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Revision of the Australian *Cerylonidae*
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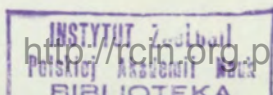
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Revision of the Australian *Cerylonidae* (Coleoptera: Cucujoidea)

[With 246 figures, 1 table and 1 map in the text]

Abstract. The Australian members of the cucujoid family *Cerylonidae* are revised; descriptions of particular genera and species and keys to their determination are provided. Three new genera (*Australiorylon*, *Lawrencella* and *Hypodacnella*) and 22 new species are described: *Australiorylon nevoissi*, *A. setosus*; *Cerylonopsis corpulentus*, *C. doyenii*, *C. australis*, *C. elongatulus*; *Philothermus tasmanicus*, *P. rotundus*, *P. oculatus*, *P. macrosetosus*, *P. microsetosus*, *P. norfolkiensis*, *P. margaretae*; *Lapethus queenslandicus*, *L. peckorum*; *Lawrencella costata*; *Hypodacnella kasiae*, *H. sebastiani*, *H. euxestoides*; *Euxestus matthewsi*, *E. elongatulus*, *E. fungorum*. After revision, the family contains in Australia 11 genera and 39 species with close affinities to the Oriental fauna, and much less to the New Zealand one. Brief discussions on phylogeny and zoogeography of the Australian cerylonids are included.

The *Cerylonidae* are a relatively small and cosmopolitan family of small to minute beetles, which occur in both larval and adult stages in leaf litter, rotten wood and under bark. At present the family includes about 45 genera and 400 described species, but at least 10 genera and 300–400 species remain to be described.

The following paper consists of a short general section on the taxonomy of the group and a detailed account of the 11 genera and 39 species known to occur in Australia. The keys and discussions presented should permit the identification of all known genera and species that occur in Australia, but there are probably a number of undescribed forms yet to be found in Northern Territory and Queensland. Because of a limited material and great variability in *Euxestinae* the taxonomic status of some species is not definitively resolved. The typical forms are described and illustrated to permit identification in further studies. One species name, *Philothermus australicus* DAJÓZ, is treated here as a nomen

dubium because of the inadequate original description and unavailable material (see page 40).

The scope of this work is limited geographically, but the concepts presented are derived from an examination of material from all over the World, and from a general family revision under preparation. Brief sections are included on phylogeny and zoogeography of the Australian members of the groups, but these topics will be covered in more detail in a future publication (ŚLIPIŃSKI in prep.).

MATERIAL AND METHODS

General procedural methods are as those in many previous studies of the group (SEN GUPTA and CROWSON 1973, LAWRENCE and STEPHAN 1975 and ŚLIPIŃSKI 1984) and will not be repeated here. Because particular species of each genus are very uniform and similar, only the most important characters are given in their descriptions, but all diagnostic features including male genital structures are illustrated for each species.

Measurements for main body parts and their rations are coded as follows and are presented as a single mean value, single specimen measure for uniques or where great variability, ranges from the smallest to the largest specimen studied. Pronotal length (PL) is measured along the midline; pronotal width (PW) is the greatest width; elytral length (EL) is taken from the base of scutellum to the elytral apex; elytral width (EW) is the total width across the widest portion of elytra; greatest depth (GD) is taken only in euestines through the highest point of the elytra and metasternum. The total length (TL) is the sum of PL and EL and does not include the head, which is often retracted into prothorax. Also the following rations are used: PL/PW, EL/EW, EL/PL, TL/EW and GD/EL.

Figures of male genital structures and other diagnostic organs (antennae, legs, wings, sternum etc.) were made in glycerol with the aid of a camera lucida attached to the Amplival-Zeiss microscope. The line drawings of habitus and lateral silhouettes were made using camera lucida attached to PZO MST-130 stereo microscope. All drawings are original and are the author's except 147 and 148 (see Acknowledgements).

The material for this study was received from numerous institutions listed below with their acronyms:

ANIC — Australian National Insects Collection, Canberra; BMNH — British Museum of Natural History, London; MCZ — Museum of Comparative Zoology, Harvard University, Cambridge; MHNG — Muséum d'Histoire Naturelle, Geneva; MPIQ — Queensland Department of Primary Industry, Mareeba, via ANIC; MVM — Museum of Victoria, Melbourne; SAM — South Australian Museum, Adelaide; TMP — Transvaal Museum, Pretoria; QDF — Queensland Department of Forestry, Indooroopilly, via ANIC; QMB — Queensland Museum, Brisbane. Some duplicates are preserved in Institute of Zoology of the Polish Academy of Sciences, Warsaw (IZPAN).

SYSTEMATICS OF THE FAMILY CERYLONIDAE

a) Historical

The earliest recognized generic name in the *Cerylonidae* (= *Cerylidae* auct) is LATREILLE's name *Cerylon* (1802) established for the European *Lyctus histe*

roides FABRICIUS. ERICHSON (1845) first combined *Cerylon*-like genera with his *Colydiidae* into a group *Cerylini*. Following ERICHSON'S treatment, this group was treated as a subfamily or tribes (*Cerylonini*, *Anommatini*, *Euxestini*) among the tenebrionoid family *Colydiidae*. *Euxestinae* were also associated for some time with *Erotylidae*.

CROWSON (1955) first recognized the *Cerylonidae* as an independent family including *Cerylonini*, *Murmidini* and *Euxestinae*. He erroneously placed *Anommatus* WESMAEL in *Merophysiidae*, while keeping remaining groups of the former subfamily *Bothriderinae* in *Colydiidae*.

In their revisionary study of the World *Cerylonidae*, SEN GUPTA and CROWSON (1973) redefined the family and added to it *Ostomopsis* SCOTT from *Lathriidae*, *Anommatus* WESMAEL and *Abromus* REITTER from *Merophysiidae* but transferred *Eidoreus* SHARP (= *Eupsilobius* CASEY) to *Endomychidae*. They described a new euxestid genus (*Protoxestus*) from Australia and transferred previously described by LEA Australian *Euxestus* into the restored genus *Hypodacne* LECONTE.

There are two more family-group names which are combined with *Cerylonidae* now — *Aculagnathidae* OKE (1932) and *Dolosidae* DAJOZ (1963) — both synonymized with *Cerylonidae*, *Aculagnathini* by BESUCHET (1972) because of highly modified piercing-sucking mouth-parts.

The first cerylonid described from Australia was *Cerylon alienigenum* BLACKBURN (1903), as closely allied to the European species *C. ferrugineum* STEPH. Several *Euxestus* species were described by A. LEA in the family *Erotylidae*, and were briefly treated and keyed by EMDEN (1928). The only review of the *Cerylonidae* (excluding *Euxestus*) was made in the *Colydiidae* revision by CARTER and ZECK (1937). They recognized a tribe *Cerylonini* in the subfamily *Bothriderinae*, with two genera, *Cerylon* LATREILLE and *Philothermus* AUBÉ, with 5 and 2 species, respectively. Their treatment of cerylonids was rather poor and without any wider knowledge of the group. The keys they included did not permit proper identification of species. Recently, DAJOZ (1974) ignored a revision by CARTER and ZECK and described two new species from Australia. One is synonymized here with *Cerylon longipilis* CARTER and ZECK, and the second is treated as nomen dubium because the type is not available and it is insufficiently described. KASZAB (1978) removed *Micruloma* CARTER from *Tenebrionidae* and transferred it to *Cerylonidae*, and PAL and LAWRENCE (1986) placed this genus in the subfamily *Metaceryloninae*.

b) Characterization of the family *Cerylonidae*

A full discussion of morphology, phylogeny and zoogeography of the family is beyond the scope of the present paper. The following description will serve to distinguish members of the family from all other *Coleoptera*.

With general characters of *Cucujoidea* (*Clavicornia*) sensu LAWRENCE and NEWTON (1982).

Adult.

Form variable, usually elongate or oval, moderately convex; surfaces glabrous or microsetose. Size 0.5 to 6 mm.

Head. Globular without neck, often concealed by pronotum; eyes usually large, finely to coarsely faceted, very rarely absent or reduced to a few coarse facets; antennal groove by lower margin of eye absent or shallow; frontoclypeal suture present, absent only in *Ceryloninae*; antennal insertions not concealed by frontal extensions, visible from above; antenna 6-11-segmented, club 1-3-segmented, scape large and asymmetrical, pedicel often slightly asymmetrical and attached on ventral side of scape. Mandibular mola usually well developed, simple. Maxillary palp often with last segment narrow and aciculate, never broadly truncate apically; lacinia often with apical spines. Sometimes mouth-parts elongate, of piercing-sucking type. Labium with 3-segmented palpi, last segment geniculate or aciculate. Tentorium always with corpotentorium bearing median process, tentorial arms widely separated anteriorly; transverse preular impressions present or absent.

Prothorax. With pronotum transverse and distinctly margined laterally, lateral edges smooth, only very rarely crenulate. Prosternum variable, often produced anteriorly into a lobe to cover gular region; hypomera with or without antennal grooves; procoxae small, rounded externally with well developed and concealed internal extensions; cavities variable open or closed externally and internally.

Elytra. Usually striate-punctate, rarely smooth; scutellary striae absent. Epipleural keel variable, usually complete. Scutellum small, absent in some wingless forms. Hind wing venation variable, often with closed anal cell and subcubital fleck present, number of anal veins 1-2, r-m cross vein incomplete and radial cell absent.

Pterothorax. Mesosternum narrow to strongly transverse, meso-metasternal fitting of a straight line type. Mesocoxae rounded externally, their cavities always closed. Metasternum with or without femoral lines, mediobasal impression rarely present. Metendosternite with broad and short stalk, short and widely separated anterior arms, and anterior tendons moderately to widely separated.

Legs. Trochanters simple or weakly heteromeroid (oblique); tibia never dentate on outer margin, only slightly widened apically, often with apical spines; tarsi 4-4-4 or 3-3-3-segmented, tarsomere I simple or rarely lobed below; claws simple, bisetose empodium often present.

Abdomen. With ventrites freely articulated, the ventrite I (sternite 3rd) distinctly longer than II, often with femoral lines; ventrite V (sternite 7th)

often with sexual characters in males (concave pubescent area, notched margin); abdomen with 5 or 7 pairs spiracles. Aedeagus of clavicorn type, with reduced or asymmetrical tegmen lying above the median lobe which lacks ventral tegminal strut, usually aedeagus lying on its side when retracted. Female gonapophyses usually 2-segmented, never 3-segmented, spermatheca lightly sclerotized.

b) Larva.

Body more or less broadly elongate to onisciform (*Murmidius*), never cylindrical, cuticle lightly sclerotized.

Head. Often covered by enlarged prothorax with mouth parts hypognathous or opisthognathous; frontal sutures absent or weakly developed; number of ocelli 0 or 2 on each side; antenna short, 3-segmented, with sensory appendage longer than antennomere III; mouth parts of normal clavicorn type with chewing mola-bearing mandible and blunt mala or when head opisthognathous mouth parts often highly modified for piercing and sucking with mandibles and mala elongate and blade-like; maxillary palp 3-segmented; labial palp one-segmented.

Thorax and trunk segments often with lateral expansions or processes; vestiture consisting of spines, setae or hairs.

All spiracles annular or annular-biforous type.

Abdominal segment 9 with or without urogomphi.

Claws simple with single tarsungular seta.

c) Habitat

Most cerylonids are collected by mass sampling methods, and little is known of their food habits and life histories. The most frequent habitats for the family are leaf litter, rotten wood, forest debris and fungus-infested bark. Some species are also found under bark of various trees. A number of species have been recorded from ant nests: *Hypodaene punctata* LeCONTE is known from *Camponotus* galleries; *Lapethus ferrugineus* (HINTON et ANCONA) and *L. parallelus* SLIP. have been collected in both larval and adult stages in refuse deposits of the leaf-cutting ant *Atta mexicana*; *Cautomus mirabilis* (OKE) has been associated with *Amblyopone* while the African *Euxestowenus myrmecophilus* JOHN is often associated with *Myrmicaria* nests (JOHN 1963). Recently more information on the biology of cerylonids was provided by BURAKOWSKI and ŚLIPIŃSKI (1986) with a description of the biology and developmental stages of the European species *Cerylon histeroides* (F.). Mature larvae of this species were found to feed on slime mold in the plasmodium stage. This observation supports an opinion by LAWRENCE and STEPHAN (1975) that larvae of the *Cerylon*-group are not predaceous, but pierce a fungal substrate which is digested extraorally. Reared larvae made a loose pupal cocoon before pupation similar to *Bothrideridae*.

THE AUSTRALIAN CERYLONIDAE

a) Check list of genera and species of the Australian *Cerylonidae**Australiorylon* gen. n.

1. *longipilis* (CARTER et ZECK, 1937) comb. n.
2. *setosus* sp. n.
3. *neboissi* sp. n.

Cerylonopsis HEINZE, 1944

1. *alienigenus* (BLACKBURN, 1903) comb. n.
2. *elongatulus* sp. n.
3. *doyeni* sp. n.
4. *corpulentus* sp. n.
5. *australis* sp. n.

Cautomus SHARP, 1885

1. *mirabilis* (OKE, 1932)

Philothermus AUBÉ, 1843

1. *tasmanicus* sp. n.
2. *rotundus* sp. n.
3. *oculatus* sp. n.
4. *macrosetosus* sp. n.
5. *microsetosus* sp. n.
6. *norfolkiensis* sp. n.
7. *parviceps* (CARTER et ZECK, 1937) comb. n.
8. *margaretae* sp. n.

Lapethus CASEY, 1890

1. *australis* ŚLIPIŃSKI, 1984
2. *astrolabei* HEINZE, 1944
3. *queenlandicus* sp. n.
4. *peckorum* sp. n.

Lawrencella gen. n.

1. *costata* sp. n.

Murmidius LEACH, 1822

1. *ovalis* (BECK, 1817)

Micruloma CARTER, 1919

1. *minuta* (CARTER, 1906)

Hypodacnella gen. n.

1. *bivulnerata* (LEA, 1921) comb. n.
2. *vulnerata* (LEA, 1921) comb. n.
3. *kasiae* sp. n.
4. *medionigra* (LEA, 1922) comb. n.
5. *ventrale* (LEA, 1921) comb. n.
6. *tasmaniae* (LEA, 1910) comb. n.

7. *sebastiani* sp. n.
8. *atra* (LEA, 1921) comb. n.
9. *atropolita* (LEA, 1921) comb. n.
10. *euxestoides* sp. n.

Euxestus WOLLASTON, 1858

1. *matthewsi* sp. n.
2. *elongatulus* sp. n.
3. *fungorum* sp. n.

Protoxestus SEN GUPTA et CROWSON, 1973

1. *australicus* SEN GUPTA et CROWSON, 1973

Incertae sedis

1. *Philothermus australicus* DAJOZ, 1974

q) The origin and distribution of the Australian *Cerylonidae*

The family *Cerylonidae* in Australia includes 11 genera and 39 species, of which 3 genera and 27 species are described as new. The major affinities of the Australian cerylonids are with the Indo-Australian fauna. One genus — *Hypodacnella* — and 2 or 3 species may be related to New Zealand and New Caledonian forms, two monotypic genera have relatives in Africa, and there is no strong evidence for Palearctic or New World affinities.

Nearly all Australian genera of *Ceryloninae* (*Cerylonopsis*, *Cautomus*, *Lape- thus*, *Australiorylon*) have Oriental affinities they include, or will include unde- scribed, related forms from New Guinea, Philippine Islands, the Indian sub- continent, and the southern islands of Japan as well. These forms (here called Indo-Australian) seem to have reached the Australian continent recently from Oriental centres via the Papuan subregion. They clearly belong to a widely distributed Indo-Australian species groups. The genus *Lawrencella* no doubt belongs to the generic complex that includes *Axiocerylon-Thyroderus-Angolon* and is widely distributed in Africa, Madagascar, Seychelles and Mascarene Islands, and in the Indo-Australian region (BESUCHET and ŚLPIŃSKI in prep.). *Lawrencella* probably represents a generalized type of the *Axiocerylon* generic complex, but it is much more closely related to true African forms of *Axiocerylon* than to the Papuan ones. The widely distributed genus *Philothermus* AUBÉ has at least two distinct phyletic lines of uncertain affinities in Australia. The first includes the probably generalized forms of Tasmania and cool temperate rain-forest species of Victoria with close affinities to New Zealand species. The second, more derived line has a northern distribution and is related to Indo-Australian species.

Hypodacnella of the subfamily *Euxestinae* includes at least one New Zealand (most generalized) species, one from New Caledonia, and 9 from southern and central Australian rain-forests. It was previously included in the Holarctic genus *Hypodacne* LEC. because of its simple tarsomere I. *Hypodacne* includes

one species from the eastern North America, and one, not closely related, species from Talysh (USSR) and Iran. All the Australian forms are very uniform and have many characters (admedian prosternal lines, complete femoral lines on ventrite I and lateral lobes on ventrite IV) which may be regarded as apomorphies in relation to their Holarctic relatives. No species of *Hypodaene* or *Hypodaenella* are known from entire Indo-Australian region, and it seems that they are replaced there by the species of *Euxestus* WOLL.

Micruloma CARTER of the *Metaceryloninae* is much more closely related to the African members of the genus *Metacerylon* GROUV. than to the South American ones because of the plesiomorphic number of antennomeres and more flattened body. No true *Metacerylon* is known from Indo-Australian region (ŚLIPIŃSKI in prep.), and both *Metacerylon* and *Ceryleuxestus* are confined to Africa and Central and South America.

