apically.

Mesosoma distinctly wider than high; pronotal shoulders not too visible from above,
nonangular, epomia not developed; mesoscutum rather flattened; notauli percurent, sharply
incised, noncrenulate, slightly broadened and subparallel posteriorly; scutellum rather flat-
tened, nearly semicircular, with 2 small, triangular, hairy scutellaxillar pits, with fused
lateral keels and with prominent thickened posterior rim distinctly crenulate inwardly;
metanotum more or less foveolate, with dorsellum weakly defined; propodeum medially
with 2 parallel keels, hairy at sides; pronotal groove deep, much dilated ventrally, hairy;
epicnemium not developed; sternaulus weak, better indicated anteriorly; mesopleural
depression large, shallow, with deep horizontal sulcus posteriorly; metapleuron and sides
of propodeum hairy; no brachypterous or apterous forms known; fore wing with straight
tubular submarginal vein and rounded knob reaching about 1/3 wing length and vein rather
remote from fore margin of wing; other veins hardly developed; marginal cilia in fore wing
very short; hind wing with short stem of tubular submarginals and with marginal cilia
longer than in fore wing; legs rather short and stout, strong, with tibial spur formula 1-2-
2 and with fore spur trifid; tarsal formula 5-5-5, tarsomere 5 of all legs distinctly incassate,
with large arolium.

Metasoma moderately elongate, rather depressed dorsoventrally, wider than high; in
female with only 3, in male with 8 visible tergites; T1 in female without horn; T2 in both
sexes with 2 hairy pits anterolaterally, not striate anteromedially; felt fields on S2 only
moderately developed; apex of metasoma sharply pointed in female, obtuse in male; meta-
soma with sharp edges, with laterotergites about 1/4 width of T2.

Recognition and Relationships. Rao is most similar to Isostatius; the 2 genera share the
same derived structure of the female metasoma, with only 3 visible tergites. The basic
structure of the scutellum and clypeus is also much the same in Rao and Isostatius. How-
ever, the antennal clava of both sexes of Rao is unique in that the ventral side is distinctly
flattened so that the clavomeres in cross section are not circular but rather loafo, flat ven-
trally and convex dorsally (Fig. 123). Members of the 2 genera are also distinguished by
the OOL/LOL ratio, foveolation of the metasoma, and the structure of tarsomere 5, which
is conspicuously incassate in members of Rao.

Etymology. Euphonious arbitrary combination of letters. The gender is masculine.

Distribution. Only 1 widespread species is known to us from Australia (Tasmania, New
South Wales, Queensland, West Australia).

Biology. Unknown.

Species described since Kieffer (1926).

*pselaphus* Masner and Huggert, present description, Australia

*Rao pselaphus sp.nov.*

Figs. 13(lv), 13a(ta), 16(dv), 123(a Ʌ), 124(a Ʌ), 201a(fw), 201b(hw)

Diagnosis (♀ ♂). Black species with brownish appendages, head and mesosoma with fine,
dense, reticulation; posterior ocelli about 1.5d from inner orbit; scutellar rim evenly curved,
with distinct crenulae; fore wing with rather distinct brownish cloud around basal half;
metanotum at least with traces of foveolate; posteroventral part of pronotal groove tri-
angularly dilated; T2 anteromedially only with row of very short crenulae.
Description. Female. Length 1.45 mm. Body black, with antennae and legs brownish, coxae blackish; A10, tarsomere 5, and femora medially darker; fore wing with rather distinct brownish cloud around basal half.

Head from above almost twice as wide as long (42:24), with frons almost straight or slightly concave medially; temples rather long, but shorter than length of eye (11:16); occiput moderately concave; POL:LOL:OOL = 15:7:4; scape slightly longer than interorbital space (25:22); heading lateral view distinctly higher than long (35:25), with upper frons strongly arched, lower frons rather straight and gena broad with upper part of eye far from posterior margin of head; eye very high (21:15), bean-shaped, and malar space very short, only 1/4 eye height; head from in front somewhat broadly oval, wider than high (42:35), with large eyes; interorbital space subequal to eye height (22:21); interantennal process bluntly pointed, directed ventrad; prominent lower ridge-like margin of clypeus with about 5 hairs medially between toruli; whole head covered with dense, punctate fine-meshed reticulation and some few concentric wrinkles around toruli; shallow depression reaching halfway down frons below anterior ocellus; head, except medially on frons, with rather dense, moderately long hairs, with longer hairs at cheeks.

Antenna (Fig. 123) with A1 to radicle as 25:3; antennomeres in proportions: 25:5; 7:2:5; 6:2; 5:5:2; 2:2:5; 4:4; 4:5:5; 3:5; 6; 4:6:5; 11:5:7.

Mesosoma wider than high (45:35); admedian lines as delicate as traces, closer to notauli than to each other; parapsidal lines as delicate smooth crests; scutocutellar suture not foveolate; axillae rather conspicuous forming not too large scutellarial pits covered with dense, longer hairs; lateral keels fused, anterior part much broader than rather long and narrow posterior part; mesoscutum and scutellum with same dense sculpture and pilosity as head; metanotum with rather distinct foveolae; dorsellum about 3 times as wide as long, with lateral short keels and delicate ridges between, hidden under posterior rim of scutellum; length of median propodeal keels slightly shorter than width between them; nucha appearing as lunate, shining, elevated strip; pronotal groove strongly triangularly dilated posteroventrally, filled with dense, woolly pilosity and longer hairs; anterodorsal end of pronotal groove only slightly dilated, pilose; mesopleuron with several distinct transverse ridges in dorsal third; mesopleural depression rather large and shallow, subtriangular, with anterior and posterior ends of sulcus pit-like; acetabular and especially postpectal carina distinct, latter crenulate; metapleuron covered with dense, long hairs all over.

Fore wing (Fig. 201a) rather broad (130:55), disc densely pilose and wing considerably surpassing tip of metasoma; M + Cu, RS + M, Cu, RS, and M as delicate spectral veins; hind wing (Fig. 201b) rather broad (105:27), with marginal cilia about 1/6 wing width; stem of submarginal vein fairly long, with 2 longer hairs and disc densely pilose; tarsomere 5 with pronounced ar褚um (Fig. 13).

Metasoma slightly shorter than rest of body (72:75); T1 (9:21) medially with about 5 strong longitudinal costae; lateral part of T1 with rather deep pits covered with long silvery hairs; T2 clearly longer than wide (51:37), with rather wide and long anterolateral pits covered with long silvery hairs and slightly elevated median part with only extremely short costae at anterior edge; T3 (12:23) forming a broad triangle with apex slightly depressed and bent upward; T2 only with some lateromedian hairs and some delicate punctate reticulation at apical edge; T3 with broad, irregular row of hairs medially and anterior half with some pronounced reticulation.

Male. Basically identical to female except for shape of antenna and metasoma; antenna (Fig. 124) with A1 to radicle as 29:3; antennomeres in proportions: 29:6; 9:3:5; 6:3:5; 8:4; 3:3; 5:5; 5:6; 5:6:5; 5:6:5; 11:6. Metasoma distinctly shorter than rest of body (60:80) and with more rounded sides; T1 (10:21); T2 (45:40) with anterolateral pits shorter than in female, finely reticulate apically; T3–T7 forming a short blunt triangle, each with transverse basal band of reticulation and regular row of rather scattered hairs.
Etymology. From pselaphos (Greek) meaning to feel, examining, touch, and referring to the peculiarly flattened ventral side of the clavomerones in both sexes.


Recognition and Relationships. Slight variations were observed in the following character states, viz. intensity of foveolation on the metanotum, OOL, intensity of crenulation on the anterior margin of the scutellum, the degree of striation on the anteromedian part of T2 (may be absent in some individuals), the total body length and the colour of the appendages. All these variations seem to reflect the very wide (transcontinental) distribution of *R. pselaphus* in Australia.