A general faunistic analysis of the Australian species is presented in the

Table I. Distributional patterns and faunal affinities of the Australian *Cerylonidae*. (Each species is given 4 ×, which are distributed in the particular provinces proportionally to the known records)

Species	NQ	SQ	NSW	VICT	TASM	Faunal affinities
<i>Australiorylon</i>						
<i>neboissi</i>	× × × ×					Indo-Australian
<i>setosus</i>	× × × ×					Indo-Australian
<i>longipilis</i>		× × × ×				Indo-Australian
<i>Cerylonopsis</i>						
<i>australis</i>	× × × ×					Indo-Australian
<i>doyeni</i>	× × × ×					Indo-Australian
<i>elongatulus</i>		× × ×	×			Indo-Australian
<i>alienigenus</i>		× ×	× ×			Indo-Australian
<i>corpulentus</i>	Northern Terr.					?
<i>Cautomus</i>						
<i>mirabilis</i>		×	× ×	×		Indo-Australian
<i>Philothermus</i>						
<i>microsetosus</i>	× × × ×					Indo-Australian ?
<i>macrosetosus</i>		×	× × ×			Indo-Australian ?
<i>oculatus</i>			× × × ×			New Zealand
<i>margaretae</i>			× × × ×			?
<i>rotundus</i>			× ×	× ×		New Zealand
<i>parviceps</i>				× ×	× ×	New Zealand ?
<i>tasmanicus</i>					× × × ×	New Zealand
<i>norfolkensis</i>	Norfolk Isl.					Micronesia
<i>Lapethus</i>						
<i>astrolabei</i>	× × × ×					Indo-Australian
<i>queenslandicus</i>		× × × ×				Indo-Australian
<i>australis</i>			×	× ×	×	Indo-Australian
<i>peckorum</i>	Lord Howe Isl.					New Caledonia

Tab. I, cont.

Species	NQ	SQ	NSW	VICT	TASM	Faunal affinities
<i>Lawrencella costata</i>		× × × ×				Africa
<i>Murmidius ovalis</i>		×	× ×	×		Cosmopolitan
<i>Micruloma minuta</i>	×	× ×	×			Africa
<i>Hypodacnella vulnerata</i>	× × × ×					New Zealand
<i>bivulnerata</i>	×	× ×	×			New Zealand
<i>kasiae</i>		× × × ×				New Zealand
<i>atra</i>		× × × ×				New Zealand
<i>atropolitae</i>		×	× × ×			New Zealand
<i>medionigra</i>			× × × ×			New Zealand
<i>euxestoides</i>		× × × ×				New Zealand
<i>ventrale</i>			× × × ×			New Zealand
<i>sebastiani</i>			× × ×	×		New Zealand
<i>tasmaniae</i>			×	× ×	×	New Zealand
<i>Euxestus matthewsi</i>	× × × ×					Indo-Australian
<i>elongatulus</i>	× × × ×					Indo-Australian ?
<i>fungorum</i>	× × × ×					Indo-Australian ?
<i>Protoxestus australis</i>		× × × ×				New Zealand ?

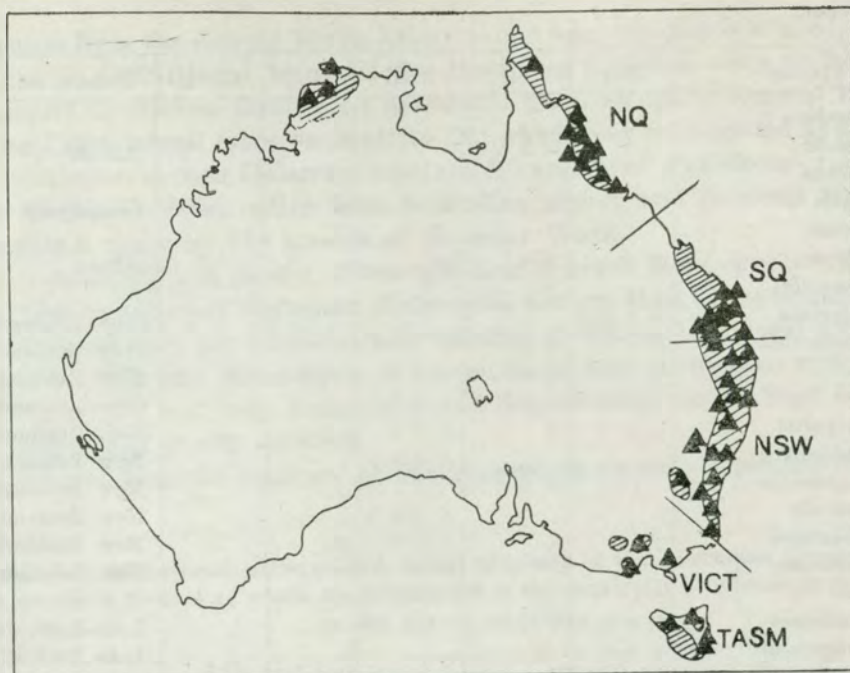
Table I. There is much evidence to support the thesis that almost all Australian *Cerylonidae* (excluding *Cautomus* and *Murmidius*) are connected with rain-forests. These occur along the eastern coast, but do not present a uniform plant community (DARLINGTON 1961, WEBB and TRACEY 1981). Therefore the area has been divided into five sectors (map 1) as follows:

NQ — North Queensland, includes eastern Cape York peninsular, tropical rain-forests north of Rockhampton. This sector includes, regarding cerylonid localities, B1 and B3 provinces of WEBB and TRACEY, mainly Iron Range, McIlwraith Range, Cairns District and Atherton Tableland;

SQ — South Queensland, including localities south of Rockhampton, mainly the Bunya Mountains, Mount Tambourine, McPherson Range and reaching to the border of New South Wales. This sector is equivalent to subtropical rain-forest system of DARLINGTON (1961) and the province A1 of WEBB and TRACEY;

NSW — New South Wales, corresponding to province A2 of WEBB and TRACEY and partly overlapping A3, and occurs discontinuously along the coast of New South Wales to Victoria including the Barrington Tops area to the Dorrigo and eastern New England Plateau with some outliers at Mount Wilson, Robertson Plateau and East Gippsland;

VICT — Victoria, containing continental part of A3 province in Victoria,



Map 1. Distribution of the Australian rain-forests and cerylonid distribution. NQ — North Queensland; SQ — South Queensland; NSW — New South Wales; VICT — Victoria; TASM — Tasmania. Hatched area — rain-forest range; solid triangles — major cerylonid localities.

with several outliers in southern New South Wales; e.g. Clyde Mountain, also including non rain-forest habitats (e.g. sclerophyll) in that area;

TASM — Tasmania, including centre of uniformly wet and cool temperate rain-forest of A3 province and other habitats in Tasmania.

The data presented in the Table I may be summarized as follows:

Province	NQ	SQ	NSW	VICT	TASM
Total species	12	13	15	6	4
Indigenous species	10	10	8	4	3
Endemic species	10	6	4	—	1
Shared species	2	7	5	3	

Note. Single species from Northern Terr., Norfolk Island and Lord Howe Islands, as well as a cosmopolitan pest *Murm. ovalis* are omitted here.

According to above division the Australian cerylonids may be grouped into three major faunas which corresponds quite well with rain-forest provinces proposed by WEBB and TRACEY (1981).

Queensland fauna.

This includes about the half of the Australian cerylonids occurring along the eastern coast from Cape York to New South Wales boundary in the humid tropical rain-forest, and corresponds, for the most part to the B province of WEBB and TRACEY (1981). Such genera as *Australiorylon*, *Cerylonopsis* and *Euxestus* with Indo-Australian distribution are confined only to that area. Because two main rain-forest complexes in this area are divided by a dry open woodland south of Rockhampton, the fauna may be subdivided into two groups: 1) the northern group ranging from the Tip of Cape York to the dry gap, confined to the Iron Range, Cairns district and Atherton Tableland in our material; 2) the southern group occurring in our material mainly in the Bunya Mountains, Lamington National Park and adjacent localities. Both groups are discussed below.

1. Northern group, includes 10 indigenous species:

<i>Austr. nevoissi</i>	<i>Lap. astrolabei</i>
<i>Austr. setosus</i>	<i>Hyp. vulnerata</i>
<i>Cer. australis</i>	<i>Eux. matthewsi</i>
<i>Cer. doyeri</i>	<i>Eux. elongatulus</i>
<i>Phil. microsetosus</i>	<i>Eux. fungorum</i>

It shares two others with the southern group (*Hyp. bivulnerata* and *Micrulo-
ma minuta*). This group is well delimited and almost completely endemic, and closely related to New Guinea and Indo-Malayan Plateau faunas. It includes *Lap. astrolabei*, the only known species shared by Australia, New Guinea and India.

2. Southern group, includes also 10 indigenous species:

<i>Lap. queenslandicus</i>	<i>Lawr. costata</i>
<i>Micr. minuta</i>	<i>Hyp. bivulnerata</i>
<i>Cer. elongatulus</i>	<i>Hyp. kasiae</i>
<i>Cer. alienigenus</i>	<i>Hyp. atra</i>
<i>Austr. longipilis</i>	<i>Hyp. euxestoides</i>

and probably *Protox. australicus*. Only 7 of these are endemic, while 7 species are shared with the NSW fauna.

New South Wales fauna.

This group includes 15 species, of which 8 may be considered as indigenous and 4 endemic. The indigenous species are:

<i>Phil. macrosetosus</i>	<i>Hyp. atropolita</i>
<i>Phil. oculatus</i>	<i>Hyp. medionigra</i>
<i>Phil. margaretae</i>	<i>Hyp. ventrale</i>
<i>Caut. mirabilis</i>	<i>Hyp. sebastiani</i>

It shares with the Queensland fauna *Cer. alienigenus*, *Micr. minuta* and *Hyp. bivulnerata*, and with the Tasmanian fauna *Lapethus australis*, *Phil. rotundus* and *Hyp. tasmaniae*. However the ranges of most these species are not well known because they are based on old data from which the particular forest habitats cannot be determined. *Cautomus mirabilis* does not seem to be strongly connected with rain-forest habitats because most recently collected specimens were found in the sclerophyll type habitat. This group is not well delimited and is composed of northern and southern elements now isolated in a refuge areas.

Tasmanian fauna.

This group includes 5 indigenous species:

<i>Phil. tasmanicus</i>	<i>Lap. australis</i>
<i>Phil. rotundus</i>	<i>Hyp. tasmaniae</i>
<i>Phil. parviceps</i>	

Philothermus parviceps and *P. tasmanicus* are endemic, the latter occurring only in Tasmania. Actually some localities of NSW are not detailed enough to determine correct classification of habitats, and it is possible that *Phil. rotundus* and *P. margaretae* will be regarded as endemics to the temperate, cool rain-forest areas. All the *Philothermus* species here are closely related to New Zealand species and may represent with *Hypodaenella* the most ancient elements of Australian *Cerylonidae*.

The above data is from a very coarse analysis based on the little material available for study and on the poorly known cerylonids of the Indo-Australian region. We could develop only some idea about the origin and constitution of the Australian cerylonid fauna. It is relatively rich and diverse, and not of uniform origin, but consists of at least three main elements: Oriental (Indo-Australian), New Zealand and probably Gondwanian, each of different ages and origins.

c) Key to the subfamilies and genera of the Australian *Cerylonidae*

1. Frontoclypeal suture present; palpi not aciculate (fig. 160) 7.
- Frontoclypeal suture absent; palpi aciculate (fig. 5). Subfamily
Ceryloninae 2.
2. Tarsi 3-segmented. 3.
- Tarsi 4-segmented. 4.
3. Antenna 10-segmented with 1-segmented club; ventrite I with femoral lines; pronotal edges smooth; prosternum flat anteriorly, without cavities.
. *Cerylonopsis* HEINZE, p. 21.
- Antenna 9-segmented with 2-segmented club (fig. 69); venrite I without femoral lines; pronotal edges crenulate and setose; prosternum raised

- medially into a process with cavities situated at front margin (fig. 71).
 *Cautomus* SHARP, p. 28.
4. Elytral intervals costulate; prothoracic hypomera with deep antennal cavities reaching hind border of prosternum (figs. 138, 139).
 *Lawrencella* gen. n., p. 44.
- Elytral intervals flat; prothoracic hypomera without cavities or with cavities situated at anterior angles 5.
5. Antenna 8-segmented; head with transverse occipital ridge; prothoracic hypomera with deep cavities at anterior angles (fig. 130).
 *Lapethus* CASEY, p. 40.
- Antenna 10- or 11-segmented; head without transverse occipital ridge; antennal cavities on hypomera absent 6.
6. Protibia with tooth at outer-apical angle (fig. 1); male last ventrite deeply notched apically (fig. 6); procoxal cavities broadly closed externally and internally; antenna stouter with antennomeres 5–8 usually transverse.
 *Australiorylon* gen. n., p. 15.
- Protibia rounded apically; male last ventrite not emarginate apically; procoxal cavities externally open or narrowly closed; antenna slender with antennomeres 5–8 usually subquadrate to elongate.
 *Philothermus* AUBÉ, p. 30.
7. Anterior angles of pronotum with antennal cavities (fig. 142); hind margin of last ventrite crenulate; transverse occipital ridge on head present (fig. 141). Subfamily *Murmidinae*.
 *Murmidius* LEACH, p. 47.
- Anterior angles of pronotum without cavities; hind margin of last ventrite smooth; transverse occipital ridge absent 8.
8. Ventrites III and IV with lateral expansions (fig. 148) and elytral epipleura with corresponding depressions; body elongate and parallelsided (fig. 147), slightly convex; hind wing without subcubital fleck. Subfamily *Metaceryloninae*.
 *Micruloma* CARTER, p. 49.
- Ventrites smooth or ventrite IV with very fine lateral expansions (fig. 171); body broadly oval and convex; hind wing with divided subcubital fleck. Subfamily *Euxestinae* 9.
9. Prosternal and femoral lines on ventrite I and metasternum present (figs. 170, 171); ventrite IV with fine expansions laterally.
 *Hypodacnella* gen. n., p. 52.
- Prosternal and femoral lines on ventrite I absent; ventrite IV without lateral lobes 10.
10. Antennal club 3-segmented, antenna 11-segmented.
 *Protoxestus* SEN GUPTA et CROWSON, p. 70.
- Antennal club 1-segmented, antenna 10-segmented.
 *Euxestus* WOLLASTON, p. 66.

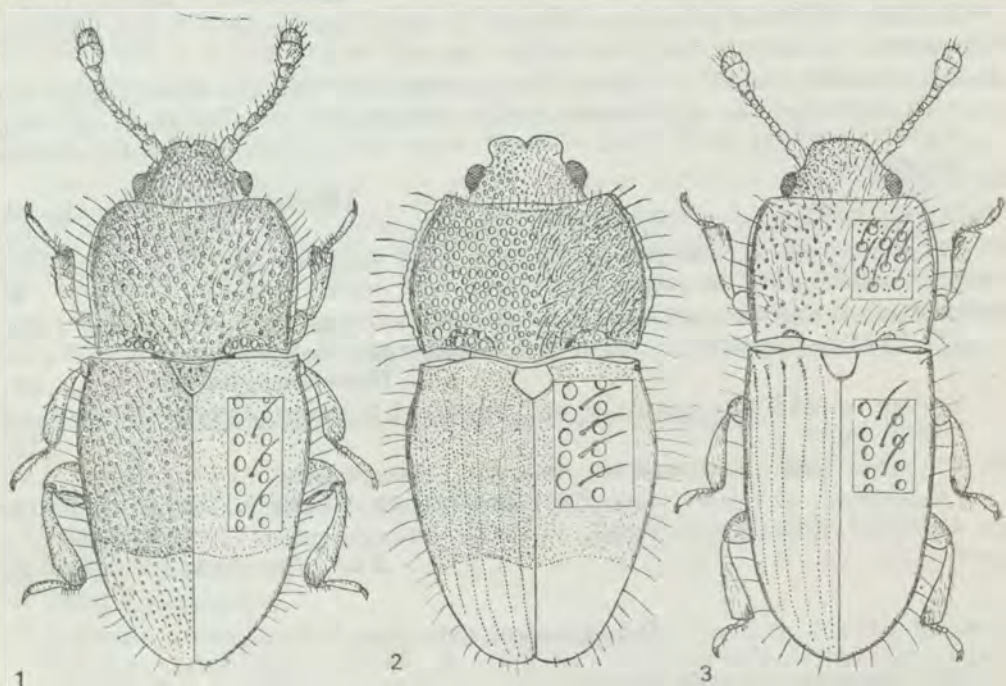
Ceryloninae BILLBERG

This subfamily includes about 30 genera, which are characterized by the lack of a frontoclypeal suture, aciculate palpi and crenulate hind margin of the last ventrite. The *Ceryloninae* larvae (*Cerylon*, *Philothermus*, *Lapethus*) are characte-

rized by a strongly deflexed head, often opisthognathous; mouth-parts strongly modified for piercing and sucking; lightly sclerotized body, form elongate, slightly onisciform, without lateral expansions on thoracic and abdominal tergites and without urogomphi. SEN GUPTA and CROWSON (1973) divided this group into three tribes: *Cerylonini*, *Aculagnathini* and *Lapethini*; the *Aculagnathini* were synonymized with *Cerylonini* by LAWRENCE and STEPHAN (1975), while *Lapethini* were retained by ŚLIPIŃSKI (1984) as a group distinct from *Cerylonini*, but with rather unclear relation, which may be united with *Cerylonini* when the group is better known.

Cerylonini BILLBERG

This group corresponds to *Cerylonini* and *Aculagnathini* of SEN GUPTA and CROWSON (1973) excluding *Thyroderus*, *Axiocerylon* and *Dolosus* (= *Thyroderus*). The group may be characterized by the narrowly separated pro- and meso-coxae, lack of femoral lines on metasternum, transverse occipital ridge on head, and prothoracic hypomera without antennal cavities. The generic concepts in this group badly need revision, and the two largest genera *Cerylon* LATR. and *Philothermus* AUBÉ form a diverse assemblage of various phyletic lines.



Figs. 1-3. Habitus of *Australiorylon* species: 1 - *longipilis*; 2 - *setosus*; 3 - *nevoissi*.

Australiorylon gen. n.

Type species: *Cerylon longipilis* CARTER et ZECK, 1937.

Gender: masculine.