Biology. The host, as well as the habits, are not known. However, the peculiar structure of the antennae indicates a highly specialized behaviour. The incrassate tarsomere 5, with strong ariolum, resembles specializations encountered among some phoretic members of the Scelionidae (e.g. *Protelenomus* Kieffer). Phoresy, however, is not yet known among the platygastrid wasps.

### Sacespalus Kieffer

Figs. 14(dv), 15(lv), 125(a♀), 126(a♂), 191(a-fw), 191b(hw)


Diagnosis (♀♂). Moderately to strongly elongate, almost spindle-like species, usually roughly sculptured on head and mesosoma; occipital carina massive, often crenulate and ridge-like elevated; eye large, with raised, crenulate orbits; ventral lamella of scape broad, semitransparent, shielding rest of antenna in geniculate posture; pronotal shoulders moderately to strongly angular, with sharp epomia; scutellum moderately to strongly trapezoidal; propodeum without foamy structures; ventral part of pronotum with open hole pointing toward fore coxa; fore wing with rudiment of tubular submarginal vein and no knob, wing remarkably glabrous, glossy, shining, with few scattered microtrichia; metasoma of both sexes of most species distinctly elongate to attenuate; T2 with large depression anteromedially; S2 with no felt fields.

Description (♀♂). Head from above moderately transverse, subellipsoidal to almost globose; vertex rounded; occipital carina massive, complete, often distinctly crenulate and elevated, ridge-like; occipital pit not developed; temples rather broad, strongly receding behind eyes; posterior ocellus remote from inner orbit at most by 1d; OOL<LOL; eyes large, appearing glabrous, often with raised, crenulate orbits; head from lateral view with malar sulcus not developed and cheeks not striate, head from in front with clypeus concave, subtriangular, large, wider than outer rims of toruli, with upper margin sharply projecting; interantennal process strong, swollen, strongly projecting forward; mandibles short, bidentate, clasped normally; palp formula 2-1; antennal formula 10-10; female antenna with nonabrupt, cylindrical, 4-segmented clava; sensillar formula 1-1-1; male antenna subclavate, A3 subequal to A4, latter with keel or ridge, A7–A10 forming moderate clava; scape distinctly carinate, both dorsally and particularly ventrally with broad semitransparent lamella shielding antennomeres in geniculate posture.

Mesosoma about as wide as high; pronotal shoulders clearly visible from above, moderately to strongly angular, with epomia well developed; mesoscutum rather convex; notauli incised, rarely crenulate, usually strongly broadened posteriorly,
with deep pits anteriorly; scutellum moderately to strongly trapezoidal, with posterolateral corners almost angular, with posterior margin moderately convex, with 2 or several deep scutellar conical pits anteriorly, with lateral keels and posterior rim well developed; metanotum foveolate, with dorsellum weakly defined as 2 short parallel keels; propodeum dorsally almost glabrous, without foamy structures, with 2 strong median parallel keels; pronotal groove shallow to absent, glabrous, ventral part of pronotum with open hole pointing toward fore coxa; spiracle on pronotum usually spine-like projecting; epicnemium not developed; sternaulus usually partly developed anteriorly, rarely complete or absent; mesopleural depression large, and deep, subtriangular; metapleuron and sides of propodeum hairy; no brachypterous or aterous forms known; fore wing with very short rudiment of tubular submarginal vein in basal quarter, vein tapering off and no knob developed, other veins not indicated; wings remarkably glossy, shining, with very few scattered microtrichia, predominantly glabrous; marginal cilia of fore wing minute; hind wing also glossy, with short rudiment of submarginal vein basally and with long marginal cilia; legs rather slender, with tibial spur formula 1-1-1 and with fore spur trident; tarsal formula 5-5-5.

Metasoma in most species (♀♂) distinctly elongate, spindle shaped to attenuate or fusiform, distinctly depressed dorsoventrally and clearly wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes as long as wide or slightly longer, in female without horn, with 2 median longitudinal keels, glabrous medially, hairy at sides; T2 in both sexes with large depression anteromedially, in some species with short costae and sparse pilosity, usually with fine longitudinal striae laterally but not medially; following tergites usually with coarse sculpture; S2 with no felt fields mediolaterally but with 2 deep pits anterolaterally and from here with long striae; apex of metasoma sharply pointed in both sexes; metasoma with sharp edges, with lt2 about 1/9 width of T2.

**Recognition and Relationships.** Kieffer (1917) and subsequent authors recognized *Sacespalus* by the combination of 2 character states, *viz.* reduction of the submarginal vein in the fore wing and the shield-like expansion of the ventral lamella of the scape. Yamagishi (1982) correctly pointed out the close relationship of *Sacespalus* with *Inostemma*, hinting that they may eventually be considered 1 genus. We agree with Yamagishi to a point but believe that *Sacespalus* can be distinguished from *Inostemma* by the following character states, *viz.* the raised, crenulate orbits of the eye, the sharp epomia, as well as the distinct foramen in the ventral part of the pronotum in all members of *Sacespalus*. No species of *Inostemma*, known to us, possess any of the above character states or their combinations. We also know of no species with intergrading development of the submarginal vein of the fore wing in either *Sacespalus* or *Inostemma*.

*Sacespalus* is, no doubt, closely related to *Inostemma*, with which it shares the derived character state of the scutellum, antenna (especially the trend to develop broad lamella on scape), and T2. *Sacespalus* is also related to *Iphitrachelus* mainly because of the similar structure of S2 and the absence of felt fields.

**Distribution.** Only a few species are described from the Oriental region (Philippines, India, Japan [Kyushu]) but we examined numerous undescribed species, mostly from Indonesia (Java, Borneo, Celebes), Malaya, and Australia (Queensland, New South Wales).

**Biology.** The hosts and habits are unknown.

**Species described since Kieffer (1926).**

- *indicus* Mani 1975, India
- *japonicus* Yamagishi 1982, Japan

**Sceiotrachelus Brues**

Figs. 62(dv), 63(lv), 165(♂♂), 206a(fw), 206b(hw)

Diagnosis (♂). Very robust, stocky species; head in dorsal view inverted trapezoid-shaped; vertex carinate between posterior ocelli; posterior ocellus distant from inner orbit by 5–6d; interantennal process sharply projecting; mandible with lower edge upcurved apically; pronotum strongly developed dorsally, with carinate anterolateral edges, with scattered, long, upright bristles; propodeum with foamy structures; fore wing sausage-like, submarginal vein not developed, marginal cilia absent and microtrichia on disc strong, sclerotized, and pointed; fore margin of hind wing with dark, sclerotized band; legs long and very slender; tibial spur formula 1-2-2, fore tibial spur sinuate and combed; metasoma short, stocky, and subsessile; S2 without felt fields but with scattered, long, semi-erect hairs.

Description (♂). Head from above distinctly transverse, inverted trapezoid-shaped; vertex acute, carinate between posterior ocelli; occipital carina very strong, complete, raised and crenulate at sides; occipital pit not developed; temples broad but strongly receding behind eyes, with rough longitudinal sculpture; posterior ocellus distinctly remote from inner orbit by 5–6d; OOL > LOL; eyes appearing glabrous, strongly bulging; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front with interantennal process sharp and distinctly projecting; clypeus small, slightly convex, not wider than outer rims of toruli; mandibles short, bidentate, with lower edge upcurved apically, clapsed normally; male antenna 10-segmented, nonclavate, thread-like, with flagellomeres distinctly cylindrical, with A3 longer than A4; scape carinate along entire ventral edge, with semitransparent lamella, with no lamellae apically.