Etymology. The name is a combination of the prefix Australio- with the name *Cerylon*, a genus in which several species were originally described.

Diagnosis.

Members of this genus may be distinguished from other Australian cerylonids by the 11-segmented antennae with 2-segmented club; dentate outer-edge of protibia; 4-segmented tarsi; procoxal cavities broadly closed externally and internally; prosternal process wide but almost parallel-sided and male last ventrite deeply emarginate apically. Some species of the genus *Philothermus* may have similar pubescence and compact, 2-segmented club, but always have procoxal cavities open internally and open or narrowly closed externally, prosternal process very narrow and parallel-sided, rounded apically outer-edge of protibia and male last ventrite rounded apically. Also shape of mentum and ligula are different in the two genera.

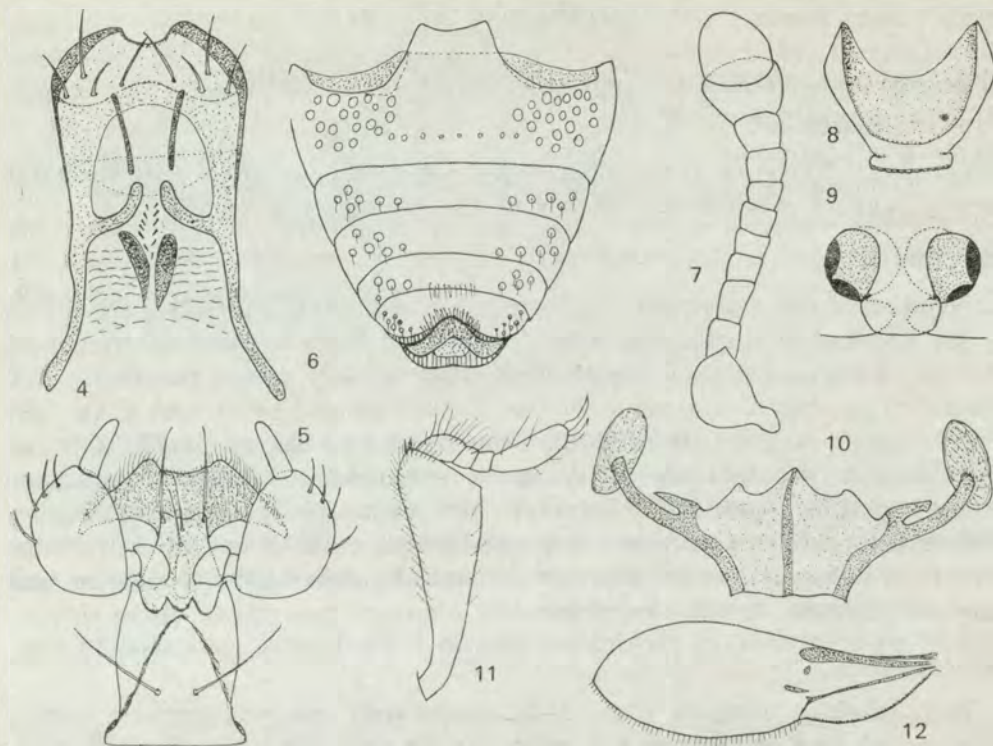
Description.

Body slightly elongate (figs. 1-3), moderately convex; surfaces shiny, elytra unicoloured or bicoloured, usually densely clothed with moderately long, fine hairs. Length between 1.6 and 2.1 mm.

Head slightly inclined, narrower than prothorax, devoid of frontoclypeal suture and transverse occipital ridge. Anterior clypeal margin in males deeply emarginate to notched (figs. 23-26), in females straight or scarcely emarginate. Eyes large, coarsely faceted; temples very short, obtusely rounded. Antenna 11-segmented with compact but distinctly divided 2-segmented club (fig. 7), antennomeres 4-9 subquadrate or slightly transverse. Labrum (fig. 4) elongate, lightly sclerotized, scarcely emarginate apically; tormae with mesal arms curved inwards, labral rods narrow and heavily sclerotized; epipharyngeal armature as in fig. 4. Mandible as in *Cerylon-Philothermus* complex with well developed mola and narrow, fringed prostheca. Labium with very narrow, elongate mentum with a triangular raised area in middle (fig. 5) and two admedian setae; mentum triemarginate apically; ligula expanded and emarginate apically; praementum with four setae arranged as in fig. 5.

Pronotum transverse, between 0.6 and 0.83 × as long as wide; lateral edges smooth or finely crenulate with narrow margins.

Prosternum with procoxae rounded externally and internal extensions well developed; prosternal process wide, almost parallel-sided and constricted before apex then blunt. Procoxal cavities broadly closed externally and internally (fig. 9).



Figs. 4-12. *Australiorylon* species, adult structures: 4-7, 11 - *longipilis*; 8-10, 12 - *setosus*. 4 - labrum-epipharynx, dorsal; 5 - labium, ventral; 6 - ♂ abdomen, ventral; 7 - antenna; 8 - tergite VIII, ventral, ♂; 9 - prosternal process and cavities; 10 - metendosternite; 11 - right protibia, dorsal; 12 - hind wing.

Pterothorax with narrowly separated mesocoxae and their cavities closed. Metasternum without femoral lines and metendosternite as in fig. 10. Hind wing (fig. 12) with reduced venation, without anal cell, radial cell or subcubital fleck.

Legs (figs. 11, 28) with trochanter simple, femora slightly swollen in the middle and protibia expanded apically with a tooth at outer-apical edge. Tarsal formula 4-4-4 in both sexes, tarsomeres simple, claws simple, empodium bisetose.

Abdomen (fig. 6) without femoral lines. Intercoxal process of ventrite I wide, trapezoidal. Male last ventrite (sternite VII) deeply notched (fig. 29) and modified tergite VII with apical margin fits into this emargination (figs. 6, 8), hind edge of both sternite VII (laterally) and tergite VII (medially) crenulate. Female last ventrite simple, entirely crenulate at hind edge.

Aedeagus (fig. 17) asymmetrical with tegmen strongly reduced and short, setose parameres; median lobe with rich ornamentation inside.

Sexual dimorphism. Males of all known species can be easily recognized having deeply emarginate last abdominal ventrite and deeply emarginate clypeus.

Distribution.

Eastern coast of Australia, Fiji, New Guinea and Philippine Islands. Apart from three Australian species, this genus includes *Cerylon luzonensis* DAJOZ, 1981: 64 (Luzon) **comb. n.** and several undescribed forms.

Biology.

Adults of three Australian species have been collected in large numbers under fungus-infested bark, in rotten logs and bark, from leaf litter and forest debris. Only one specimen was collected from unidentified fungi. It seems that all the species are connected with rain-forests and do not occur in other types of forest formations.

Key to the Australian species of *Australiorylon*

1. Body elongate and almost parallel-sided (fig. 3); elytra unicoloured, brown; TL/EW = 2.31–2.38; pronotal sides smooth, not crenulate; dorsal surface sparsely setose; interspaces between pronotal punctures micropunctured.
 *A. neboissi* sp. n., p. 21.
- Body much shorter and oval (figs. 1, 2); elytra usually with reddish apical part; TL/EW = 1.6–2.0; pronotal sides at least near base crenulate; dorsal surface densely setose; interspaces between pronotal punctures smooth or faintly reticulate 2.
2. Pronotum widest at anterior third and slightly narrowing towards base; lateral edges smooth anteriorly, crenulate at basal $\frac{1}{3}$ (fig. 1); pronotal and elytral punctures fine and separated by at least one diameter; EL/PL = 1.80–1.91.
 *A. longipilis* (CARTER et ZECK), p. 17.
- Pronotum widest behind middle; lateral edges crenulate and pronotum more strongly narrowing towards base; pronotal and elytral punctures much larger and separated by less than 0.5 diameter (fig. 2); EL/PL = 2.0–2.16.
 *A. setosus* sp. n., p. 19.

Australiorylon longipilis (CARTER et ZECK) **comb. n.**

(Figs. 1, 4–7, 11, 13–16, 25)

Cerylon longipilis CARTER et ZECK, 1937: 205. Type locality: "South Queensland, Tambourine Mountain". (Holotype, SAM, examined).

Cerylon bicolor DAJOZ, 1974: 332. Type locality: "Queensland plateau south of Beechmont south of Brisbane". (Holotype probably lost, see remark below). **Syn. n. nec**

Cerylon bicolor GROUVELLE, 1901: 483 (Ceylon).

Cerylon binominatum ŚLIPIŃSKI, 1985: 615 (new name for *C. bicolor* DAJOZ, 1974) **syn. n.**

Diagnostic combination. Body elongate, convex, densely pilose (fig. 1);

colour dark brown to nearly black, elytra with apices and sometimes humeral parts reddish, rarely whole elytra unicoloured. Head: Male clypeus widely and deeply emarginate medially (fig. 25), that of female almost straight; antenna as in fig. 7. Pronotum $0.75-0.79 \times$ as long as wide, widest at anterior $\frac{1}{3}$ or slightly before middle then gradually narrowing basad; lateral edges faintly crenulate at basal $\frac{1}{3}$; discal punctures variable in size and separation but at least one diameter apart; interspaces smooth or finely reticulate; pronotal setae length = $2.2 \times$ pronotal puncture diameter; subbasal impressions shallow with 3-4 larger punctures. Scutellum transverse (8 : 5), obtusely triangular, surface with 2-3 punctures. Elytra $1.2-1.25 \times$ as long as wide and $1.8-1.9 \times$ as long as pronotum; elytral striae not impressed, punctures $0.5-0.8 \times$ as large as pronotal ones, separated longitudinally by about one diameter, rounded in shape; elytral intervals $1-1.5 \times$ as wide as puncture diameter, setose. Aedeagus as in figs. 13-16, with median lobe somewhat variable in shape and ornamentation which is about $0.84 \times$ as long as abdomen. Protibia as in fig. 11. TL = 1.7-1.92 mm.

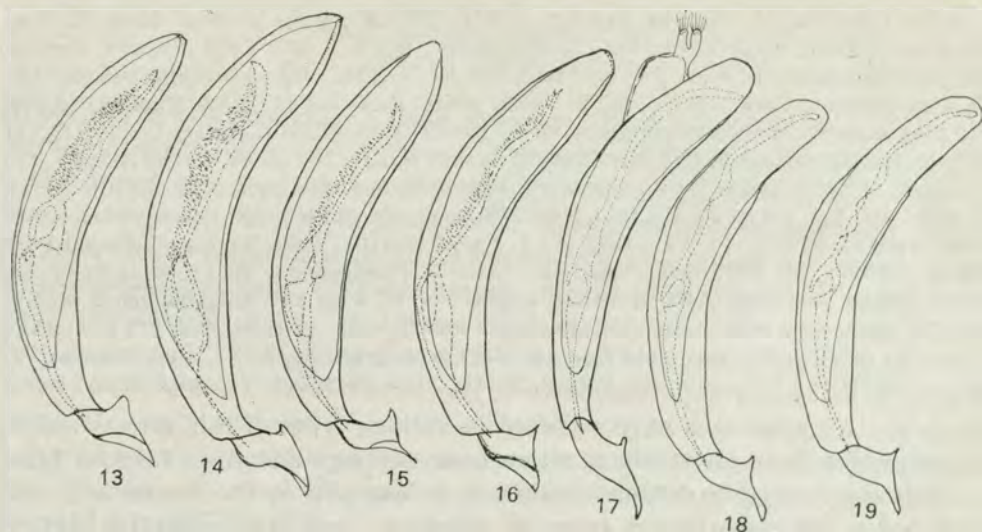
Variation within this species is in colour, puncturation and length of vestiture. The New South Wales specimens are comparatively denser and shorter setose with elytra unicoloured and general surface more brown than brownish-black.

Distribution: Queensland: Mount Tamborine, Joalah National Park, Mt. Tamborine; Mt. Glorious; Mt. Woods near Mt. Glorious; Yabba Creek Forest, 7 km SW Kenilworth; Maiala National Park; Lamington National Park; Lamington, Binna Burra; Bunya Mountains; Fraser Island. New South Wales: Mt. Glennie, Rosenberg St. Forest, 30 km NNW Kyogle; Wiangaree SF Brindle Ck. Total 256 specimens examined (ANIC, MCZ, SAM, IZPAN, QMB, TMP).

Biology. Adults of this species have been collected under bark, from rotten bark and logs and from rain-forest litter.

This is the most common and widespread species of *Australiorylon*. It is quite similar to *A. setosus* differing mainly in the slightly narrower and more elongate body, almost smooth pronotal edges and much finer and sparser pronotal and elytral puncturation.

Remarks. DAJOZ (1974) has described his *Cerylon bicolor* from single specimens collected by H. FRANZ and from his own collection. In the original description DAJOZ did not mention where the holotype was to be deposited, but in his later publication in Faune de Madagascar he mentioned that types of Madagascarian species described simultaneously in the 1974 paper were in Paris National Museum. During my recent visit to Paris I have not found any type specimen of this species, also the type has not apparently been returned to H. FRANZ (H. FRANZ pers. comm.). Based on DAJOZ's description and figures there is no doubt that *C. bicolor* (type apparently male) is the same as *C. longipilis* because of bicoloured elytra, sparsely punctured pronotum and fine rows of punctures on elytra, and lateral pronotal margins smooth. DAJOZ (1974) did not know the paper by CARTER and ZECK and compared his species only with *C. alienigenum*.



Figs. 13-19. Penis of *Australiorylon* species of different localities, ventral: 13-16 - *longipilis*; 17-19 - *setosus*. 13 - NSW, Wiangaree; 14 - Qld., Bunya Mount.; 15 - Qld., Mt. Woods; 16 - Qld., Lamington N. P.; 17 - Qld., Alexandra Bay; 18 - Qld., Kuranda; 19 - Qld., 5 km S by W of Milaa.

Australiorylon setosus sp. n.

(Figs. 2, 8-10, 12, 17-19, 22-24)

Diagnostic combination. Body short-oval, convex, densely pilose (fig. 2); colour variable, typical specimens similar to that of *A. longipilis* but ground-colour black to dark-brown, often elytra uniformly black. Head of male with anterior clypeal margin deeply notched medially (fig. 23) that of female scarcely emarginate; antenna as in fig. 22. Pronotum $0.67\times$ as long as wide, widest behind middle and strongly narrowing towards base; lateral edges crenulate; discal punctures usually subcontiguous, about $0.2-0.5$ diameter apart; interspaces smooth, shiny; pronotal setae length = $4\times$ puncture diameter on pronotal disk; subbasal impressions fairly distinct, each with 3-4 large punctures. Scutellum transverse (3 : 5), slightly pentagonal, smooth or sparsely punctate. Elytra $1.14-1.2\times$ as long as wide and $2.0-2.16\times$ as long as pronotum; elytral punctures $1-1.3\times$ as large as pronotal ones, transversely oval (especially in 3rd and 4th rows near base) and separated longitudinally by 0.5 diameter; intervals wide as puncture diameter, setose. Aedeagus as in figs. 17-19, median lobe $0.8\times$ as long as abdomen. TL = 1.8-1.85 mm.

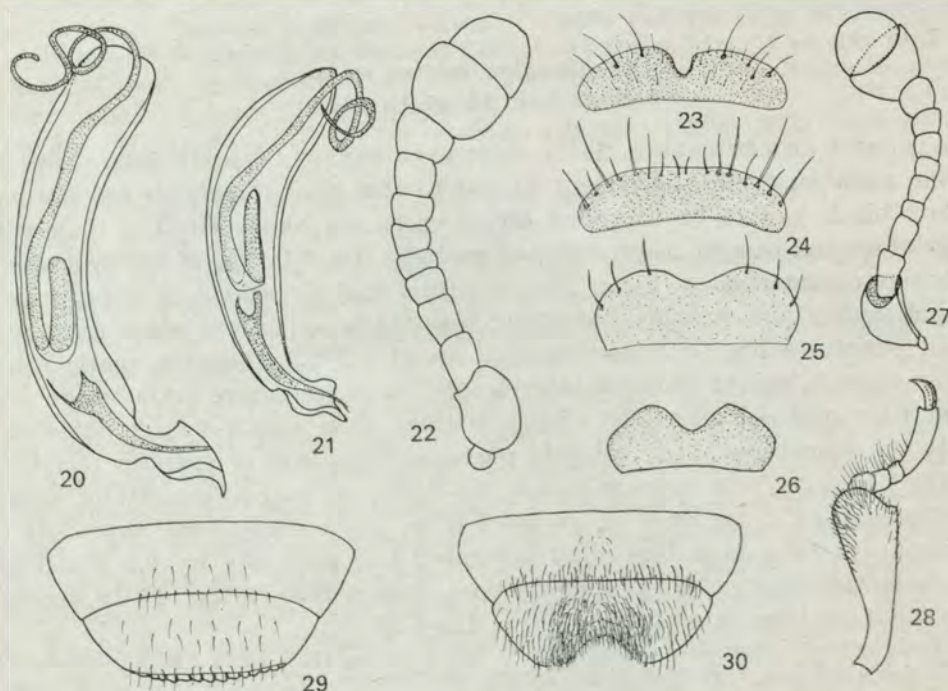
Holotype ♂: Queensland, 5 km S by W Milaa Milaa, 15. V. 1980. ANIC Berlesate 674 (J. D. NAUMANN and J. C. CARDALE) (ANIC).

Paratypes - 101 specimens (ANIC, MPIQ, IZPAN): same data as holotype (IZPAN); Lake Barrine, 750 m, SPB94, 29. VII. 1982 (S., J. PECK) (ANIC); as above but SPB97, 31. VII. 1982 (ANIC); Malanda Falls Res., Malanda, 750 m, SPB83, 22. VII. 1982 (ANIC, IZPAN); Cape Tribulation Area, 16.03S-16.05S x 145.28E, 21-28. III. 1984 (A. CALDER,

T. WEIR): Berl. ANIC 939, 940, 943, 942 (ANIC, IZPAN); same locality, 50 m (TAYLOR, FEEHAN) (ANIC); Hugh Nelson Rg., 2 km Atherton, 5. IX-1. XII. 1983 (STOREY, BROWN) (MPIQ); Wongabel SF, 6 km S of Atherton, 10. XI-1. XII. 1983, same collectors (MPIQ); Eacham National Park, 760 m, 28. VI. 1971, ANIC Berl. 344 (TAYLOR, FEEHAN) (ANIC, IZPAN); same collectors, Mt. Lewis, 1100 m, 20. VI. 1971 (ANIC); Lacey's Creek, 11. VII. 1971, Berl. 373, same coll. (ANIC); Upper Mulgrave Range, 100 m, 19. VI. 1971, Berl. 315, same coll. (ANIC); Alexandra Bay, 50 m, 21. VII. 1971, Berl. 328, same coll. (ANIC); Kuranda Black Mt. Rg., 350 m, 27. VI. 1961, Berl. 339, same coll. (ANIC); Mt. Lewis, 20 km, S Mossman, 1000 m, SPB67, 10. VII. 1982 (S., J. PECK) (ANIC); Lake Eacham National Park, 760 m, SPB85, 23. VII. 1982, same coll. (ANIC); Finnigan S1, 30 km S of Cooktown, 400 m SPB56, same coll. (ANIC); Mt. Hypopamee N. P., 4 km SW Malanda, 960 m, SPB86, 24. VII. 1982, same coll. (ANIC); Mt. Lewis via Julatten, 21. V. 1980, Berl. 679 (NAUMANN, CARDALE) (ANIC); Windsor Tableland via Mt. Carbine, 16. X-12. XI. 1983 (STOREY, TIMARSH) (MPIQ); 1.5 km E by Mt. Sorrow, 25. III. 1984, Berl. 945 (CALDER, WEIR) (ANIC).

Biology. All specimens were collected in various types of rain-forests mainly by extraction from forest litter, rotten bark and logs and from fungous litter.

This species may be distinguished from *A. longipilis* by the stouter and more oval body, crenulate lateral edges of pronotum and the pronotal punctures coarse and separated by about 0.2-0.5 diameter. These 2 species may be confused because of great external variability, but as far as present they are not sympatric in their ranges and *A. setosus* is distinctly northern species.



Figs. 20-30. *Australiorylon* structures: 20-21 - *nevoissi*, penis ventral; 22 - *setosus*, antenna; 23-26 - clypeus: 23 - *setosus* ♂; 24 - *setosus* ♀; 25 - *longipilis* ♂; 26 - *nevoissi* ♂. 27-30 - *nevoissi*: 27 - antenna; 28 - protibia and tarsus, dorsal; 29 - last two abdominal ventrites of ♀; 30 - same of ♂.

Australiorylon nevoissi sp. n.

(Figs. 3, 20, 21, 26-30)

Diagnostic combination. Body elongate, slightly convex, colour reddish, surface sparsely setose (fig. 3). Head: Anterior margin of male clypeus deeply notched (fig. 26), that of female scarcely emarginate; antenna as in fig. 27. Pronotum $0.83-0.85 \times$ as long as wide, widest at middle, but sides almost parallel; lateral edges smooth; discal punctures coarse, about 1 diameter apart, interspaces punctured; subbasal impressions shallow; pronotal and elytral setae variable in length, usually $2-4 \times$ as long as puncture diameter. Scutellum transverse (5 : 9), triangular, with 2-4 small punctures. Elytra $1.58-1.62 \times$ as long as wide and $2.14-2.17 \times$ as long as pronotum; strial punctures as large as pronotal ones, round and separated longitudinally by 0.5-0.8 diameter; intervals with row of setigerous punctures. Venter. Male last ventrite deeply notched but without additional concave area, setose (fig. 30), in female last ventrite rounded (fig. 29). Protibia as in fig. 28. Aedeagus as in figs. 20, 21, median lobe with peculiar flagellum and $0.75 \times$ as long as abdomen. TL = 1.65-1.71 mm.

Holotype: Queensland, Claudie R. near Iron Range, 19-25. VII. 1978, Berl. 648 (J. F. LAWRENCE) (ANIC).

Paratypes - 14 specimens (ANIC, MVM, MPIQ, IZPAN): Mt. Lewis nr. Mossman, 25. V. 1969 (A. NEBOISS) (MVM); Noah Ck., 7 km ENE Thornton Peak, 27. III. 1984, Berl. 946 (CALDER, WEIR) (ANIC, IZPAN); 2 km N by E Mt. Tip Tree, 800 m, 1. IV. 1984, same coll. (ANIC); Paluma, 11-12. XII. 1978, JFL lot 78-202 (D. FRITH) (ANIC); Cape Tribulation, 30 m, 14. VII. 1982 (S., J. PECK) (ANIC); 26 km up Tinaroo Ck. Rd. via Mareeba, 23. XII. 1983-12. I. 1983 (MORGAN, BROWN, STOREY) (MPIQ, IZPAN); same but 10. XI. 1982 (MPIQ).

Biology. This species seems to be also restricted to rain-forests area of North Queensland and is sometimes sympatric with *A. setosus*. Specimens were collected by mass-sampled techniques from forest litter and rotten logs. One specimen (JFL lot 78-202) was collected on unidentified fungus.

This species may be distinguished from both *A. longipilis* and *A. setosus* by the narrow and elongate form, unicoloured elytra and densely punctured interspaces between pronotal setigerous punctures. The only species of *Philothermus* likely to be confused with *A. nevoissi* is *P. macrosetosus*, in which the antennal club is 1-segmented, the protibial apex obtuse, the pronotal sides crenulate, the scutellum much smaller and transverse and the last male ventrite rounded apically. It is dedicated to Dr A. NEBOISS.

Cerylonopsis HEINZE

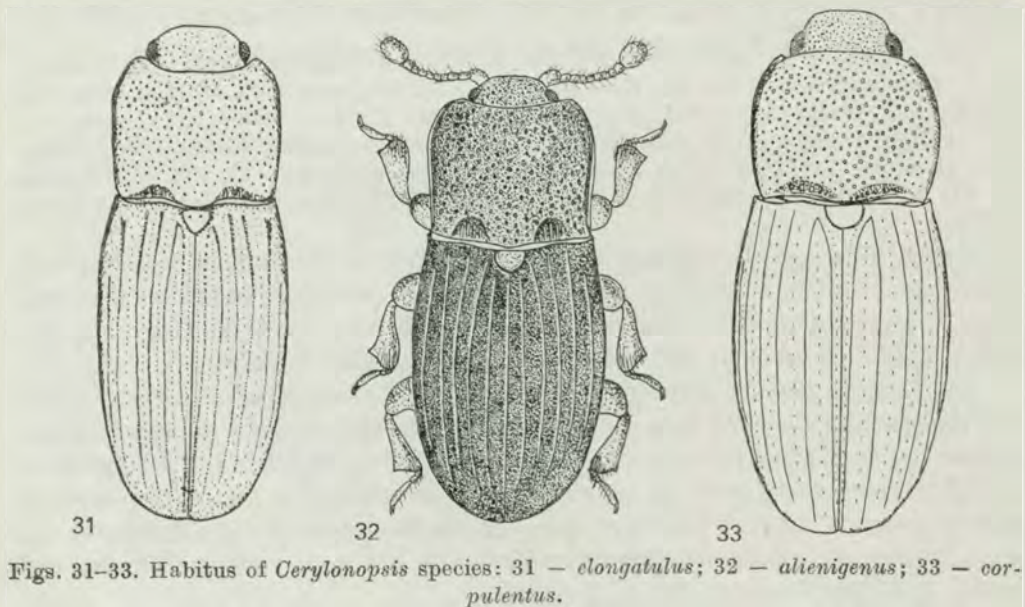
Cerylonopsis HEINZE, 1944b: 29 (subgenus of *Cerylon* LATREILLE, 1802). Type species, by original designation: *Cerylon trifoveolatum* HEINZE, 1944a. - SEN GUPTA and CROWSON 1973: 432 (generic rank); ŚLPIŃSKI 1981: 142.

This genus contains only three named species: *C. trifoveolatus* (HEINZE) from New Guinea, *C. saigonensis* DAJOZ from Viet-Nam and *C. quadricollis*

(SHARP), widely distributed in Indo-Australian region. There are some species described by PASCOE and GROUVELLE as *Cerylon* and many undescribed forms from Japan to Loyalty Islands and Australia. The African forms from the genus *Philothermopsis* HEINZE are being revised now and probably some of them should be transferred to *Cerylonopsis*, if all are not included in the one genus.

Members of this genus are usually distinguished from other Australian cerylonids by the glabrous, elongate and flattened (except *C. corpulentus*) body form (figs. 31–34); 10-segmented antenna with oval, 1-segmented club (fig. 42); mentum biemarginate apically and labial ligula strongly expanded apically, and four setae in one row on praementum (fig. 35); labrum elongate and emarginate apically (fig. 36); wing (fig. 39) with single anal vein; prosternal process slightly widened apically and cavities closed externally (figs. 38, 67); abdominal ventrite I with short femoral lines (fig. 37); tarsi 3–3–3-segmented and aedeagus with tegmen reduced but always present.

This genus is recorded from Australia for the first time and includes here five species.

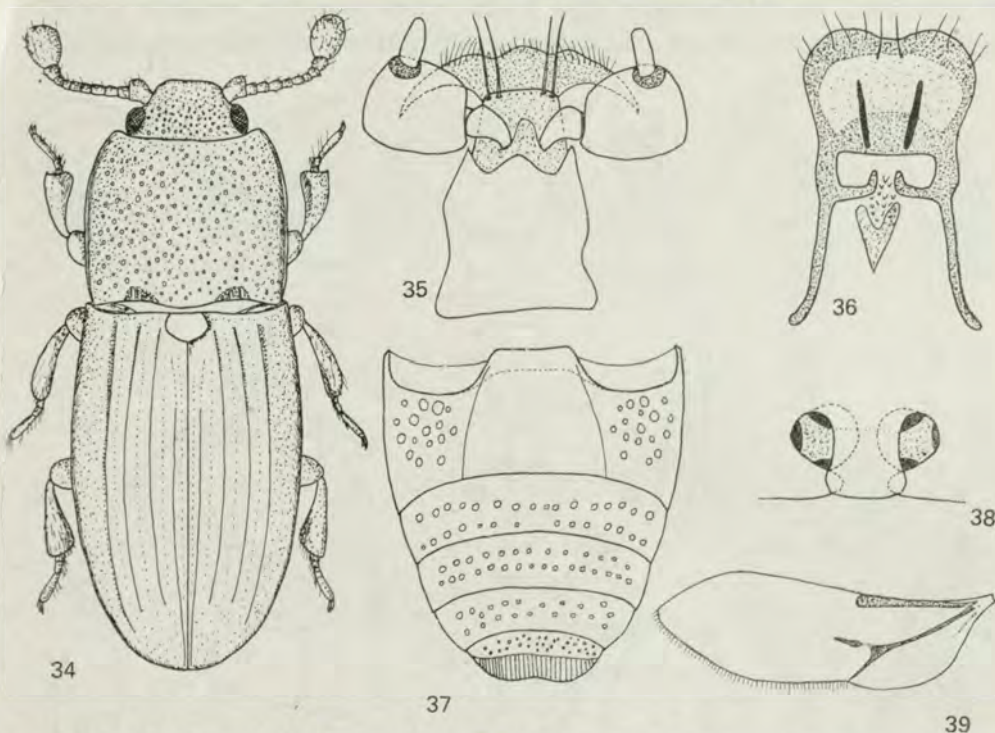


Figs. 31–33. Habitus of *Cerylonopsis* species: 31 — *elongatulus*; 32 — *alienigenus*; 33 — *corpulentus*.

Key to the Australian species of *Cerylonopsis*

1. All tibiae with apical teeth on outer-apical edge (fig. 32); pronotum with well developed and deep subbasal impressions; antenna relatively short and thick. *C. alienigenus* (BLACKBURN), p. 23.
- Meso- and metatibiae rounded apically (fig. 34); subbasal impressions very small, often barely traceable; antenna slender. 2.

2. Pronotal surface convex and sides markedly rounded (fig. 33).
 *C. corpulentus* sp. n., p. 27.
- Pronotal surface flat and sides almost parallel or slightly narrowing towards base (fig. 34) 3.
3. Elytron with four impressed striae (fig. 34).
 *C. doyeri* sp. n., p. 26.
- Elytron with 5 or 6 impressed striae 4.
4. Elytron with 5 well developed and impressed striae; EL/PL = 2.13–2.20; TL = 1.40–1.49 mm.
 *C. australis* sp. n., p. 28.
- Elytron with 6 impressed striae (fig. 31); EL/PL = 2.27–2.32; TL = 1.58–1.66 mm.
 *C. elongatulus* sp. n., p. 25.



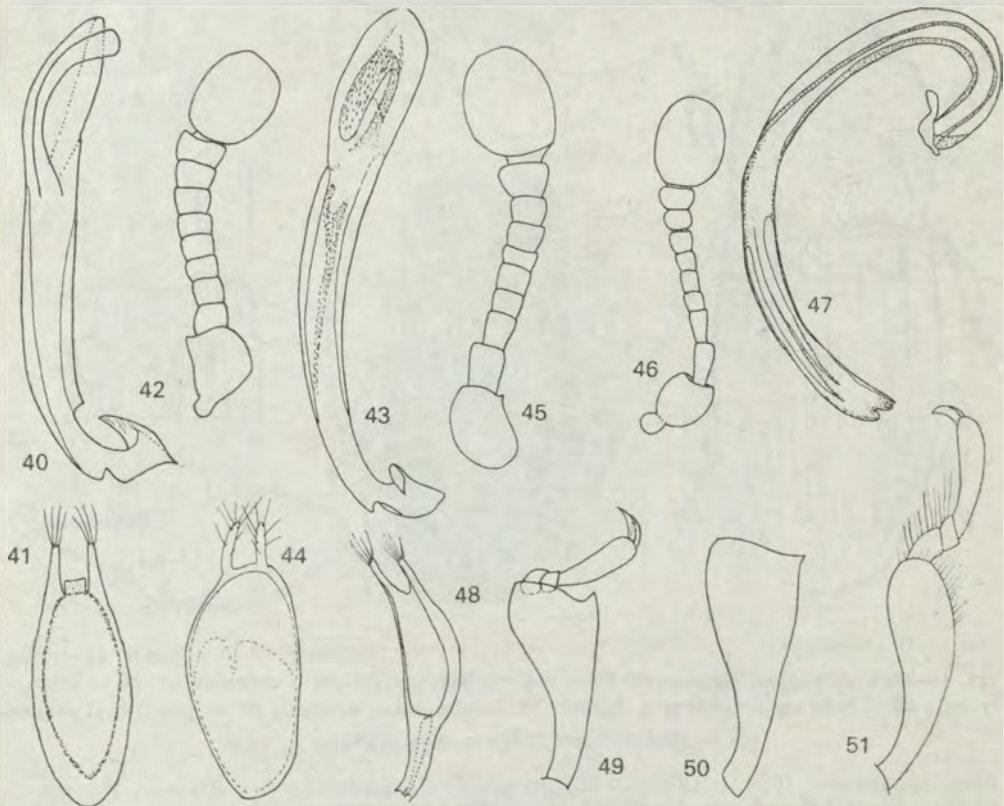
Figs. 34–39. *Cerylonopsis* structures: 34 — *doyeri*, habitus; 35–39 — *corpulentus*: 35 — labium, ventral; 36 — labrum-epipharynx, dorsal; 37 — abdomen, ventral; 38 — prosternal process and cavities; 39 — hind wing.

Cerylonopsis alienigenus (BLACKBURN) **comb. n.**

(Figs. 32, 40–42, 49, 61, 62)

Cerylon alienigenum BLACKBURN, 1903: 182. Type locality: "New South Wales". Lectotype, BMNH, present designation.

Diagnostic combination. Body flattened; colour dark-brown to piceous; surface shiny. Head: male anterior clypeal margin deeply notched (fig. 62) that of female scarcely emarginate (fig. 61); antenna as in fig. 42. Pronotum $0.84-0.86\times$ as long as wide, widest at anterior $\frac{1}{3}$, slightly narrowing toward base (in male more strongly than in female); subbasal impressions fairly deep and large (fig. 32); discal punctures variable in size and separation, usual 1-2 diameters apart; interspaces shiny. Scutellum transverse (7.5 : 5), slight pentagonal, smooth. Elytra $1.53-1.55\times$ as long as wide and $2-2.05\times$ as long as pronotum, each with 5 grooved striae; strial punctures barely visible; the 5th stria does not reach humeral part of elytron; intervals micropunctured. Venter: Prosternal process as in fig. 67; male last ventrite with shallow but well visible transverse impression. Legs: All tibiae dentate at outer apex. Aedeagus as in figs. 40, 41, median lobe $0.7\times$ as long as abdomen. TL = 1.83-1.85 mm.



Figs. 40-51. *Cerylonopsis* structures: 40-42 - *alienigenus* ♂: 40 - penis, ventral; 41 - tegmen, ventral; 42 - antenna, dorsal; 43-45 - *australis*: 43 - penis, ventral; 44 - tegmen, ventral; 45 - antenna, dorsal; 46-48 - *elongatulus*: 46 - antenna; 47 - penis, dorsal; 48 - tegmen, ventral; 49-51 - ♂ protibiae, dorsal: 49 - *alienigenus*; 50 - *elongatulus*; 51 - *australis*.

Distribution. Queensland: Cairns District; Clifton; Lamington, Binna Burra; Bunya Mountains; Fraser Island. New South Wales: 3917 (hand written on a specimen label), Australia, Blackburn, BM. 1910-236 (printed), *Cerylon alienigenum* BLACKB. (hand written) (BMNH, lectotype); same data on a specimen card (SAM, paralectotype); Dorrigo; Tamworth; Mt. Wilson. Total 30 specimens examined (BMNH, MVM; TMP, SAM, IZPAN).