Mesosoma about as wide as high; pronotum strongly developed dorsally, trapezoidal, with carinate anterolateral edges, with sharp median longitudinal keel, with scattered, long, upright bristles, epomia not developed; mesoscutum reduced, subtriangular, with 2 median humps; notauli not clearly defined; scutellum transverse, subrectangular, with 3 longitudinal keels medially, with lateral keels and posterior rim not defined; metanotum not foveolate, with dorsellum not defined; propodeum almost entirely covered with massive foamy structures except for median glabrous sulcus; pronotal groove deep, glabrous; epinotum not developed; sertalia complete, strong; mesopleural depression not developed, mesopleuron without transverse ridges in upper part; metapleuron mostly glabrous, with few long hairs; sides of propodeum with foamy structures; wings apparently modified and somewhat reduced in the type species, fore wing heavily infuscate, submarginal vein not developed, wing with dense specialized, strongly sclerotized microtrichia on disc; marginal cilia in fore wing not developed; hind wing lancetoid, with heavily sclerotized dark fore margin, with dense microtrichia on disc and very short marginal cilia; legs slender and long, with tarsi remarkably elongate, with tibial spur formula 1-2-2, spurs long and almost equal on mid tibia, dorsal apex of mid tibia with apical spine; fore spur sinuate and combed; tarsal formula 5-5-5.

Metasoma only slightly longer than wide, subsessile, considerably convex, slightly wider than high; in male with 8 visible tergites; T1 strongly transverse trapezoidal, with abundant pilosity, with no longitudinal costae, with dense comb of golden hairs on posterior margin overlapping transverse groove on base of T2, T2 with rectangular groove or depression anteriorly filled with minute pilosity, smooth, not striate anteromedially, but with delicate longitudinal-reticulate sculpture posteriorly; S2 with no felt fields but with scattered long, erect hairs all over; metasoma with sharp edges, with laterotergites almost 1/3 width of T2.

Recognition and Relationships. Brues (1908) classified Sceliotrachelus in the Scelioniidae, placing it in an independent subfamily Sceliotrachelinae. Kieffer (1926) apparently did not examine the type material and transferred Sceliotrachelus to the Platygastroidea.
with doubts, believing that the true relationships of *Sceliotrachelus* were with the Chalcidoidea. Masner (1964a) examined the type of *S. braunsi* and placed the species in the Inostematinae auct. Kozlov (1972) confused *Sceliotrachelus* with *Isolia*.

*Sceliotrachelus* belongs to a cluster of genera composed of *Isolia*, *Pulchrisolia*, and *Afrisolia*. The members of this cluster share the following character states, *viz.* combed fore tibial spur, posterior ocelli distinctly remote from the inner orbits, hence the OOL is relatively large, and the microtrichia on the wing disc transformed into sclerotized upright spines or scales. *Sceliotrachelus* is closest to *Pulchrisolia* from which it differs principally by the presence of long, scattered hairs on S2. The other remarkable differences between these 2 genera are due to advanced mesosomal changes of *Sceliotrachelus braunsi*, the wings of which are most probably not capable of flying. *Sceliotrachelus braunsi* is, in all probability, a highly advanced, peripheral species that makes the proper interpretation of the generic limits difficult.

**Distribution.** Only 1 species, *S. braunsi*, is known from South Africa (Cape Province).

**Biology.** Host and habits unknown.

**Species described since Kieffer (1926).**

*mongolicus* Kozlov 1972, Mongolia; see *Isolia*

**TETRABAEUS KIEFFER**

Figs. 85(dv), 86(dv), 147(a,d), 148(a, d), 224a(fw), 224b(hw)


**Diagnosis (♀♂).** Rather robust, dark brownish species, with lighter coloured appendages, fine coriaceous sculpture and rather dense body pilosity; antenna with strong, abrupt, ovoid, subcompact 4-segmented clava; pronotal shoulders strongly developed; scutellar suture noncrenulate; metanotum nonfoveolate; propodeum without foamy structures; epicnemium rudimentary but present; fore wing with tubular submarginal vein and truncate knob and with light nebulous RS + M; T2 with strong costae basally; S2 with only delicate felt fields.

**Description (♀♂).** Head from above wider than long, subellipsoidal; vertex rounded; occipital carina strong, complete, noncrenulate; occipital pit not developed; temples broad, strongly receding behind eyes; posterior ocellus about 1d distant from inner orbit; OOL<LOL; eyes appearing glabrous, under higher magnification with fine scattered hairs; head in lateral view higher than long, with malar sulcus not developed and checks not striate; head from in front with clypeus short, not wider than outer rims of toruli, deeply concave, with upper margin rim-like projecting; mandibles bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; female antenna with strong, abrupt, ovoid, subcompact 4-segmented clava (A7–A10), with sensillar formula 1-2-2-2; male antenna similar to that of female, but with clava less abrupt, A3 distinctly shorter than A4, latter strongly bent ventrally, with longitudinal carina; scape rather sharply carinate.

Mesosoma almost as wide as high; pronotal shoulders strongly developed; mesoscutum only moderately convex; notauli percurrent, sharply incised, noncrenulate, not distinctly broadened and rather convergent posteriorly; scutellum rather flattened, semicircular, scutocutellar suture deep, noncrenulate; scutellaxillar pits large, smooth, and subtriangular in shape; lateral keels short; scutellar disc with 2 deep convergent depressions posterolaterally, posterior rim not well defined and posteromedian apical part slightly overlapping dorsellum; metanotum not foveolate, with dorsellum weakly defined; propodeum
with 2 glabrous parallel keels, hairy at sides; pronotal groove shallow and glabrous; epicnemium rudimentary but present; sternaulus not developed; mesopleural depression rather deep, with sharply incised transverse, percurrent sulcus and some transverse costae below tegula; metapleuron sparsely hairy; no brachypterous or aterous forms known; fore wing with straight tubular submarginal vein and truncate knob surpassing basal 1/3 of wing, other veins not developed but RS + M, M, and Cu indicated as nebulous veins, marginal cilia moderately long; hind wing with short stem of tubular submarginal vein and with marginal cilia longer than in fore wing; legs rather short and stout, with hind femora considerably thickened, with tibial spur formula 1-2-2 and with fore spur bifid; tarsal formula 5-5-5.

Metasoma rather short, not longer than head and mesosoma combined, rather convex dorsally, but still wider than high; in female with 6, in male with 8 visible tergites; T1 rather trapezoidal, in female without horn, T2 in both sexes without distinct pits anterolaterally but with short, strong costae instead; apex of metasoma in female rather obtuse, rounded in male; S2 with only delicate felt fields; metasoma with sharp edges, with latero-tergites about 1/4 maximal width of T2.

**Recognition and Relationships.** Kieffer (1926) classified *Tetrabeasus* along with *Aphanomerella* and *Aphanomerus* in the Baeinae of the Scelionidae. Masner (1964b) transferred *Tetrabeasus* to the Platygastridae and treated *Crabroborus* as a junior synonym of the former genus. *Tetrabeasus* is very similar to *Aphanomerella* but rather distant from *Aphanomerus*. It shares with *Aphanomerella* the structure of the antennae, *viz.* the subcompact, ovoid, 4-segmented clava, with a sensillar formula of 1-2-2-2. The 2 genera are presently distinguished only by the darker pigmentation of RS + M in the fore wing of *Aphanomerella*. We prefer to treat them as 2 separate genera until more material becomes available to learn about the true generic limits. Curiously enough, the members of the 2 genera are allopatric and also differ significantly in choice of hosts. *Tetrabeasus americanus* was reared from crabronine wasps (Sphecidae) in North America, whereas *Aphanomerella ovata* was reared from chrysolaelid eggs (Chrysolaelidae) in Australia.

**Distribution.** Nearctic and Neotropical (Mexico).

**Biology.** *Tetrabeasus americanus* is reported reared from crabronine wasps (*Ectemnus, Rhopalum*) nesting in sumac (Krombein 1964).