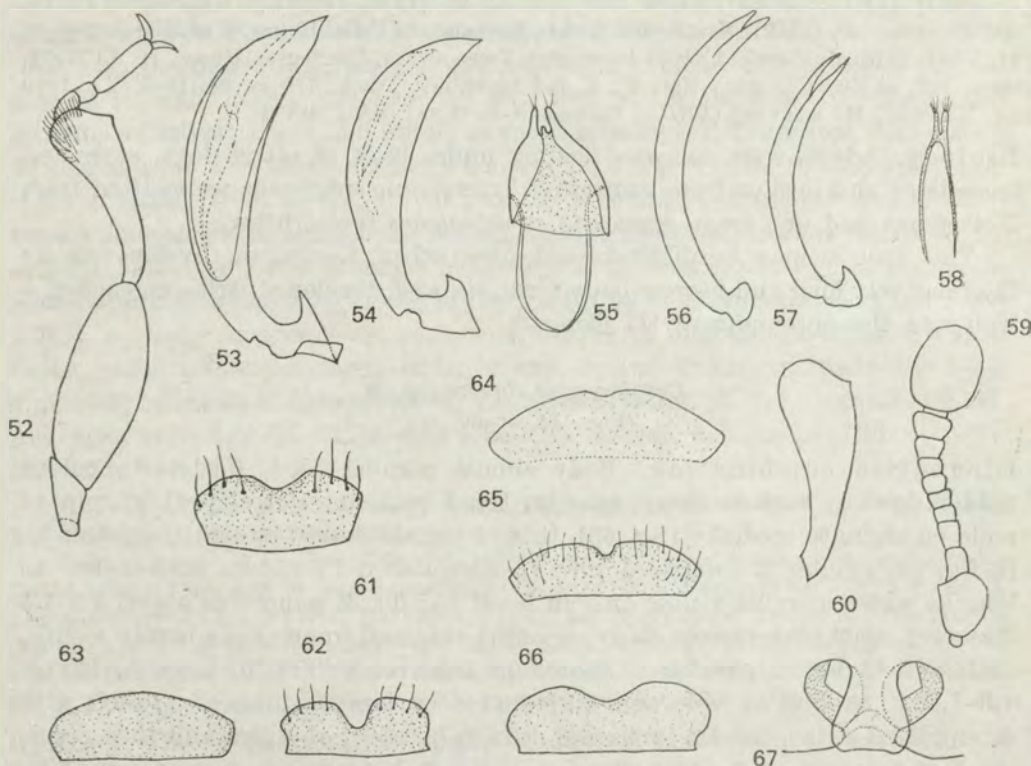
Biology. Adults have been collected under bark of trees and extracted from rain-forest litter. The beetles are usually found in fungus-infested areas.

This species differs from all the Australian *Cerylonopsis* in the comparatively large and stout body form with all tibiae dentate apically.

Cerylonopsis elongatulus sp. n.

(Figs. 31, 46-48, 50, 63)

Diagnostic combination. Body flattened, elongate (fig. 31); colour reddish-brown; surfaces glabrous, shiny. Head with anterior clypeal margin of male and female almost straight (fig. 63); antenna as in fig. 46. Pronotum $0.87-0.92 \times$



Figs. 52-67. — *Cerylonopsis* structures: 52-55 — *corpulentus*: 52 — fore leg, excluding coxa; 53, 54 — penis, ventral, showing maximum variation; 55 — tegmen, ventral. 56-60 — *doyenii*: 56, 57 — penis, ventral, showing maximum variation; 58 — tegmen, ventral; 59 — antenna; 60 — protibia, ♂. 61-66 — clypeus, dorsal: 61 — ♀ *alienigenus*; 62 — ♂ *alienigenus*; 63 — ♂ *elongatulus*; 64 — ♂ *australis*; 65 — ♂ *doyenii*; 66 — ♂ *corpulentus*. 67 — *alienigenus*, prosternal process and cavities.

as long as wide, almost parallel-sided; discal punctures variable but usually one diameter apart; interspaces with very fine linear microsculpture; lateral margins narrow, visible only in basal $\frac{1}{3}$; subbasal impressions barely traceable, each with 2 large punctures. Scutellum transverse (7 : 4) with two basal punctures. Elytra $1.79-1.81 \times$ as long as wide and $2.27-2.32 \times$ as long as pronotum; each elytron with 6 impressed striae, the sutural stria does not reach scutellum level, continued as a row of punctures, the 5th stria behind humeral angle feebly impressed, the 6th much shorter than 4th; intervals with an additional row of micropunctures. Protibia with apical tooth (fig. 50). Aedeagus as in figs. 47, 48, median lobe $0.85 \times$ as long as abdomen. TL = 1.58-1.66 mm.

Holotype ♂: Queensland, Lamington National Park (O'Reillys), 28.24S x 153.08E, 2-4. III. 1980 (J. F. LAWRENCE) (ANIC).

Paratypes — 29 specimens (ANIC, MVM, IZPAN, TMP, SAM, QDF): same data as holotype (ANIC, IZPAN); Whites Falls N. P., Tamborine Mountains, 21. IX. 1978 (LAWRENCE, WEIR) (ANIC, IZPAN); Mount Tamborine (A. M. LEA) (ANIC, SAM); Amamoor S. F. 24. XII. 1971 (R. A. YULE) (QDF); Bunya Mountains, E-Y: AU-64 (S. ENDRÖDY-YOUNGA) (TMP; IZPAN); same data but AU-63 (TMP, IZPAN); Kenilworth-Yabba, AU-59, same coll. (TMP). New South Wales: Minnamurra Falls, 10 km W of Kiama, 200 m, 11. VI. 1978 (S., J. PECK) (ANIC); Barrington Tops, 420 m, Barrington House, 16. VI. 1978, same coll. (ANIC); Dorrigo Nat. P., E end Blackbutt Track, 710 m, 28. II-5. III. 1980 (A. NEWTON, M. THAYER) (ANIC); Richmond R. (LEA) (SAM, MVM).

Biology. Adults were collected mainly under bark of rotten logs, extracted from bark and logs or from rain-forest litter. Some specimens were sifted from *Nothofagus* and one from *Araucaria cunninghami* forest litter.

This species may be distinguished from other Australian *Cerylonopsis* by the relatively long and narrow body form, six well developed striae on each elytron and the antennomere III elongate.

Cerylonopsis doyenii sp. n.

(Figs. 34, 56-60, 65)

Diagnostic combination. Body almost parallel-sided, flattened; colour reddish-brown; surface shiny, smooth. Head with anterior clypeal margin of male emarginate medially (fig. 65), that of female nearly straight; antenna as in fig. 59, stouter if compared with *C. elongatulus*. Pronotum $0.85-0.89 \times$ as long as wide; margins visible only in basal $\frac{1}{2}$; discal punctures about $0.8-1.3$ diameter apart; interspaces shiny, smooth; subbasal impressions barely visible, each with 2 larger punctures. Scutellum transverse (3 : 6.5), smooth. Elytra $1.6-1.64 \times$ as long as wide and $1.97-2.05 \times$ as long as pronotum; each with 4 impressed striae, the 1st impressed only in basal $\frac{1}{2}$ of elytra and then continued as a row of punctures, striae 5-6 absent, but sometimes represented by 2-3 basal punctures; intervals with additional row of micropunctures. Protibia as in fig. 60. Aedeagus as in figs. 56-58, median lobe $0.6 \times$ as long as abdomen. TL = 1.46-1.65 mm.

Holotype ♂: Queensland, 11 km Daintree R. Ferry, 11. XII. 1982 (J. T. DOYEN) (ANIC).

Paratypes — 14 specimens (ANIC, IZPAN): same data as holotype (ANIC, IZPAN); Claudie R. near Iron Range, 19–25. VII. 1978 (J. F. LAWRENCE) (ANIC); Mount Finnigan S1, 30 km S of Cocktown, 400 m, SBP56, 1. VII. 1982 (S., J. PECK) (ANIC); Shiptons Flat, 17–19. IX. 1980 (T. WEIR) (ANIC, IZPAN).

Biology unknown.

This species closely resembles *C. australis* but may be distinguished from that species by the wider and more flattened body, the only four elytral striae and the protibia with a tooth at outer apical angle. *C. elongatulus* is also similar but the elytra of that species have 6 impressed striae and the body is much more elongate. This species is named after its discoverer Dr J. T. DOYEN.

Cerylonopsis corpulentus sp. n.

(Figs. 33, 35–39, 52–55, 66)

Diagnostic combination. Body elongate and comparatively convex; colour brown to piceous-brown; surface glabrous, shiny. Head with anterior clypeal margin in male deeply notched (fig. 66), that of female scarcely emarginate; antenna relatively short and stout, as in *C. alienigenus*. Pronotum $0.83\text{--}0.85\times$ as long as wide with sides distinctly converging towards base (fig. 33) and margins not visible from above; discal punctures coarse, 1 diameter apart; interspaces smooth or rarely faintly reticulate; subbasal impressions fairly visible and connected by a row of larger punctures along base. Scutellum large, pentagonal, transverse (9 : 5), smooth. Elytra $1.54\text{--}1.56\times$ as long as wide and $2.06\text{--}2.08\times$ as long as pronotum, each with 6 rows of impressed but not grooved striae, strial punctures fairly distinct and separated longitudinally by 1–1.5 diameter; intervals micropunctured. Ventrites as in fig. 37. Protibia as in fig. 52. Aedeagus as in figs. 53–55, median lobe $0.5\times$ as long as abdomen. TL = 1.62–1.78 mm.

Holotype: Northern Territory, Black Point, Cobour Peninsula. 11.09S x 132.09E, 27.I.1977 (E. D. EDWARDS) (ANIC).

Paratypes — 9 specimens (ANIC, IZPAN, SAM): same data as holotype (IZPAN); Bessie Spring, 8 km ESE of Cape Crawford, 26. X. 1975 (M. S. UPTON) (ANIC, IZPAN); South Alligator River, 46 km WSW of Mt. Cahill, 20. V. 1973 (MATTHEWS, UPTON) (ANIC); Magela Creek, 1 km NNW of Mundinbarry HS, 25. V. 1973, samecoll. ANIC); Koongarra, 15 km E of Mt. Cahill, 15. XI. 1972 (UPTON) (IZPAN); Darwin near E Point, 7. I. 1961 (G. F. GROSS) (SAM, IZPAN), Northern Territory, without other data but 2776 (SAM).

Biology. The E Point (SAM) specimen was extracted from monsoon forest litter.

Individuals of this species are comparatively convex with the pronotal sides markedly converging towards base, the elytron has six slightly impressed but not grooved striae and almost smooth intervals. *C. elongatulus*, which has also 6

elytral striae, differs in the much flatter body and the pronotal sides almost straight. In *C. australis* and *C. doyeri* there are 5 and 4 elytral striae respectively, body smaller and flat. This species does not appear to be closely related to any other species of the genus and represents a distinct species group.

Cerylonopsis australis sp. n.

(Figs. 43–45, 51, 64)

Diagnostic combination. Body flat, elongate, parallel-sided; colour reddish-brown or brown; surface glabrous. Head with anterior clypeal margin of both sexes straight (fig. 64); antenna as in fig. 45. Pronotum $0.82\text{--}0.86\times$ as long as wide with lateral margins almost not visible from above; discal punctures $0.81\text{--}1.8$ diameter apart; interspaces smooth, shiny; subbasal impressions barely traceable, each with 2 larger punctures. Scutellum transverse (5:3), smooth or micropunctured. Elytra $1.68\text{--}1.74\times$ as long as wide and $2.13\text{--}2.25\times$ as long as pronotum; each elytron with 5 fairly grooved striae, the 6th stria completely absent; stria punctures barely traceable. Protibia without apical tooth (fig. 51). Aedeagus as in figs. 43, 44, median lobe $0.6\times$ as long as abdomen. TL = 1.4–1.5 mm.

Holotype: Queensland, Cape Tribulation area, 16.03–16.05S x 145.28E, 21–28. III. 1984 (A. CALDER, T. WEIR) (ANIC).

Paratypes – 3 specimens with same data as holotype (ANIC, IZPAN).

Biology unknown.

This species may be distinguished from all the Australian *Cerylonopsis* having 5 elytral striae, flat and parallel-sided body and protibia rounded at outer-apical edge.

Cautomus SHARP

Cautomus SHARP, 1885: 82. Type species, by monotypy: *Cautomus hystriculus* SHARP, 1885.

Aculagnathus OKE, 1932: 22. Type species, by monotypy: *Aculagnathus mirabilis* OKE, 1932. – BRITTON 1970: 594; BESUCHET 1972: 139 (subgeneric status); SEN GUPTA and CROWSON 1973: 441.

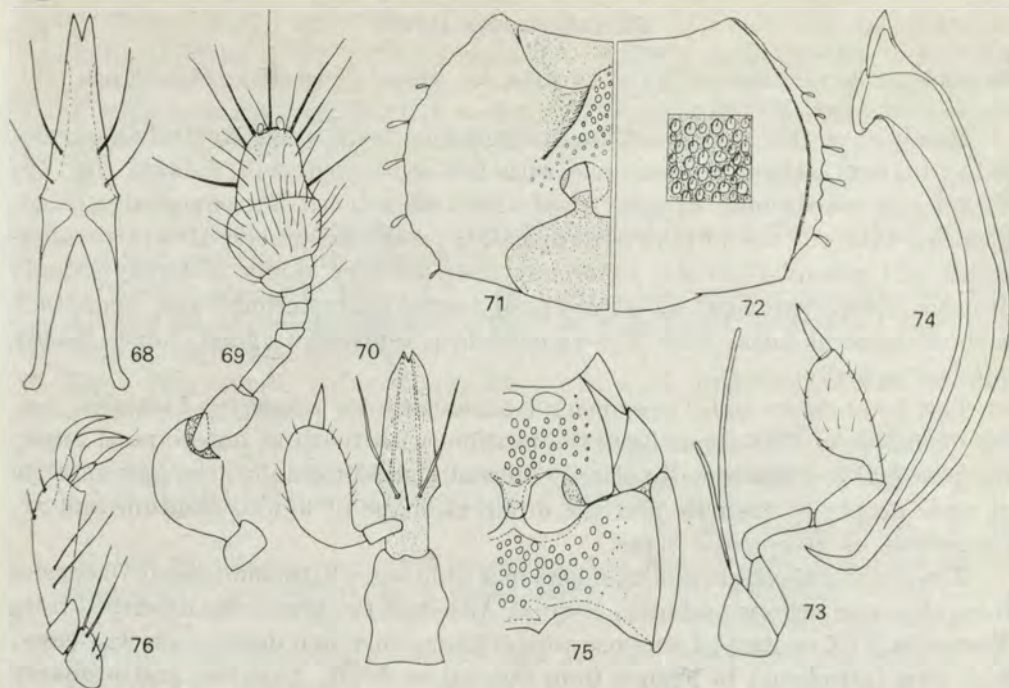
This uniform and peculiar genus includes 27 named species from Indo-Australian region, including Japan and Himalaya, while the subgenus *Aculagnathus* OKE comprises only one Australian species and one known from Thailand.

Cautomus (Aculagnathus) mirabilis (OKE)

(Figs. 68–76)

Aculagnathus mirabilis OKE, 1932: 23, figs. 1–6. Type locality: "Victoria Belgrave near Melbourne". (Holotype, MVM, not examined). – BRITTON 1970: 594; BESUCHET 1972: 139 (redescription); KISTNER 1982: 123.

Diagnostic combination. This species is easily distinguished from all other Australian cerylonids by the small size (0.83–1.6 mm); elongate and piercing type of mouth-parts (figs. 68, 70, 73); 9-segmented antenna with 2-segmented



Figs. 68–76. *Cautomus mirabilis*, adult: 68 — labrum-epipharynx, dorsal; 69 — antenna; 70 — labium, ventral, one palp removed; 71 — prosternum; 72 — pronotum; 73 — maxilla, dorsal; 74 — penis, lateral; 75 — pterothorax, ventral; 76 — protarsus.

club (fig. 69); lateral pronotal margins denticulate and setose (fig. 72); prosternum with anterior margin strongly projected medially into a process and antennal cavities situated at front of prosternum (fig. 71); mesosternum very narrow and sternal fitting with barely traceable single knob rather than straight line (fig. 75); tarsi 3-segmented (fig. 76) and aedeagus with obsolete tegmen (fig. 74). TL = 0.83–1.62 mm.

Distribution: Queensland: Cooran Plateau near Traveston, 400 m (ANIC). New South Wales: Clyde Mountain; Monga; Minnamura Falls, 10 km W of Kiama, 200 m; A. C. T. Uriarra to Piccadilly Circus, 1000 m. Victoria: Buffalo National Park, 1300 m, Eurobin Ck.; Wilsons Promin. National Park; Belgrave. Total 11 specimens examined (ANIC, IZPAN).

Biology. This species has been originally described from nests of ant — *Amblyopone obscura* Fr. SMITH, but recently collected specimens come from berlesate samples of different habitats: leaf and log litter, wet sclerophyll, wet sclerophyll leaf mold, rain-forest litter.

Remark. The Queensland population differs from the southern specimens having much smaller body size (0.89 instead of 1.3–1.6 mm) and comparatively shorter elytra, and may be considered as a separate subspecies. But because of scarce material and no good differences between these populations apart from measurements it is retained as a monotypic species.

Philothermus AUBÉ

Philothermus AUBÉ, 1843: 93. Type species, by original designation: *Philothermus montandoni* AUBÉ, 1843.

Members of this genus may be distinguished from other Australian cerylonids by 10–11-segmented antennae with 1–2-segmented club; labium (fig. 79) with ligula trapezoidal, expanded apically and notched anteromedially, praementum with one row of four setae apically; prosternal process always parallel-sided and procoxal cavities externally open or very rarely narrowly closed; protibia always rounded at outer-apical angle; metasternum and ventrite I without femoral lines; tarsi 4–4–4; male last ventrite rounded, never deeply notched apically.

The body form and 11-segmented antennae also occur in *Australiorylon*, but members of that genus have the protibia with tooth at outer-apical angle, the procoxal cavities broadly closed externally and internally; the last ventrite of male deeply emarginate and the different shape of ligula, mentum and arrangement of praemental setae.

The genus *Philothermus* is used here in a wide sense to include about 70 species from all major regions excluding Europe. Although the genus was described from France in XIX century, I suppose all specimens on which description was based had been introduced to France from Central or South America; and probably there was only one introduction and the species did not establish there, since after AUBÉ no more specimens were discovered in Europe. *P. montandoni* AUBÉ belongs to a New World *puberulus*-group and conspecific populations are to be found in that area. The Australian forms present a mixture of elements of different origins and uncertain affinities. *P. tasmanicus*, *oculatus* and *rotundus* have many characters in common with the New Zealand species — *P. nitidus* SHARP and form a distinct group in this genus. *P. parviceps* and *P. margaretae* are probably only derived forms of that groups having more compact antennal club and more convex body. The only known cerylonid from Norfolk Island — *P. norfolkiensis* shares many characters with *P. caledonicus* DAJÓZ from New Caledonia and some undescribed forms from Fiji, New Britain and Loyalty Islands, but the status of two remaining species *P. macrosetosus* and *P. microsetosus* remain rather unclear, with possible relations to New Guinean species.

Key to the Australian species of *Philothermus*

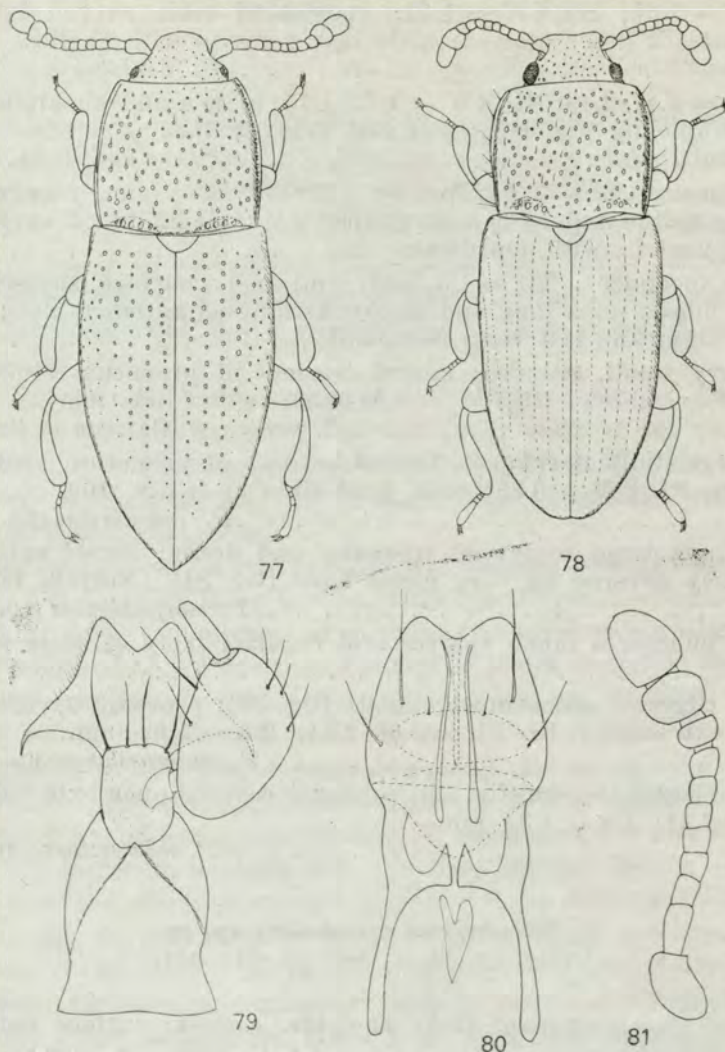
1. Antennal club distinctly 2-segmented, composed of two well separated segments (figs. 77, 78, 81) 2.
- Antennal club compact and apparently one-segmented 4.
2. Elytra strongly narrowing towards apices and almost acuminate apically (fig. 77); eyes very small and reduced.
. *P. tasmanicus* sp. n., p. 31.
- Elytra slightly narrowing towards apices and broadly rounded apically; eyes large, fully developed. 3.

3. TL/EW = 2.27; EL/EW = 1.52; male hind tibia curved inwards and denticulate at inner margin; male last ventrite with shallow depression.
 *P. oculatus* sp. n., p. 35.
- TL/EW = 2.47–2.49; EL/EW = 1.72–1.75; male hind tibia almost straight, widened apically (fig. 98); male last ventrite flat.
 *P. rotundus* sp. n., p. 33.
4. Large species, TL = 2.0–2.3 mm; body surface smooth or with sparse veltiture visible under 100× magnification; male hind tibia curved inwards and last ventrite with depression 5.
- Smaller specimens, TL = 1.3–1.88 mm; body surface sparsely to very densely pilose, setae long and almost as long as antennal club; male hind tibia straight and last ventrite smooth 6.
5. Eyes very small, reduced; lateral borders of pronotum almost entirely visible from above; PL/PW = 0.94–0.96; male hind tibia as in fig. 108.
 *P. parviceps* (CARTER et ZECK), p. 38.
- Eyes large, fully developed; lateral borders of pronotum visible only in basal $\frac{1}{2}$; PL/PW = 0.88; male hind tibia as in fig. 109.
 *P. margaretae* sp. n., p. 39.
6. Elytral punctures somewhat irregular and dense; dorsal surface almost completely covered by very dense hairs (fig. 84). (Norfolk Island).
 *P. norfolkiensis* sp. n., p. 37.
- Elytral punctures much sparser and regular; body sparsely setose (figs. 82, 83) 7.
7. Lateral edges of pronotum crenulate (fig. 82); procoxal cavities narrowly closed externally; EL/PL = 2.06–2.11; TL = 1.62 mm.
 *P. macrosetosus* sp. n., p. 35.
- Pronotal edges smooth (fig. 83); procoxal cavities open externally; EL/PL = 2.22–2.31; TL = 1.34 mm.
 *P. microsetosus* sp. n., p. 36.

Philothermus tasmanicus sp. n.

(Figs. 77, 79–81, 101, 102, 110, 111)

Diagnostic combination. Body elongate, convex; surface reddish-brown to brown, shiny; vestiture consists of sparse microsetae barely visible under 100× magnification. Head with male anterior clypeal margin scarcely emarginate (fig. 110), that of female straight; eyes small, each reduced to about 20 facets; antenna as in fig. 81. Pronotum 0.87–0.92× as long as wide with lateral margins visible in basal $\frac{4}{5}$, the edges smooth; subbasal impressions small with row of larger punctures; discal punctures 1 diameter apart, interspaces shiny, micropunctured. Scutellum transverse (2:1), triangular, micropunctured. Elytra 1.75× as long as wide and 2.16–2.33× as long as pronotum, widest at basal $\frac{1}{4}$, then strongly narrowing apically in both sexes; each with 8 rows of punctures, striae not impressed; the 6th stria shorter than 5th and very close to it, 7th visible only at apical $\frac{2}{3}$, 8th consists of only few smaller punctures; striae punctures about 1.5× as large as pronotal ones, separated longitudinally by

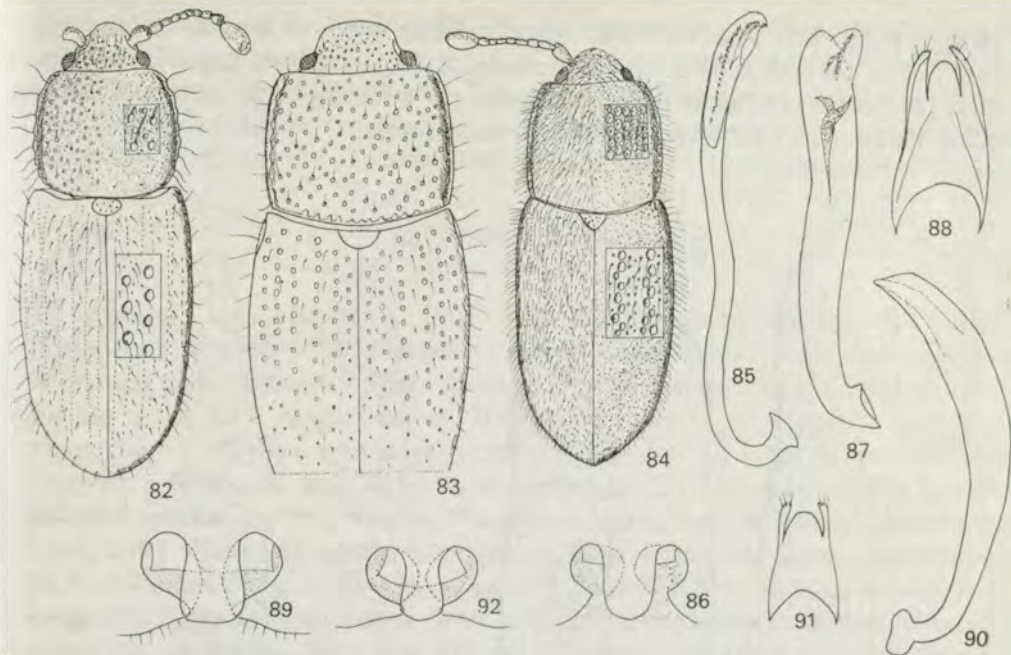


Figs. 77–81. *Philothermus* structures: 77, 79–81 – *tasmanicus*: 77 – habitus; 79 – labium, ventral, one palp removed; 80 – labrum, dorsal; 81 – antenna. 78 – *rotundus*, habitus.

0.5–0.8 diameter; intervals micropunctured. Venter. Prosternal process and cavities as in fig. 111; male last ventrite with shallow depression. Male hind tibia curved inwards, that of female scarcely so. Aedeagus as in figs. 101, 102, median lobe $1.03\times$ as long as abdomen. TL = 1.80–2.02 mm.

Holotype: Tasmania, 4 km SSE of Mt. Rufus, 42.10S x 146.07E, 800 m, 28. I. 1980, ANIC Berl. 665 (J. F. LAWRENCE, T. A. WEIR) (ANIC).

Paratypes – 23 specimens (ANIC, BMNH, MVM, SAM, IZPAN): same data as holotype (IZPAN); 7 km WNW of Mt. Field West, 460 m, 1. II. 1980, Berl. 668, same coll. (ANIC);



Figs. 82-92. *Philothermus* structures: 82, 90-92 - *macrosetosus*; 83, 85, 86 - *microsetosus*; 84, 87, 89 - *norfolkiensis*. 82-84 - outline of dorsal side; 85 - penis, ventral; 86 - prosternal process and cavities; 87 - penis, ventral; 88 - tegmen, ventral; 89 - prosternal process; 90 - penis, dorsal; 91 - tegmen, ventral; 92 - prosternal process.

Mt. Wellington (LEA, GRIFFITH) (SAM); Hobart (LEA) (SAM); Huron R. (LEA) (IZPAN); Parawee, XII. 1936 (MVM); Ridgeway (C. OKE) (IZPAN); Waratah (LEA) (MVM); Overala Kes., I. 1941 (C. OKE) (MVM); Franklin, Huon River, ex coll. J. J. W. CHAMPION (BMNH); without data (MVM).

Biology. The recently collected specimens were taken from the *Nothofagus* litter and moss (holotype) and from leaf litter and moss.

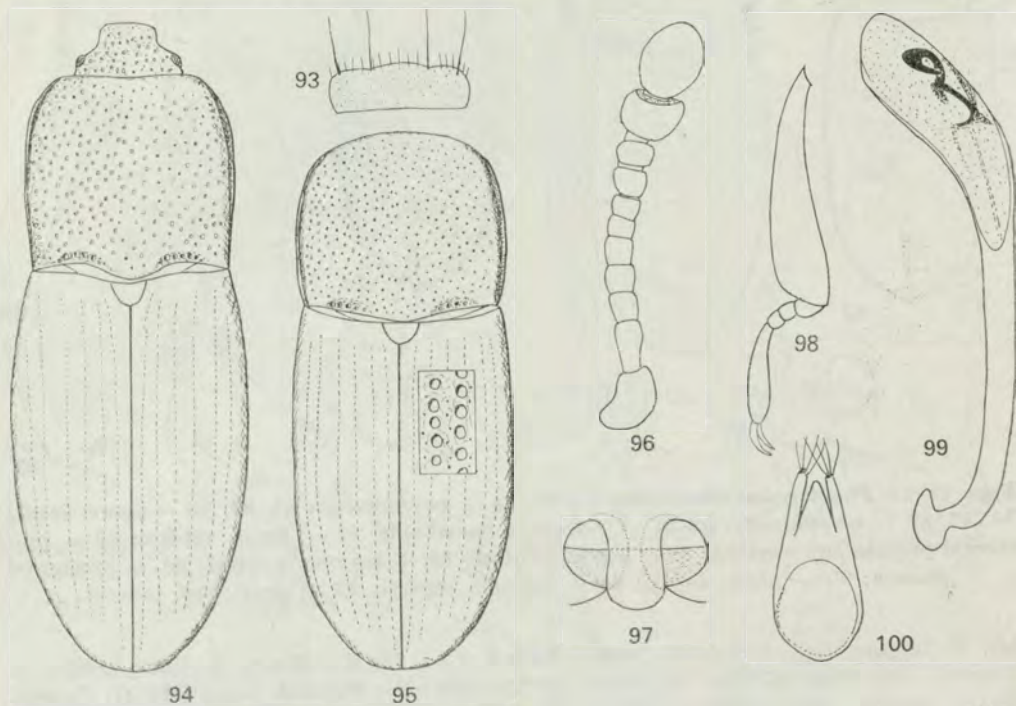
Almost all specimens in various collections were determined as *P. nitidus* SHARP following CARTER and ZECK (1937) who reported this species from Tasmania. *P. tasmanicus* may be distinguished by the long and narrow body form, the narrowing, almost acuminate apically elytra and reduced eyes. *P. nitidus* differs in having the elytra rounded apically, the large eyes and the pronotal interspaces reticulate.

Philothermus rotundus sp. n.

(Figs. 78, 96-98, 103, 104)

Diagnostic combination. This species is very similar to *P. tasmanicus* described above and only differences are: eyes comparatively twice as large as in *tasmanicus*; pronotum 0.87× as long as wide with punctures smaller and interspaces finely reticulate; elytra slightly narrowing apically and rounded

at apices (fig. 78); setae on elytra comparatively twice as long as in *tasmanicus* and much denser; male hind tibia straight, as in fig. 98, male last ventrite flat; prosternal process as in fig. 97. Aedeagus as in figs. 103, 104, median lobe $0.9\times$ as long as abdomen. TL = 2.19–2.28 mm.



Figs. 93–100. *Philothermus* species: 93 – *microsetosus*, ♂ clypeus; 94 – *parviceps*, outline; 95 – *margaretae*, outline; 96–98 – *rotundus* ♂; 99, 100 – *oculatus* ♂: 96 – antenna; 97 – prosternal process; 98 – hind tibia and tarsus; 99 – penis, dorsal; 100 – tegmen, ventral.

Holotype: Victoria, Cape Conran, 18 km E Marlo, 22. V. 1984 (J. F. LAWRENCE) (ANIC).

Paratypes – 12 specimens (ANIC, MVM, SAM, IZPAN): same data as holotype (ANIC, IZPAN); Killara, 2. VIII. 1921 (C. OKE) (MVM); Erica, IX. 1934 (C. OKE) (IZPAN); Lorne (C. OKE) (MVM); Nowa Nowa, I. 1936 (F. E. WILSON) (MVM); Ferntree Gully, same coll. (MVM); New South Wales: Glen Innes (LEA) (SAM); Wiangaree S. F., Brindle Ck., 740 m, 29. II–3. III. 1980 (A. NEWTON, M. THAYER) (ANIC); Monga, 10. III. 1978 (J. LAWRENCE, T. WEIR) (ANIC). Not type. Queensland: Lamington, Binna Burra, JFL lot 85-2, 25. III–4. IV. 1985 (J., N. LAWRENCE) (ANIC).

Biology. Recently collected specimens were taken from rotten *Banksia* bark (holotype), from under bark, rotten logs and one specimen (JFL lot 85-2) which is tentatively named as *P. rotundus* was collected from *Bjerkandera* fruit-bodies.

This species is fairly easy to recognize because of its large eyes, apically rounded elytra, male hind tibia straight and the last ventrite flat in both sexes. It is similar in general body form to *P. oculatus*, but in that species vestiture

is obvious and visible under $15\times$ magnification, the male hind tibia curved inwards and last ventrite concave. This species is still more similar to the New Zealand one — *P. nitidus* SHARP, but in that species dorsal surface is glabrous and pronotal interspaces densely reticulated. *P. rotundus* was recorded from Australia by CARTER and ZECK (1937) under the name *P. sanguineus* BROUN?

Philothermus oculatus sp. n.

(Figs. 99, 100, 123)

Diagnostic combination. Only male characteristics are known. Body in shape very similar to *P. rotundus*; colour dark-brown; vestiture consists of short and dense yellowish setae about as long as diameter of pronotal puncture, visible under $15\times$ magnification. Head with male clypeus deeply and widely emarginate medially; eyes large, comparatively $3\times$ as large as in *tasmanicus*. Pronotum $0.81\times$ as long as wide, widest at middle but sides almost parallel; margins narrow, entirely visible, the lateral edges finely crenulate; discal punctures 1–1.5 diameters apart, interspaces micropunctured, shiny. Scutellum as in *P. rotundus*. Elytra $1.58\times$ as long as wide and $2.28\times$ as long as pronotum; each with 8 rows of punctures, striae not impressed; strial punctures as large as those on pronotum; intervals smooth. Venter. Prosternal process: fig. 123. Male last ventrite with shallow depression. Male hind tibia curved inwards and denticulate on inner margin. Aedeagus as in figs. 99, 100, median lobe $0.85\times$ as long as abdomen. TL = 2.34 mm.