**Species described since Kieffer (1926).**

- *krombeini* (Muesebeck 1963), USA; considered synonym of *T. americanus* (Brues) (Masner 1964b)

**ZELAMERUS GEN. NOV.**

Figs. 106(dv), 107(lv), 188(a9), 189(a8), 229(afw), 229(bhw)

Type species: *Zelamerus anicorum* sp. nov. (described below).

**Diagnosis** (♀ ♂). Moderately elongate, dorsoventrally rather depressed melanid species with propodeum and T1 remarkably lighter in colour than rest of body; female antenna with semi-abrupt 3-segmented clava, male antenna nonclavate, scutellar suture crenulate; scutellar rim raised, crenulate inwardly; propodeum partly with foamy structures, epicnemium large and narrow; fore wing with rather long, tubular submarginal vein and with nebulous RS + M; metasoma distinctly depressed dorsoventrally, slightly elongate; T2 very narrow; felt fields on S2 only slightly developed.

**Description** (♀ ♂). Head from above wider than long, subellipsoidal; vertex rounded; occipital carina strong, complete, finely crenulate or entire; occipital pit not developed; temples rather short, strongly receding behind eyes; posterior ocellus about 1d distant from inner orbit; OOL < LOL; eyes large, with fine scattered hairs; head in lateral view higher
than long, with malar sulcus not developed and cheeks not striate; head from in front with clypeus short, not wider than outer rims of toruli, with clypeal margin rim-like protruding and anteclypeus short; interantennal process not well developed, short, truncate; mandibles short, bidentate, clasped normally; palpal formula 1-1; antennal formula 10-10; female antenna with massive, semi-abrupt 3-segmented clava (A8–A10), with A7 conspicuously larger than A6; sensillar formula 1-2-2; male antenna nonclavate, only slightly incrustate toward apex (A7–A10), A4 with carina, scape with short apical lamellae.

Mesosoma conspicuously wider than high; pronotal shoulders in dorsal view not prominent, however, pronotum well developed dorsally; mesoscutum rather flattened (lateral view); admedian lines developed or absent; notauli percurrent, deeply incised, non-crenulate, strongly converging posteriorly; scutellum only slightly convex, wider than long, subrectangular, with lateral keels fused, parallel to slightly diverging posteriorly; axillae rather large, placed rather far lateral; scutoscutellar suture crenulate, crenulate also inwardly along posterior raised rim of scutellum; metanotum partly or completely foveolate, with well defined rectangular dorsellum; propodeum rather short and broad, with moderate to massive raised foamy keel posteriorly and at sides and with 2 glabrous median keels, with areas lateral of median keels densely hairy; nucha short, crenulate; pronotal groove narrow and rather shallow, with fine scattered pilosity; epicnemium rather large but narrow; sternaulus not distinct in its horizontal part but continues vertically upward along pro-mesopleural suture; mesopleural depression rather shallow but with deep sulcus curved diagonally; metapleuron mostly smooth and glabrous anteriorly, hairy posteriorly, with deep diagonal sulcus at meson; no brachypterous forms known; fore wing rather broad, slightly surpassing tip of metasoma; tubular submarginal vein distinctly surpassing basal 1/3 of wing length, knob dilated, subtruncate, distinctly remote from fore margin of wings; RS + M nebulos, M + Cu, Cu, M, and RS as paler nebulos veins; marginal cilia in fore wing short; hind wing with short stem of tubular submarginal vein and with marginal cilia distinctly longer than in fore wing; legs rather short, hind femora slightly incrassate, tibial spur formula 1-2-2, fore spur bifid; tarsal formula 5-5-5.

Metasoma rather broad, slightly elongate, distinctly depressed dorsoventrally, much wider than high; in female with 6, in male with 8 visible tergites; T1 moderately to strongly transverse, with either single, short, median keel and hairy depressions laterally or costate medially, in female without horn or hump; T2 in both sexes about as long as wide, with either 2 deep pits or short costae anteromedially; T6 in female broadly triangular, with tip almost rounded, metasoma with sharp edges, with laterotergites only about 1/7 width of T2; felt fields on S2 only slightly developed.

**Recognition and Relationships.** Zelamerus is similar to both Platygastoides and Oligomerella, primarily because of the shared habitus of a dorsoventrally flattened body and a common ground plan of the female antenna. Individuals differ from those of Platygastoides principally by the absence of the lamella of the scape and by the well developed tubular submarginal vein in the fore wing, and from individuals of Oligomerella by the nonstriate cheeks. Zelamerus seems to have numerous rather plesiomorphic character states, such as the 1-2-2 tibial spur formula, 1-2-2 sensillar formula, long, narrow epicnemium, crenulate scutellar suture and posterior margin of the scutellum, complete, nondilated notauli, non-specialized scape, and nonclavate antenna of males.

**Etymology.** The prefix zela- refers to New Zealand. The gender is masculine.

**Distribution.** Several undescribed species are known to us from various parts of New Zealand.

**Biology.** The host and habits are not known.
Species described since Kieffer (1926).

*amicorum* Masner and Huggert, present description, New Zealand

**Zelamerus amicorum sp.nov.**

Figs. 106(dv), 107(lv), 188(a, v), 189(a, d), 229a(fw), 229b(hw)

**Diagnosis** (*♀♂*). Blackish species with propodeum and T1 distinctly lighter yellowish, concolorous with antennae and legs; occipital carina finely crenulate; metanotum with only delicate foveolae adjacent to dorsellum; dorsellum rather large, smooth and hardly elevated above metanotal flanges; median keels of propodeum not wider apart than their length; mesopleural sulcus deep, narrow and evenly curved; dorsal 1/3 of mesopleuron with many pronounced, transverse costae; T1 with median, elevated crest fused to elevated anterior margin; T2 basally with 2 circular, small, deep pits divided by short, sharp projection and with no striaion.

**Description. Female.** Length 1.27 mm. Body blackish, with metasoma generally lighter; propodeum and T1 yellowish; legs and antennae dirty yellow; with clava darker; wings subhyaline.

Head in dorsal view about twice as wide as long (40:22); frons only gently arched; occiput moderately concave and occipital carina finely crenulate; temples not too long, about 1/4 eye length (4:5:18), evenly curved; POL:LOL:OOL = 12:6:5:1; scape distinctly longer than interorbital space (23:19); head in lateral view higher than long (31:22), with frons strongly bulging and lower frons slightly concave; eyes rather large, higher than long (20:17), and malar space shorter than eye height (13:20); upper gena rather short and posterior margin of eye distinctly diverging ventrad in relation to lower genal margin; head from in front suboval, wider than high (40:31), with vertex rather straight, cheeks weakly curved, and eyes rather large; sculpture of head rather dull, covered by fine-meshed, delicate reticulation and rather dense minute hairs; lower frons with delicate transverse sculpture in inconspicuous declivity, reaching halfway to anterior ocellus; clypeal margin, mandibles, and lower cheeks with longer hairs.

Antenna (Fig. 188) with A1 to radix as 22:2; antennomeres in proportions: 22:4:10:3; 4:2; 2:2.5; 2:3; 2:3.5; 3:5; 6:7; 5:6:5; 6:6.

Mesosoma clearly wider than high (40:30) and longer than wide (47:40); admedian lines distinct, slightly closer to notauli than to each other; notauli posteriorly slightly broadened and apex of midlobe truncate, not projecting; scutoscutellar suture distinctly foveolate and scutellum anteromedially with small projecting tubercle; axillae moderately large, sloping, placed almost lateral of lateral keels and hardly delimited ventrally; scutellum disc distinctly transverse (9:18), slightly constricted anteriorly, thus fine lateral keels angular anterad; interior of lateral keels, scutellum not grooved and exterior of keels with sides deeply concave; posterior scutellar rim narrow, conspicuously foveolate inwardly; mesoscutum with short, rather dense pilosity and with same sculpture as on head; sculpture on scutellum almost obliterated and pilosity less dense medially; scutellum about 1/2 length of mesoscutum (11:25); metanotum without foveolae except for delicate remnants adjacent to dorsellum; dorsellum rather long (3:10), with distinct lateral keels, smooth and shining, with rather conspicuous crenulation anteriorly; distance between lateral keels of propodeum subequal to their length; pronotum in dorsal half matt, with same reticulation and pilosity as mesoscutum, almost smooth medially above inconspicuous pronotal groove; prepectus almost reaching spiracle; acetabular and postpectal carinae distinct and mesopleuron above depression with numerous transverse costae, most pronounced posterad; metapleural submedian oblique groove deep and dorsal edge bordering propodeum pronounced, thick.