Holotype ♂: New South Wales, New England National Park, Wright's Lookout Tr. 1300 m, 27. II–6. III. 1980 (A. NEWTON, M. THAYER) (ANIC).

Biology. The holotype was collected in *Nothofagus moorei* rain-forest under bark of *Nothofagus* logs.

Philothermus macrosetosus sp. n.

(Figs. 82, 90–92, 117)

Diagnostic combination. Body slightly convex; colour brown or almost reddish; vestiture consists of erect yellowish setae fairly visible on $50\times$ magnification. Head with clypeus rounded in both sexes; eyes large; antenna as in fig. 117. Pronotum 0.87 – $0.89\times$ as long as wide, widest at basal third; margins narrow, entirely visible, the edge finely crenulate, setose; base bordered by a row of punctures; discal punctures separated by 1–2 diameters; interspaces shiny, finely reticulate; subbasal impressions absent. Scutellum transverse (7:4), triangular, micropunctured. Elytra 1.56 – $1.64\times$ as long as wide and 2.06 – $2.11\times$ as long as pronotum; each with 8 rows of punctures, punctures as large as pronotal ones, separated longitudinally by one diameter; intervals densely micropunctured, setose (fig. 82). Venter. Prosternal process and cavities as in fig. 91; male last ventrite smooth; aedeagus as in figs. 90, 91, median lobe $0.84\times$ as long as abdomen. TL = 1.61–1.62 mm.

♀ Holotype: New South Wales, Brindle Ck. nr. Kyogle Wiangarie S. F., 800 m, 20. VI. 1978 (S., J. PECK) (ANIC).

Paratypes - 6 specimens (ANIC, MCZ, IZPAN): same data as holotype (IZPAN); as above but 21. VI. 1978 (ANIC, IZPAN); Bruxner Park near Coffs Harbour, 200 m, 9. VII. 1978, same coll. (MCZ); Queensland: Manorina National Park, 500 m, near Brisbane, 4. VII. 1978, same coll. (ANIC).

Biology. Almost all the specimens have been collected in rain-forest log litter.

Individuals of this species are longer and more densely pilose than those of *P. microsetosus*, the lateral edges are finely crenulate and only narrowly bordered, and the procoxal cavities are narrowly closed externally. See also *Australioryllon neboissi* (p. 21) for differences.

Philothermus microsetosus sp. n.

(Figs. 83, 85, 86, 93, 115)

Diagnostic combination. Body slightly convex; colour reddish-brown; vestiture consists of sparse setae fairly visible under 75× magnification. Head with clypeus straight in both sexes (fig. 93); eyes large; antenna as in fig. 115. Pronotum 0.79–0.81× as long as wide, widest at middle but sides almost parallel; margins wide and entirely visible from above, the edges smooth or faintly crenulate, setose (fig. 83); base bordered by a row of punctures; discal punctures 1–2 diameters apart; interspaces smooth, shiny. Scutellum transverse (8 : 3), triangular, micropunctured. Elytra 1.5–1.62× as long as wide and 2.22–2.31× as long as pronotum; each with 8 rows of punctures, punctures as large as pronotal ones, separated longitudinally by one diameter; intervals micropunctured, setose. Venter. Prosternal process and cavities as in fig. 86, last ventrite flat and smooth in both sexes. Aedeagus as in fig. 85, median lobe 1.25× as long as abdomen. TL = 1.32–1.34 mm.

Holotype: Queensland, Cape Tribulation, 30 m, 14. VII. 1982, SPB76 (S., J. PECK) (ANIC).

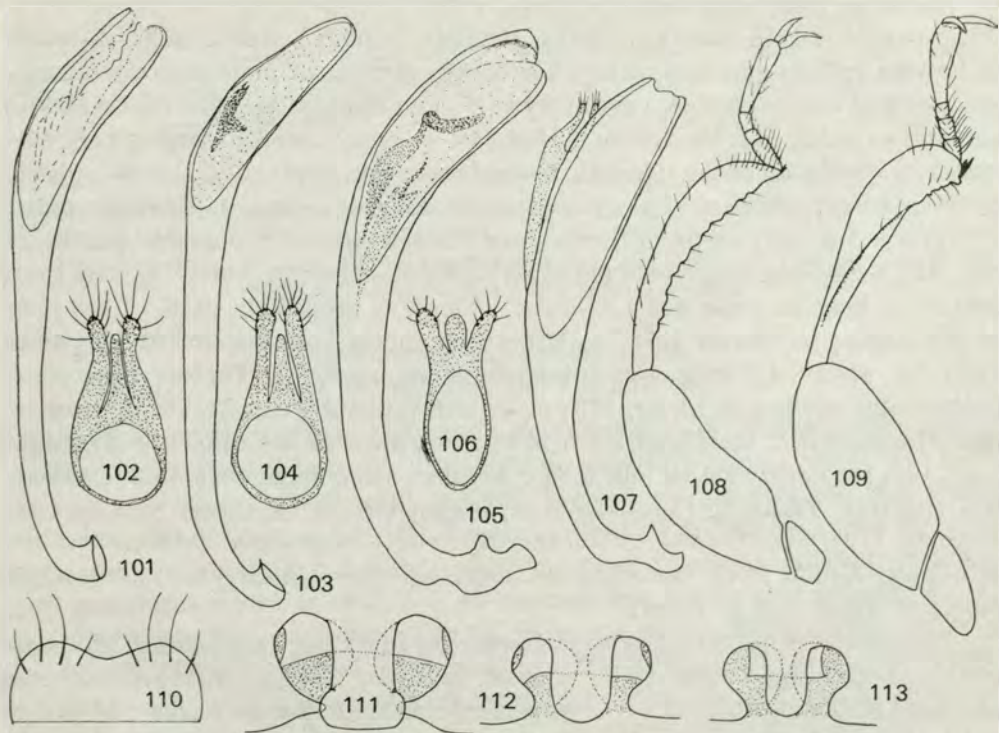
Paratypes - 21 specimens (ANIC, QMB, MVM, IZPAN): same data as holotype (IZPAN); same but 10 m, 40 km N of Daintree, 12. VII. 1982 (ANIC, IZPAN); same locality, 200 m, 14. VII. 1982, SPB77 (ANIC); same locality, 21. III–28. III. 1984, Berl. 939 (A. CALDER, T. WEIR) (ANIC); Moses Ck., 4 km N by E of Mt. Finnigan, 14–16. IX. 1980, Berl. 696 (T. WEIR) (ANIC, IZPAN); Lake Eacham National Park, 25. V. 1980, Berl. 681 (J. D. NAUMANN, J. C. CARDALE) (ANIC); Lake Barrine, 750 m, 29. VII. 1982 (S., J. PECK) (ANIC); same but 4 km N. Atherton, 750 m, SPB84 (IZPAN); Bellenden Ker Range, Cable Tower 3, 1054 m, 25–31. X. 1981, QM Berl. 330 (EARTHWATCH) (QMB); 1 km S of C. T. 6, 17–24. X. 1981, 500 m, Berl. 311, same coll. (QMB); same but 17. X–5. XI. 1981, 500 m (QMB); Cableway Base Station, 100 m, 17. X–9. XI. 1981 (IZPAN); Cairns, I. 1950 (C. OKE) (MVM). Biology. Most of the specimens were collected from sifted rain-forest log and leaf litter often infested by fungi, the QMB specimens were collected from a window-trap.

This is the smallest species of the Australian *Philothermus* and is easily distinguishable because of its parallel-sided and widely bordered pronotal margins, open procoxal cavities and the club one-segmented.

Philothermus norfolkiensis sp. n.

(Figs. 84, 87, 89, 118, 120)

Diagnostic combination. Body moderately convex; colour brown with head and pronotum usually darker than elytra; dorsal surface entirely covered by dense and long, inclined setae of yellow colour (fig. 84). Head with clypeus rounded in both sexes; eyes large; antenna as in fig. 118. Pronotum $0.9\times$ as long as wide, widest at middle; borders narrow, entirely visible, the edges finely crenulate; discal punctures fairly minute and very dense, subcontiguous, giving dull appearance, although the interstices are smooth and shiny; pronotal setae at least $4\times$ as long as puncture diameter. Scutellum transverse ($7:3$), triangular, micropunctured. Elytra $1.62\times$ as long as wide and $1.92\times$ as long as pronotum; each elytron with 8 confused rows of punctures; striae not impressed; strial punctures subcontiguous, as large as pronotal ones; intervals densely setose and punctured; elytral setae almost $2\times$ longer than those on pronotum and much denser. Venter. Prosternal process and cavities as in fig. 89; male



Figs. 101-113. *Philothermus* species: 101, 102, 110, 111 - *tasmanicus*; 103, 104 - *rotundus*; 105, 106, 108, 113 - *parviceps*; 107, 109, 112 - *margaretae*. 101, 103, 105 - penis, ventral; 102, 104, 106 - tegmen, ventral; 107 - aedeagus, ventral; 108, 109 - ♂ hind leg, coxa removed; 110 - ♂ clypeus; 111-113 - prosternal process and cavities.

last ventrite concave with dense setation (fig. 120). Aedeagus with median lobe (fig. 87) $0.75\times$ as long as abdomen. TL = 1.8–1.9 mm.

Holotype: Norfolk Island, near Mt. Pitt, Norfolk Island N. P., 29.01S x 167.56E, stop. 4, Berl. 960 28. III. 1984 (J. E. FEEHAN) (ANIC).

Paratypes — 10 specimens (ANIC, QMB, IZPAN): same data as holotype (ANIC, IZPAN); same locality, 260 m, QM Berl. 174 (G. B. MONTEITH) (QMB); Filmy Fern Gully, 4. IV. 1984, stop. 12, Berl. 962 (J. E. FEEHAN) (ANIC); Palm Glen, 1. XII. 1979 (G. B. MONTEITH) (QMB).

Biology. Specimens were extracted from pine fern and palm area; one paratype (QMB) comes from *Pyrethrum* knock-down.

This species is easily distinguished from the other Australian *Philothermus* by the long and dense vestiture on dorsal surface, densely punctured pronotum and irregular elytral rows; this is the only known species of *Cerylonidae* from Norfolk Island and apparently endemic.

Philothermus parviceps (CARTER et ZECK) **comb. n.**

(Figs. 94, 105, 106, 108, 113, 114, 119)

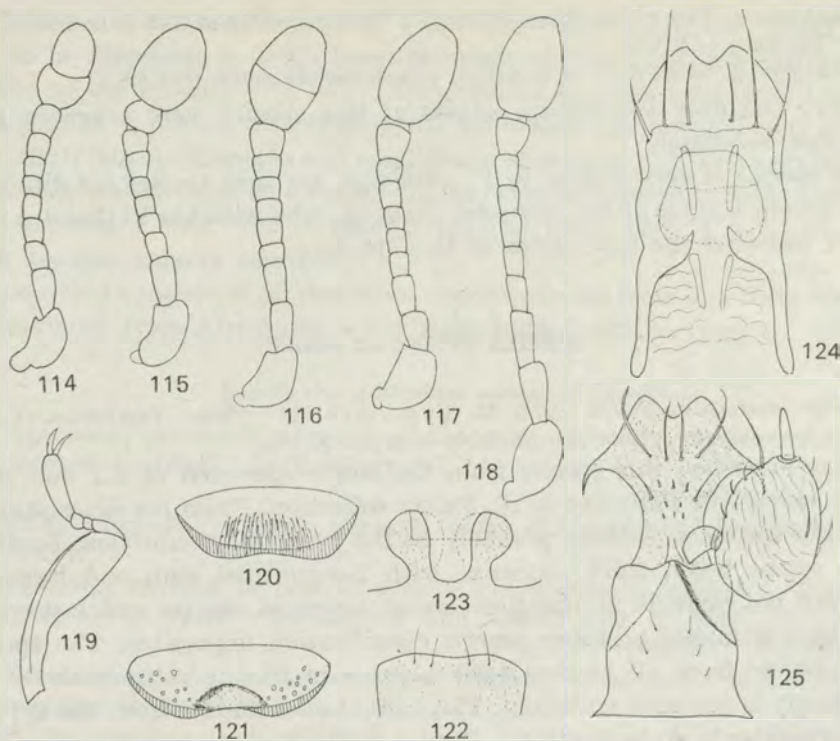
Cerylon parviceps CARTER et ZECK, 1937: 206. Type locality: "Launceston, Tasmania". (Holotype, SAM, examined).

Diagnostic combination. Body strongly convex; colour reddish-brown to brown; surface glabrous, shiny. Head with clypeus of male scarcely emarginate, that of female straight; eyes very small and reduced to a few coarse facets; antenna as in fig. 114. Pronotum $0.94\text{--}0.96\times$ as long as wide; margins very narrow but visible in basal $\frac{3}{4}$; disk strongly convex, especially anterad; discal punctures fine, round or slightly oval in lateral part, about 1 diameter apart; interspaces smooth; subbasal impressions shallow with a few larger punctures (fig. 94). Scutellum transverse (9 : 5), triangular, micropunctured. Elytra $1.55\text{--}1.67\times$ as long as wide and $1.89\text{--}2.0\times$ as long as pronotum, each with 8 rows of punctures; punctures $1.5\times$ as large as pronotal ones, separated longitudinally by about 0.8 diameter; intervals micropunctured. Venter: prosternal process and cavities as in fig. 113; male last ventrite with shallow depression, that of female flat. Male hind leg as in fig. 108, protibia as in fig. 119. Aedeagus (figs. 105, 106) with median lobe $0.85\times$ as long as abdomen. TL = 2.0–2.30 mm.

Distribution. Tasmania: Launceston (LEA) (SAM); Victoria: Malacoota National Park, 10 m, 22. V. 1978 (S., J. PECK) (ANIC, IZPAN). Total — 3 specimens examined.

Biology. Adults from Victoria were collected under *Eucalyptus* and *Banksia* bark, in litter and in fungi.

This species is quite similar to *P. margaretae* in its large size, almost glabrous, convex body, male hind tibiae curved inwards, 2-segmented but compact antennal club and procoxal cavities open externally. *P. parviceps* may be distinguished from *P. margaretae* by the comparatively twice smaller eyes, the pronotal borders well visible from above and male hind tibia denticulate at inner margin without an additional spine at apex. *P. tasmanicus* and *P. oculatus* also have the male hind tibiae curved and the last ventrite impressed, but are easily distinguished by the well defined 2-segmented antennal club.



Figs. 114–125. *Philothermus* species: 114, 119 – *parviceps*; 115 – *microsetosus*; 116, 121, 122 – *margaretae*; 117 – *macrosetosus*; 118, 120 – *norfolkiensis*; 123 – *oculatus*. 114–118 – antennae; 119 – ♂ protibia and tarsus; 120, 121 – ♂ last ventrite, ventral; 122 – ♂ clypeus; 123 – prosternal process. 124, 125 – *Lapetus australis*: 124 – labrum-epipharynx, dorsal; 125 – labium, ventral, one palp removed.

Philothermus margaretae sp. n.

(Figs. 95, 107, 109, 112, 116, 121, 122)

Diagnostic combination. Only male characteristics are known. Body rather convex; colour piceous-brown; surface shiny; vestiture barely traceable under $100\times$ magnification. Head with anterior clypeal margin straight (fig. 122); eyes large; antenna as in fig. 116. Pronotum $0.88\times$ as long as wide; margins narrow and visible only in basal $1/2$; disc strongly, especially anterad, convex; discal punctures round or oval, 1–2 diameter apart; interspaces smooth, shiny. Scutellum triangular, transverse (9 : 5), micropunctured. Elytra $1.6\times$ as long as wide and $2.05\times$ as long as pronotum, in apical and lateral parts with visible vestiture; each with 8 rows of punctures, punctures about $1.5\times$ as large as pronotal ones, separated longitudinally by 0.5 diameter; intervals micropunctured and with very fine linear microsculpture. Venter: Prosternal process and cavities as in fig. 112; last ventrite with shallow depression (fig. 121). Hind leg as in fig. 109. Aedeagus very similar to that of *P. parviceps* (fig. 107) with median lobe $0.83\times$ as long as abdomen. TL = 2.02 mm.

Holotype ♂: New South Wales, 15 km NE Wiangaree, 270 m, 1-3. III. 1980 (A. NEWTON, M. THAYER) (ANIC).

Paratype ♂: same data as holotype, completely dissected (IZPAN).

Biology. The only two known adults of this species were taken in grazed *Eucalyptus* woodland.

This species is very similar to *P. parviceps*, see that species for differences. It is named in honour of Dr. Margaret THAYER, who with her husband A. NEWTON, Jr. collected the type series of this species.

SPECIES INCERTAE SEDIS

Philothermus australicus DAJOZ, 1974: 35. Type locality: "Mont Tamborine au sud de Brisbane, Queensland". (Holotype probably lost, see p. 18).

DAJOZ described this species from the single specimen of 2.1 mm length, which is neither in Paris nor in H. FRANZ collection. From his description and figures the specimen belongs probably to the genus *Australiorylon*, because of densely setose body, thick antennae with 2-segmented club and large eyes. DAJOZ did not provide information about procoxal closure and last ventrite shape, that it makes a proper generic classification impossible. The specimen figured differs from all known *Australiorylon* in having comparatively small and strongly transverse scutellum. The only species known from the type area of *P. australicus* is *A. longipilis* (= *Cerylon bicolor* DAJOZ), but it has larger and triangular scutellum and narrower body, although an aberrant unicoloured female of this species might have been the holotype of *P. australicus*. On the other hand this differs from all known Australian *Philothermus* by its short and thick antennae, oval body and densely pubescent dorsal surface.

Lapethini SHARP

As delimited by ŚLIPIŃSKI (1984) *Lapethini* can easily be distinguished from *Cerylonini* in having transverse mesosternum, prosternum with antennal cavities on hypomera, metasternum and ventrite I often with femoral lines or grooves for legs; head with transverse occipital ridge; anterior part of prosternum projecting forward in a lobe that covers gular region of the head. The taxonomic range of this group is still an open question, because of very close relationship to certain groups in *Cerylonini*, and fairly uniform larvae of both these tribes. At present the tribe consists of 9 genera distributed in all major regions except Europe; only two genera are known from Australia.