Fore wing (Fig. 229a) moderately broad (105:43), just surpassing tip of metasoma; knob of submarginal vein remote from fore margin of wing by about 1.5 times its width;
especially RS + M but also M + Cu, Cu, M, and RS visible as nebulous veins and particularly the latter also as spectral vein; disc of wing rather densely hairy, marginal cilia only about 1/19 wing width; hind wing (Fig. 229b) rather wide (90:18), with marginal cilia 1/5 – 1/6 wing width and stem of submarginal vein with 5–6 hairs.

Metasoma somewhat elongate (70:38) and subequal in length to rest of body; T1 (10:25) anteriorly with high, elevated edge connected posterad to median hump-like crest, slightly diverging posteriorly; crest anteromedially with longitudinal depression and T1 on each side with large, hairy depressions; T2 slightly transverse (35:38), anteriorly with 2 rather small, circular pits and between them with small crest on pointed tubercle; pits on T2 with short pilosity and anterolaterally tergite with patch of hairs; T3–T6 shorter than T2 (24:35) and T6 rather long (8:12), broadly pointed; T3–T6 with transverse rows of hairs and with irregular reticulation leaving hind margins smooth; apical edge of T6 lamella-like, semihyaline.

Male. Length 1.05 mm. Colour as in female and differs only in few characters; antenna (Fig. 189) with A1 to radicle as 22:3; antennomeres in proportions: 22:4; 9:3; 3:2; 3:2:5; 3:5:3; 4:3:5; 5:4; 7:4; 4A with slight concavity on 1 side, with carina ending in subapical tooth; hairs on flagellum about 1/2 width of segments; metasoma shorter than in female, longer than wide (50:32), with T3–T7 shorter and apex more pointed.

Etymology. This new species is dedicated to friends (amicus, Latin, gen. pl. amicorum) in New Zealand who helped the senior author in many ways during the 1983 collecting trip.


Recognition and Relationships. The females are slightly variable in length and the smaller individuals have the irregular reticulate sculpture on T3–T6 almost obliterate. Also, the crenulation anteriorly on the dorsellum may be difficult to see unless the specimen is viewed somewhat from behind.

Biology. The host is not known and the associations with bushes and trees as indicated above may very well be adventitious. Members were collected in rather diverse habitats indicating that the host is also widespread.

**ZELANDONOTA GEN. NOV.**

Figs. 30(dv), 31(lv), 119(a♀), 120(a♂), 236(dv)

Type species: Zelandonota kiwi sp. nov. (described below).

**Diagnosis** (♀ ♂). Stocky, robust, micropterous or apterous species, usually melanic, rarely reddish or xanthic, with fine coriaceous sculpture and fine, dense pilosity of the body; eye large, densely hairy; malar sulcus developed but often obscured by strong fan of striae on cheek; interantennal process strong; clypeus almost snout-like projecting; female antenna with strong, abrupt 3-segmented clava; male antenna penicillate; pronotum strongly developed; scutellar suture noncarnulate except in 1 species; scutellar rim not developed; propodeum without foamy structures, with large spiracles; epicnemium not developed; tibial spur formula 1-1-1; T2 with 1–2 deep anteromedian pits; S2 with felt fields.
Description (♀♂). Head in dorsal view wider than long, subellipsoidal; vertex rounded; occipital carina strong, complete, noncrenulate; occipital pit not developed; temples rather broad, strongly receding behind eyes; posterior ocellus 1–2d distant from inner orbit; OOL<OL; eyes large, densely hairy; head in lateral view with malar sulcus developed but partly obscured by strong fan of striae on cheeks; interantennal process strong; head from in front with clypeus convex, rather short, and truncate apically, almost snout-like projecting, distinctly narrower than outer diameter of toruli; mandibles short, bidentate, clapsed normally; palpal formula 2-1; antennal formula 10-10; female antenna with abrupt 3-segmented clava, with sensillar formula 1-2-2; male antenna peniciliate, only slightly incrassate toward apex, A4 with carina; scape in both sexes carinate apically.

Mesosoma about as high as wide; pronotum strongly developed dorsally, shoulders well developed but epomia absent, pronotum posterolaterally (above spiracles) more or less protruded into minute spines; mesoscutum rather flattened, subtriangular; notaui either percurrent, deeply incised, non crenulate, or abbreviate or absent; tegulae and wings only as rudiments in some species or absent; scutellum rather flattened, broadly subellipsoidal, scutoscutellar suture usually deep and noncrenulate, crenulate in 1 species and almost absent in another species, scutellaxillar pits and lateral keels not developed, posterior scutellar rim not developed; metanotum reduced, not differentiated medially; propodeum strongly reduced medially and here partly overlapped by posterior margin of scutellum, in some species with 2 median tubercles indicating the median keels, generally hairy, with large spiracles; pronotai groove deep, hairy, with deep basal pit above fore coxa; epicnemium not developed; sternauius absent; mesopleural depression not well defined, shallow, except for broad transverse sulcus at meson; metapleuron and sides of propodeum hairy; legs rather short and stout with tibial spur formula 1-1-1 and with fore spur trifid; tarsal formula 5-5-5.

Metasoma robust, moderately elongate, only slightly depressed dorsoventrally, wider than high; in female with 6, in male with 8 visible tergites; T1 in both sexes broadly trapezoidal, in female without horn; T2 in both sexes with 1–2 deep anteromedian pits, otherwise not striate; S2 mediolaterally with felt fields; metasoma with sharp edges, with laterotergites about 1/7 width of T2; ovipositor sheathes not extruded.

Recognition and Relationships. The true relationships of this genus are difficult to determine. The absence of wings in all species and the subsequent reductive trends on the pterothorax eliminate a lot of taxonomic information. The striate cheeks may imply a relationship with Metacrisis and Orseta, however, other important character states of Zelandonota species, such as the sensillar formula, the structure of T2, the fully internal ovipositor sheathes, etc. are not shared with 1 or both of the above 2 genera. Zelandonota species known to us are peculiar in having both sexes micropterous or apterous, i.e. a character state truly unique among all known genera of Platygastridae.

Etymology. The prefix zelando- refers to New Zealand. The gender is feminine.

Distribution. This genus, peculiar to New Zealand, is rich both in species and individuals throughout the country. Some 12 species were tentatively recognized in the material examined (NZAC, CNC). Surprisingly enough the existence of any of them remained unnoticed until our present study. Further research will undoubtedly reveal more species. The richness of flightless species of Zelandonota in New Zealand bears a striking resemblance to the equally rich fauna of mainly flightless species of Platygastrida of Australia. This comparison is augmented by the much similar habitus of members of these 2 otherwise unrelated genera of Platygastridae.

Biology. Unfortunately, no data on hosts are available for any of the above species. Members were frequently sifted from soil samples, mosses, and leaf litter, but also were swept by the senior author on vegetation in forest habitats. The frequency of individuals as well
as the relatively high number of species of *Zelandonota* should imply association with a host group well developed in New Zealand. The unusually rich fauna of weevils (Curculionidae) of New Zealand is brought here into consideration. The stocky, near ovoid members of *Zelandonota* might very well develop as solitary egg parasitoids of various soil weevils.

**Species described since Kieffer (1926).**

*kiwi* Masner and Huggert, present description, New Zealand

**Zelandonota kiwi sp.nov.**

Figs. 30(dv), 31(lv), 119(a) 120(a), 236(dv)

**Diagnosis** (*♀♂*). Body 1.50 mm or longer, with dense short whitish pilosity, body pitch brown, legs (including coxae) and antenna (except for darker clava) yellowish; notauli present; scutellum clearly separate from mesoscutum by deep suture; T2 finely coriaceous, with 2 minute pits anteromedially.

**Description. Female.** Length 1.50 mm. Body pitch brown, metasoma slightly lighter, legs (including coxae) and antenna (except for darker clava) yellowish.

Head from above transverse (54:32), with rather dense, short whitish decumbent pilosity; vertex and occiput above occipital carina evenly coriaceous-rugulose; eyes distinctly longer than temples (25:8); ocelli small, not convex, posterior ones about 1d from inner orbit; POL:LOL:OOL = 14:8:2; in lateral view head higher than long (43:33), with frons rather convex, with eyes suboval, higher than long (31:23), postgena with sculpture as on vertex; malar space considerably shorter than eye height (12:31); head from in front wider than high (53:43); interorbital space shorter than eye height (24:31); frons evenly coriaceous punctate yet shining, with minute smooth area immediately below anterior ocellus, frons with even, decumbent whitish pilosity; malar sulcus well defined, surrounded by fan of dense striae particularly dorsad.

Antenna as in Figure 119; A1 with fine coriaceous-rugulose sculpture; A1 to radicle as 32:5; antennomeres in proportions: 32:7; 9:4.5; 6:5:4; 3:4.5; 3:4.5; 3:5.5; 4:8; 12:12; 9:12; 11:10.

Mesosoma (Fig. 30) as long as wide (37:37), slightly wider than high (37:33), rather flattened dorsally, predominantly covered with whitish pilosity; cervical part of pronotum glabrous and almost smooth; pronotum dorsally and most of its sides with even coriaceous-granulate sculpture; mesoscutum and scutellum with same sculpture as on dorsal pronotum; rudiments of tegulae present; wings absent; scutoscutellar suture deep, noncereolate; median part of propodeum concave, propodeal keels not developed; pronotum right above fore coxa glabrous, with several transverse ridges; acetabular carina prominent; anterior portion of mesopleuron with fine granulate sculpture, upper part of mesopleuron glabrous, smooth, with several transverse ridges along posterior margin; posterolateral corner of mesopleuron (above mid coxa) rather prominent, pointed; metapleuron and sides of propodeum with dense pilosity, and with fine coriaceous sculpture.

Metasoma (Fig. 30) moderately elongate (95:56), wider than high (56:36), clothed evenly and densely with whitish pilosity; T1 trapezoidal, transverse (36:10), finely coriaceous, without distinct costae but with anteromedian portion slightly hump-like elevated; T2 slightly transverse (56:51), with fine, dense coriaceous sculpture all over, sculpture more intensive in anterior part of tergite, becoming gradually finer to almost net-like in posterior part of tergite; T3–T6 rather short, if combined shorter than T2 (30:56), with same pilosity as on T2 and sculpture finer than on T2; 1t2 about 1/8 width of T2; sternites hairy and sculptured as on T2.

**Male.** Differs from female principally in antennal structure (Fig. 120) with antennal segments in proportions: 32:7; 8:5; 5:4; 6:5; 5:5; 6:6; 6:6; 6:6:5; 12:7.
Etymology. The name kiwi (in Maori) refers to the parallel with the famous native flightless birds of New Zealand (genus Apteryx Shaw).

Material Examined (all New Zealand localities). Holotype: ?, NN, Third House, Dunn Tr., Nelson, 14 September 1971, litter (71/114) (G.W. Ramsay) [NZAC]. Allotype: ♂, with same data as in holotype [NZAC]. Paratypes [NZAC, CNC, HUGG, USNM, BMNH]: 17 ? and 3♂, with same data as in holotype; 4♀; NN, Palmer’s Bush, Eve’s V. Wainia, West Nelson; 6♀ and ♂ SD, Stephens I., West Face, February 1971, litter (71/70) (J.C. McBurney); ?, BR, Tawhai, Reefton, 18 September 1972, litter (72/180) (J.C. Watt); 2♂; 6 km SW Rotokohu, November 1971, litter (71/127) (J.C. McBurney); ?, Mt. Arthur, 3800 ft., Nelson, 15 November 1969, moss, litter (69/215) (J.I. Townsend); ?, NN, Mt. Arthur, 5600 ft., Nelson, November 1969, mat plants, litter (69/224) (J.I. Townsend); ?, Mt. Stokes, 2500 ft., Marlborough, 12 March 1970, litter (70/141); ?, NN, Dunn Mt., Mineral Belt, Nelson, 18 November 1964, moss (J.I. Townsend); ?, MB, Foot, Black Hill, 2000 ft., Lake Rotoiti, 5 April 1966, moss, litter (66/131) (J.I. Townsend); ?, Opouri Saddle, Marlborough, 22 May 1964, litter (64/58) (J.I. Townsend); ?, Takaka, Nelson, 26 November 1963, litter (63/29) (J.I. Townsend); 3♀; Upper Maitai, 7 April 1963 (E.S. Gourlay); 3♀; NN, Dunn Mt., 2000 ft., 11 October 1934 (E.S. Gourlay); ?, Nelson, 31 May 1941 (E.S. Gourlay); 2♀ and 2♂, Boatman’s Creek, 4.5 km SE Cronadun, Buller, November 1971, litter (71/126) (J.C. McBurney); ♀, Roding Valley nr. Nelson, 2nd Ford, July 1967, seeping (J.S. Dugdale); ♀, Roding Valley nr. Nelson, 6 December 1965, moss, litter (65/657) (J.I. Townsend); ♀, Italian’s Creek, Capleton, 12 January 1973, moss, litter (73/12); ♀, Reefton Saddle, 2 June 1965, moss (J.I. Townsend); ♀, Whangamoa Saddle, NN, 1170 ft., 26 August 1965, moss (J.I. Townsend); A.K. Walker); 4♀; NN, Whangamoa, 17 February 1966, trap #8; 5♀ and ♂, BR, Mowh era, Ngahere, 20 September 1972, litter (72/175) (J.S. Dugdale); 2♀; Whangamo Saddle, 1500 ft., 14 March 1966, moss, litter (66/115) (J.I. Townsend); ♀, NN, Riwha Valley, September 1970, Melicytus litter (J.S. Dugdale); ♀, NN, Mt. Domett, 1525 m., 30 November 1971, litter (71/161) (J.S. Dugdale); ♀, NN, Karamea, 1370 ft., 13 October 1970, litter (70/57) (J.I. Townsend); ♀, Lake Sylvester, 4300 ft., 31 March 1969, litter (69/127) (J.S. Dugdale); ♀, KA, Kaikoura Ra., 1800 ft., 12 October 1966, moss and lichen litter (66/328) (A.K. Walker); 3♀; NN, Maahera State Forest, 7 March 1972, litter (72/109) (J.C. McBurney); ♀, Hope River bridge, Lewis Pass Rd., 12 November 1964, moss (G. Kuschel); ♀, FD, Pyke Riv., S end of Lake Wilmont, Fiordland, 4 January 1967, moss (A.K. Walker); ♀, NN, Palmer’s Bush, Eve’s Valley, 20 October 1971, litter (71/122) (B.W. Ramsay); ♀, NN, Dunn Mt., 2500 ft., 3 November 1961, litter (61/1) (G. Kuschel); ♀, BR, Mawhera S.F., 9 km SE Ngahere, 11 November 1971, litter (71/146) (J.C. McBurney).

Recognition and Relationships. Zelandomota kiwi is the most common and widespread among 12 undescribed species of this genus known to us from New Zealand. Compared with these 12 species Z. kiwi appears as a rather primitive member with predominantly pleisiomorphic character states such as the presence of complete notauli, presence of a scutocellular suture, 2 pits on the base of T2 and the brown colour of the body. Surprisingly, very little variation in body length has been observed among the 96 specimens from 30 localities (1.50–1.65 mm). However, colour variations exist in that some individuals are generally lighter, brownish-red. Considerable variability occurs in the sculpture of T2 in that some individuals have the posterior 1/2 of the tergite partly to predominantly smooth. The shape and sculpture of T1 varies also considerably; the series from Stephens I. has T1 more transverse (40:8), whereas T1 in some individuals from other localities is less transverse and with few longitudinal costae medially. The notauli may be situated slightly more towards the sides of mesoscutum in some individuals, thus appearing somewhat shorter than in the type series.
Biology. Host remains unknown. Numerous individuals were sifted from moss and soil litter.

_Zeloestemma_ gen. nov.

Figs. 26(dv), 27(lv), 28(lv), 121(a /), 122(a /), 193a(fw), 193b(hw), 253(dv)

Type species: _Eurytoma oleariae_ Maskell 1888, by present designation.

**Diagnosis (♀ ♂).** Moderately to distinctly elongate, robust species, with considerably dense pilosity on most parts of body; occipital carina strong, rim-like; temple rather broad; cheek nonstriate; female antenna with nonabrupt, cylindrical 5-segmented clava, with sensillar formula 1-1-1-1-1; male antenna thread-like; scutellar suture almost always crenulate; scutellaxillary pits usually large; scutellar rim well developed, usually crenulate inwardly; propodeum with no foamy structures; epicnemium not developed; fore wing with no tubular but some nebulous veins, including submarginal and RS + M veins; tibial spur formula 1-2-2; metasoma moderately to distinctly elongate; T1 in both sexes trapezoidal, with distinct longitudinal costae or striae; felt held on S2 usually large.

**Description (♀ ♂).** Head from above wider than long, subrectangular to subellipsoidal; vertex rounded; occipital carina strong, rim-like, noncrenulate; occipital pit not developed; temples rather broad, strongly receding behind eyes; posterior ocelli 0.5d–1.5d distant from inner orbits; OOL < LOL; eyes appearing glabrous; head in lateral view with malar sulcus not developed and cheeks not striate; head from in front by clypeus short and broad, slightly wider than outer rims of toruli, distinctly concave, with anterior rim sharp, projecting, with anteclypsyces as rather long, smooth, and shining stripe; mandibles short, bidentate, clasped normally; palpal formula 2-1; antennal formula 10-10; in female with A3 subequal to A2, and with nonabrupt, cylindrical noncompact 5-segmented clava; sensillar formula 1-1-1-1-1; in male antenna nonclavate, with A3 subequal to A4, A4 ventrally with keel and paddle-shaped glabrous area; scape at most slightly carinate apically, with minute lamellae on apex.

Mesosoma about as wide as high; pronotal shoulders rather narrowly visible from above, nonangular, epomia not developed; mesoscutum rather convex; notauli percurrent, noncrenulate, sharply incised, not particularly broadened posteriorly; scutellum in lateral view moderately to considerably convex, pillow-shaped; axillar rather large, sloping and bordered posteriorly by more or less distinctly crenulate scutellar suture; anterior part of scutellum depressed and here with dense woolly pilosity; scutellaxillary pits thus usually large, broadly triangular; anterior part of lateral keels directed posteriorly and fused to posterior part or broadly interrupted medially; posterior margin of scutellum rim-like with more or less distinct crenulation; metanotum usually distinctly foveolate, rarely with foveolae indistinct, dorsellum defined as 2 short parallel keels; propodeum medially glabrous, with 2 parallel keels, hairy at sides; pronotal groove rather shallow, widened to large, densely pilose depressions at each end; epicnemium and sternaulus not present; mesopleural depression not well developed, shallow; metapleuron and sides of propodeum pubescent; no brachypterous or apterous forms known; fore wing with no tubular veins, submarginal vein proximally indicated as nebulous vein, without knob apically, medial and basal veins nebulous; marginal cilia in fore wing rather short; hind wing with rudiment of submarginal vein and with marginal cilia moderately longer than in fore wing; legs rather long and slender, with tibial spur formula 1-2-2 and with fore spur subtrifid; tarsal formula 5-5-5.

Metasoma moderately elongate to spindle-shaped, moderately depressed dorsoventrally, wider than high; in female with 6, in male with 8 visible tergites; T1 trapezoidal, with distinct longitudinal costae or striae, with longer hairs at sides, in female usually with no horn; T2 in both sexes with 2 large hairy depressions anterolaterally, and with glabrous,
strongly sculptured anteromedial part; following tergites densely punctured; apex of metasoma broadly triangular in female, obtuse in male; felt fields on S2 usually large, densely hairy and somewhat depressed; metasoma with sharp edges, with laterotergites about 1/9 width of T2.

**Recognition and Relationships.** There was considerable uncertainty in the past about the taxonomic position of this genus. Maskell (1899) classified the first species in *Eurytoma* (Chalcidoidea) and later Gahan (1924) put it with doubts in *Metaclisis*. *Zelostemma* can be compared best with *Proplatygaster*, possibly also with *Magellanium*, and only marginally with *Metaclisis*. Its sensillar formula is more derived (1-1-1-1-1) than those of *Proplatygaster* (1-2-2-2-1, or 1-2-1) or *Magellanium* (1-2-2-2) but comparable to *Metaclisis*, the members of which have only a single sensillum on each of the clavomeres. *Metaclisis* is easily distinguished from *Zelostemma* by striate cheeks. *Zelostemma* also differs from both *Proplatygaster* and *Metaclisis* by the strong reduction of the submarginal vein which is only nebulous in *Zelostemma* but tubular in the latter 2 genera. In our opinion *Zelostemma* is a sister group of *Proplatygaster* by sharing with the latter the trapezoidal T1, with strong longitudinal costae, the similar structure of the scutellum, and the dense pilosity of the body. Of the 2 genera, *Zelostemma* is considered more derived with regard to its sensillar formula, absence of the epicnemium, as well as the reduction of veins in the fore wing. Superficially, it may also seem as if *Platygaster* is closely related to *Zelostemma*. However, the 2 genera differ considerably in numerous character states, the shape and sculpture of T1 in particular. The trapezoidal, rather long T1 with dense longitudinal sculpture is shared by *Zelostemma* and *Proplatygaster* but not encountered among the numerous species of *Platygaster*. *Zelostemma* also differs from *Platygaster* in the structure of the scutellum, sculpture of the metanotum, and the pronotal groove being dilated at both ends and covered with pilosity.

**Etymology.** The prefix *zelo-* refers to New Zealand to which this genus is restricted. The gender is neuter.

**Distribution.** In addition to *Z. oleariae* several undescribed species are known to us from New Zealand. The members appear to be present on both North and South Islands and are quite frequent in collections.

**Biology.** *Zelostemma oleariae* was reared several times from ceccidomyiid galls on *Olearia forsteri*. One undescribed species was picked repeatedly from flowers of *Senecio stewartiae*.

**Species described since Kieffer (1926).**

None

*Zelostemma oleariae* (Maskell) **comb.nov.**

Figs. 26(dv), 27(lv), 121(a,♀), 122(a,♂), 193α(fw), 193b(hw), 253(dv)

_Eurytoma oleariae_ Maskell 1888: 253–258.


Maskell’s original description is incomplete in some respects. Gahan’s redescriptions, overlooked by most bibliographies, is fairly accurate, but we prefer to describe the species here once again to conform to this study. The type material of _Z. oleariae_ was not studied. A search in 1983 by the senior author in Auckland (NZAC) failed to recover Maskell’s specimens; we were advised by the curator and the staff of the Entomology Division DSIR that Maskell’s material in all probability is lost. The neotype redescribed below was selected from material identified by E.S. Gourlay, who most probably had access to Maskell’s original type series.

**Diagnosis (♀♂).** Moderately elongate, robust, blackish, hairy species; head transverse, usually with minute tubercle in front of anterior ocellus; lateral keels of scutellum fused
to sinuate bars, scutoscutellar suture distinctly foveolate and posterior rim of scutellum with dense crenulation; dorsellum with some crenulation along anterior and lateral margins; each end of pronotal groove forming 2 wide, shallow, pilose depressions; mesopleural depression subtriangular, rather distinct; T1 strongly striate, without horn in female and lateral pits of T2 and S2 about 1/3 length of segments.

Description. Female. Length 2.30 mm. Body black with antennae slightly lighter and legs reddish-brown with coxae darker, concolorous with antennae; laterotergites reddish-brown; fore wing faintly fuscous, most so medially and hind wing also faintly fuscous, with lighter spot below hamuli.

Head from above distinctly transverse (30:59), narrower than mesoscutum; frons hardly arched, occiput only gently concave and temples rounded, more than 1/2 length of eye (11:20); posterior ocelli from inner orbits; POL:LOL:OOL = 20:10:3; scape slightly longer than interorbital space (35:32); head in lateral view distinctly higher than long (50:30); frons evenly and strongly arched; eye rather large, broadly oval, higher than long (30:20), malar space about 1/2 eye height (12:30); upper part of gena behind eye rather wide; head from in front wider than high (59:30), bluntly subtriangular; interorbital space wider than eye height (32:30); frons with minute tubercle about 2d in front of anterior ocellus, frons above toruli with few transverse wrinkles, otherwise frons smooth and shining; only a few hairs in front of anterior ocellus, along inner orbits and lateroventral part of face more distinctly hairy; vertex and occiput densely hairy and punctate, punctures connected by fine lines; anterior sharp rim of clypeus with several long hairs; interantennal process as blunt hump with rather straight anterior margin.

Antenna (Fig. 121) with A1 to radicle as 35:4; antenomeres in proportions: 35:7; 11:4; 11.3.5; 7:4; 6:5; 7:6; 7:6; 7:6; 9.5.5.

Mesosoma (Fig. 26) as wide as high (60:60); admedian lines inconspicuous, slightly closer to each other than to notaui; mesoscutum finely reticulate-punctate and with rather long, dense, hairs, with longest hairs at posterior margin; scutoscutellar suture distinctly crenulate and depressed anterior part of convex scutellum with dense pilosity; lateral keels fused into sinuate bars and axillae distinct; scutellum convex, with same sculpture and pilosity as mesoscutum and posterior margin evenly arched, rim thick, with distinct crenulation; metanotum with small but deep foveolae and dorsellum between keels with small foveolae anteriorly and laterally; fine transverse furrows between propodeal keels and just posterior of dorsellum short transverse foveolate strip; nucha conspicuous, with strong ridges; pronotum with same sculpture as mesoscutum and densely hairy; pronotal groove widened at both ends to large, shallow, depressions filled with short, dense, yellowish pilosity; spiracle rather long, spine-like; mesopleural depression distinctly triangular, part below depression strongly bulging and dorsally pleuron with 3–4 pronounced transverse ridges; acetabular and postepisternal carinae rather inconspicuous; dorsal edge of metapleuron pronounced.

Fore wing (Fig. 193a) longer than wide (200:65), just surpassing tip of metasoma and densely hairy, less so basally; marginal cilia about 1/9 wing width; submarginal vein tracheate in basal third, in distal two-thirds nebulous or spectral, other veins with darker pigment, nebulous, especially M+Cu, RS+m, and supposed knob of submarginal vein Cu and M less so and RS hardly indicated; hind wing longer than wide (130:30), with marginal cilia about 1/4 wing width, with submarginal vein indistinct, tapering apically and r-m pigmented.

Metasoma (Fig. 26) subequal in length to rest of body (110:110), broadly spindleshaped; T1 (25:35) with 1 shallow anterolateral depression on each side and in between tergite covered by dense, often forked costae reaching almost to posterior margin; T2 (53:60) with anterolateral hairy pits about 1/3 length of tergite and with median subrectangular, slightly elevated part with pronounced irregular subadjacent pits or costae; T2
at anterior edge with transverse strip of foveolae; T3–T6 forming broadly triangular apex, about 1/2 length of T2; T2 laterally, also submedially with rather long hairs; T3–T6 with irregular, multiple transverse rows of hairs; S2 with deep, hairy pits anterolaterally, of about same size as those on T2; laterotergites only 1/10 width of T2.

**Male.** Very similar to female except for antennae (Fig. 122) and more truncate apex of metasoma; radicle to A1 as 4:33; antennomeres in proportions: 33:6; 9:4:5; 10:5:5; 7:5; 8:5:5.7; 7:6; 7:6; 12:6; A4 ventrally with short keel in basal half.

**Material Examined.** (all New Zealand localities). Neotype: ♀, Nelson, 15 September to 10 October 1929, ex Olearia forsteri galls, E.S. Gourlay [deposited in NZAC]; other material 33 ♀♀ and 19♂♂ with same data as in neotype; 15♀♀ and 2♂♂, Christchurch, 13 December 1921, E.S. Gourlay; ♀♀ and ♂♂ (without locality), “Bred from Olearia forsteri galls, October 17, 1921” ♂♂, Hull Valley, 17 October, 1921, “Bred from galls of Olearia forsteri” ♀♀, Awatere Valley, 25 January 1966, B.B. Given, Cecidomyiidae larvae, Olearia sp. galls at growing points; ♀♀ and ♂♂, Nelson, 20 October 1929, E.S. Gourlay; 4♀♀ and 3♂♂, Christchurch, 6 October 1929, A. Clark; ♀♀, 2 November 1923, Nelson and 2♂♂, same locality, 21 October 1923, E.S. Gourlay [NZAC, CNC, HUGG].

**Recognition and Relationships.** Except for some variation in the total length of the body among the individuals examined no important variability could be observed. In smaller individuals the clavomeres tend to be proportionally shorter and the minute tubercle on upper frons is often missing. However, the tubercle may be virtually absent also in larger specimens.

**Biology.** See note under Zelostemma (p. 124).

**ACKNOWLEDGMENTS**

Our sincere thanks are extended to curators and staffs of institutions (listed under Material) for the loan of types and other relevant material. Similarly, we are grateful to numerous friends and colleagues who, over the period of years, supplied or donated valuable material to the Canadian National Collection in Ottawa. The American Entomological Institute in Gainesville, FL (H.K. Townes) kindly supported the senior author’s collecting trip to Australia and New Zealand in 1983–1984. The junior author is grateful to the Swedish National Research Council for supporting his postdoctoral training in Canada (1983–1984). Staff of the Biosystematics Research Centre (Agriculture Canada, Ottawa, Ont.) provided assistance in preparation of this manuscript; S. Rigby prepared some line drawings, E.G. Bisdec took the SEM micrographs, and J. Denis did most of the final inking of drawings, prepared the plates, captions, and also proofread the manuscript; G.A.P. Gibson and A. Smetana reviewed the manuscript and made valuable comments. We are also grateful to two anonymous external reviewers for comments and criticism.

**REFERENCES**


MASER AND HUGGERT: WORLD REVIEW AND KEYS TO GENERA OF INOSTEMMATINAE


Foerster, A. 1856. Hymenopterologische Studien. 2. 152 pp., Aachen.


Mani, M.S. 1939. Descriptions of new species and records of some known chalcidoid and other hymenopterous parasites from India. Ind. J. Ent. 1: 69–99.


(Date received: 13 January 1988; date accepted: 10 May 1988)
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(synonyms in *italics*; new taxa with asterisk)

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