Lapethus CASEY

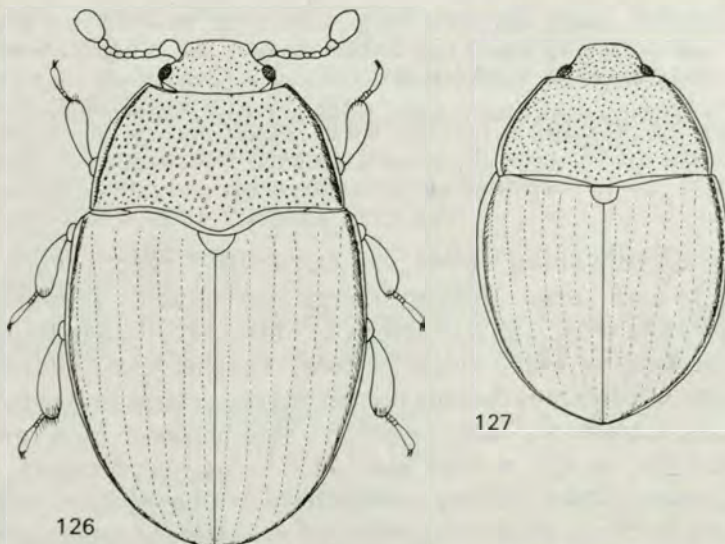
Lapethus CASEY, 1890: 317. Type species, by monotypy: *Lapethus discretus* CASEY, 1890. — ŚLIPIŃSKI 1984 (synonymy, genus revision, larva).

This genus has been treated in a previous paper (ŚLIPIŃSKI 1984) and need not to be discussed in detail here. Members of that genus are easily distinguishable by the broadly oval body; 8-segmented antenna with large 1-segmented club (fig. 135); labium with trapezoidal ligula and mentum shallowly emarginate (fig. 125); labrum elongate and emarginate anteriorly (fig. 124); prothorax with deep antennal cavities at anterior angles on hypomera (fig. 130); metasternum and ventrite I with well developed femoral lines; tarsi 4-4-4 and aedeagus with tegmen usually obsolete.

Lapethus consists of 45 described species mainly from the New World, only 4 are known from Africa and a few from Indo-Australian region.

Key to the Australian species of *Lapethus*

1. Apterous; eye small, consists of about 25-30 facets; elytra smooth; colour piceous to black. Lord Howe Isl.
 *L. peckorum* sp. n., p. 43.
- Fully winged; eye large, normal; elytra distinctly striate-punctate; colour brown 2.
2. Pronotal margin in lateral aspect emarginate in anterior $\frac{1}{3}$ (fig. 132); margins of elytra very narrow and visible only in basal $\frac{1}{4}$ - $\frac{1}{5}$.
 *L. astrolabei* HEINZE, p. 42.
- Pronotal margin in lateral aspect slightly emarginate (fig. 129); elytral margins visible at least in basal $\frac{3}{4}$ 3.
3. Body elongate-oval; TL/EW = 1.74-1.78; margins of elytra markedly narrower than pronotal ones.
 *L. australis* ŚLIPIŃSKI, p. 42.
- Body short-oval; TL/EW = 1.39; margins of elytra wider than pronotal ones.
 *L. queenslandicus* sp. n., p. 42.



Figs. 126-127. *Lapethus* species, body outlines: 126 - *australis*; 127 - *queenslandicus*.

Lapethus australis ŚLIPIŃSKI

(Figs. 124–126, 129–131)

Lapethus australis ŚLIPIŃSKI, 1984: 44. Type locality: "Victoria, Lind National Park". (Holotype ♂, ANIC, examined).

Individuals of this species are comparatively large and elongate (fig. 126) (TL/EW = 1.74–1.79) with elytral margins visible from above in basal $\frac{3}{4}$. *L. queenslandicus* differs in the much shorter and oval body (TL/EW = 1.39) and the entire elytral borders visible from above. In *L. astrolabei* pronotum in lateral aspect is strongly emarginate in anterior $\frac{1}{3}$ and the body more oval and convex. Aedeagus as in fig. 131, median lobe $0.85 \times$ as long as abdomen. TL = 1.42–1.82 mm.

Distribution. Tasmania: Waterfall Bay; St. Patric Sir Targa. Victoria: Lind National Park; Cement Ck., nr. Warburton; Wilson's Prom. N. P.; Malacoota N. P.; Winagh Inlet N. P.; Hellesville; Lorne. New South Wales: Clyde Mountains; Barrington Top's Mountain; Rutherford Ck., near Brown Mount; Kosciuszko N. P.; Monga; New England N. P.; Brindle Ck. nr. Kyogle; Sydney; Upper Williams Range; Mt. Corricuday. Total 83 specimens examined (ANIC, MVM, TMP, IZPAN).

Biology. Adults of this species have been collected in *Eucalyptus* and *Nothofagus* leaf litter, under bark and log litter.

Lapethus astrolabei HEINZE

(Fig. 132)

Lapethus (Lytopeplus) astrolabei HEINZE, 1944: 114. Type locality: "Stephansort, Astrolabe Bai, New Guinea". (Holotype, TMB, examined). — ŚLIPIŃSKI 1984: 46.

The strongly emarginate sides of pronotum in lateral aspect (fig. 132) will distinguish this species from all Australian members of the genus. TL = 1.14–1.42 mm.

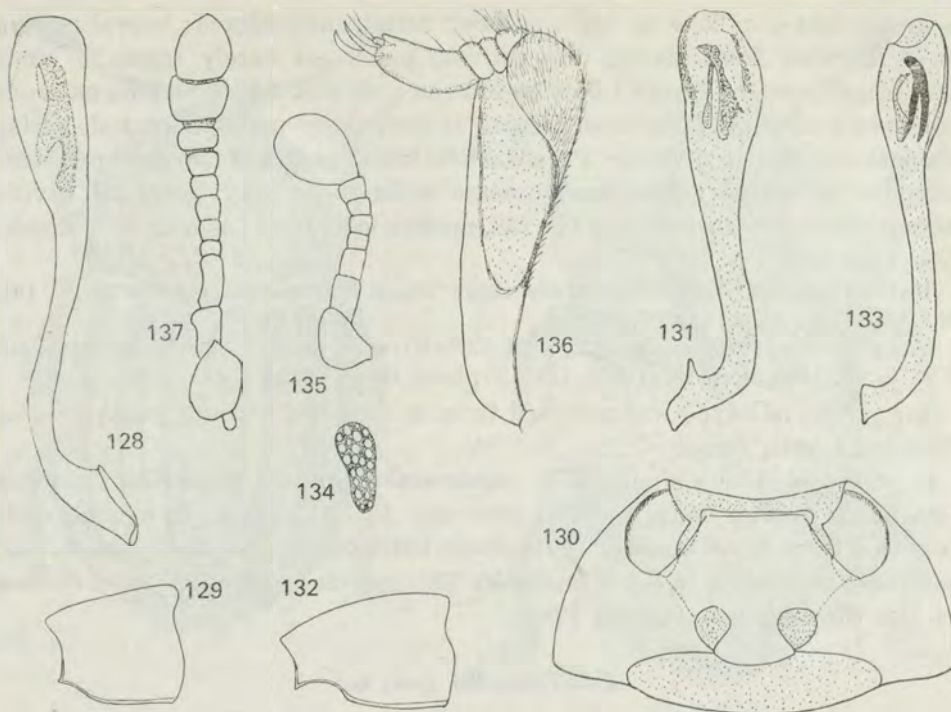
Distribution. India: Assam and West Bengal; Sumatra; New Guinea; Solomon Isl.; Australia: Queensland, Mt. Spurgeon and Claudie R. near Iron Range. I have seen only two specimens from Australia (ANIC, MCZ).

Biology. The Indian specimens were collected from forest litter.

Lapethus queenslandicus sp. n.

(Figs. 127, 133)

Diagnostic combination. Body short-oval (fig. 127), slightly convex; colour brown to dark-brown. Head with large eyes; antenna with antennomere II $1.5 \times$ longer than wide, III $1.7 \times$ as long as wide, both equal in length. Pronotum $0.41 \times$ as long as wide, widest at base; margins wide, entirely visible; anterior margin unbordered; disc convex, punctures as large as eye facets, 1–1.5 diameter apart; interspaces finely reticulate; base bordered by a row of punctures. Elytra $1.03 \times$ as long as wide and $2.47 \times$ as long as pronotum; each with 7 rows of punctures, striae not impressed, 6th and 7th rows short and each consists of 10–12 punctures; strial punctures $2\text{--}2.5 \times$ as large as pronotal ones, separated longitudinally by one diameter; intervals micropunctured and microsetose,



Figs. 128-137. 128-135 - *Lapethus* species: 128, 134, 135 - *peckorum*; 129-131 - *australis*; 132 - *astrolabei*; 133 - *queenslandicus*. 128 - penis, ventral; 129, 132 - pronotum, lateral; 130 - prosternum; 131, 133 - penis, dorsal; 134 - eye, lateral; 135 - antenna. 136, 137 - *Lawrencella costata*: 136 - left protibia and tarsus, dorsal; 137 - antenna, lateral.

appressed setae barely visible under $100\times$ magnification. Aedeagus as in fig. 133, median lobe $0.8\times$ as long as abdomen. TL = 1.3-1.4 mm.

Holotype δ : Queensland, Lamington National Park (O'Reillys), 28.24S x 153.08E, 2-4. III. 1980 (J. F. LAWRENCE) (ANIC).

Paratypes - 15 specimens (ANIC, TMP, IZPAN): Malala N. P., Mt. Glorious, 600 m, 4. VII. 1978 (S., J. PECK) (ANIC, IZPAN); Manorina N. P., nr. Brisbane, 500 m, same coll. (ANIC); Lamington, Binna Burra, E-Y: AU-75 (S. ENDRÖDY-YOUNGA) (TMP); same but AU-76, AU-69, AU-70 (TMP, IZPAN).

Biology. Adults of this species have been collected from *Tristania* forest litter, from logs and bark and from dead "oak" bark.

This species differs from other Australian *Lapethus* in the body form and the elytral margins being wide and entirely visible from above.

Lapethus peckorum sp. n.

(Figs. 128, 134, 135)

Diagnostic combination. Body short, almost rounded, strongly convex; colour black, only head and legs brownish, surface shiny. Wingless. Head with eyes small, each consists of about 20-25 facets (fig. 134); antenna as in fig. 135.

Pronotum $0.54\times$ as long as wide; anterior margin unbordered; lateral margins almost invisible from above; disc convex, punctures barely traceable under $100\times$ magnification. Elytra $1.05\times$ as long as wide and $2.22\times$ as long as pronotum, devoid of striae punctures, smooth or irregularly micropunctured, surface reticulate as pronotum. Venter. Pronotal lobe with fine row of marginal punctures near anterior margin; prosternal process widened apically, procoxal cavities externally open. Aedeagus as in fig. 128, median lobe $1.18\times$ as long as abdomen. TL = 1.34 mm.

Holotype: New South Wales, Lord Howe Island, Stevens Reserve, 10–24. V. 1980 Berl. 16L (S., J. Peck) (ANIC).

Paratypes — 3 specimens (MCZ, SAM, IZPAN): same locality, but Untermediate Hill, 300 ft, 18. V. 1980, Berl. 19L (MCZ, IZPAN); Lord Howe Island (LEA) (SAM).

Biology. The holotype was collected from moist litter and one paratype from rotted bark with fungi.

L. peckorum is very similar to *L. caledonicus* ŚLIPIŃSKI from New Caledonia in its black convex body, reduced eyes and smooth elytra. It can be easily recognized from *L. caledonicus* by its about twice larger eyes and pronotum not emarginate in anterior $\frac{1}{3}$ (as in *australis*). This species is dedicated to its discoverers Drs Stewart and Jarmila PECK.

Lawrencella gen. n.

Type species: *Lawrencella costata* sp. n.

Gender: feminine.

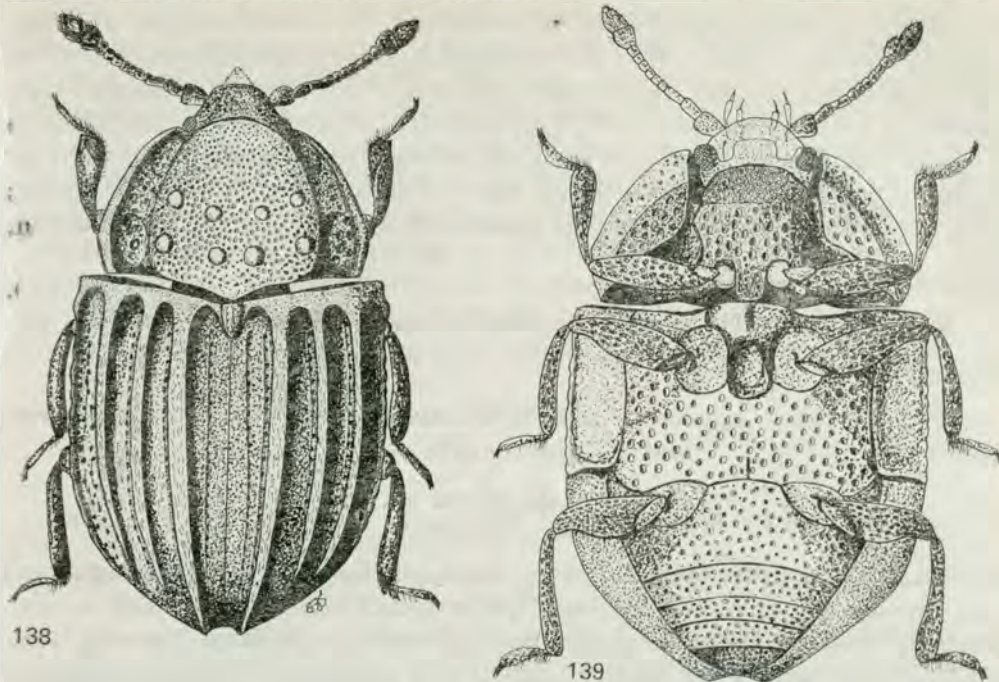
Etymology. The generic name *Lawrencella* honors Dr. John F. LAWRENCE (ANIC) for his outstanding contributions to the study of various groups of beetles and for his many kindnesses to me.

Diagnosis.

This genus shares with *Axiocerylon* GROUVELLE (including *Paraxiocerylon* HEINZE) coarsely sculptured body surfaces, the costulate elytral intervals and the deep and elongate antennal cavities on prothoracic hypomera. It can be easily distinguished from *Axiocerylon* in having 11-segmented antennae with 2-segmented club, much narrowly separated mesocoxae and the simple pronotal ornamentation, which lacks the transverse tubercles characteristic for *Axiocerylon*. Also mouth-parts of *Lawrencella* are not as strongly modified for piercing and sucking as in *Axiocerylon*. *Lawrencella* is externally similar to *Glyptolopus* ERICHSON known only from South America, but can be distinguished from that genus by well developed antennal cavities, 2-segmented instead of 3–5-segmented antennal club and the prosternum being not prominent medially.

Description.

Body broadly-oval, convex (fig. 138); surfaces dull with sparse, short microsetae especially on elytral raised intervals; fully winged. Length 3.1 mm.



Figs. 138-139. *Lawrencella costata*: 138 — dorsal view; 139 — ventral view.

Head and mouth-parts similar to *Axiocerylon* but not so strongly elongate (these were not dissected, because only the holotype was available); eyes large, coarsely faceted; transverse occipital ridge present; antenna 11-segmented with 2-segmented, well divided club (fig. 137), antennomere III elongate, impressed laterally, much longer than pedicel.

Pronotum transverse, about $0.6\times$ as long as wide, widest at base, just before hind angles, arcuately narrowing anteriorly; sides widely explanate with margins wide and raised upwards, the edges not crenulate; disc convex medially with two transverse rows of tubercles, each consists of four (fig. 138).

Prosternum (fig. 139) with anterior part projecting anteriorly into a lobe covering gular part of head; hypomera with deep and elongate antennal cavities, which reach hind margin of prosternum; prosternal process narrow, parallel-sided and straight apically; cavities externally open.

Pterothorax as in *Axiocerylon* (BESUCHET and ŚLIPINŃSKI in prep.) but mesosternum narrower, about $0.75\times$ as wide as mesocoxal diameter, deeply grooved between coxae and carinate anteromedially; metasternum with short medio-basal line, without femoral lines, but distinctly impressed behind mesocoxae. (Hind wing not studied). Scutellum very narrow, elongate surface with two rows of setae. Elytra with four raised costae and fine rows of punctures, each subacuminate apically.

Abdomen. Intercostal process of ventrite I wide and straight apically; ventrite I without femoral lines but distinctly impressed behind coxae to receive legs when retracted; ventrite V concave and much more densely sculptured than preceding ones (sexual character ?). (Aedeagus and spermatheca not studied).

Legs with femora slender, only slightly swollen in the middle and narrowing apically; protibia (fig. 136) widened apically with well visible tarsal groove; tarsi 4-4-4, claws simple, empodium present; trochanters strongly heteromeroid.

Distribution.

Known only from Queensland, Lamington National Park.

Biology.

The only known specimen was collected under dead "oak" bark in November 1982.

Lawrencella costata sp. n.

(Figs. 136-139)

Diagnostic combination. Colour brownish-black, head appendages and legs brown; vestiture contains fine, sparse setae, visible under $50\times$ magnification. Head with anterior clypeal margin straight; eyes large, coarsely faceted; antennal groove by lower margin of eye short and shallow; antenna as in fig. 137; head surface coarsely punctured, punctures subcontiguous with bright, appressed setae. Pronotum $0.57\times$ as long as wide; explanate margins with two depressions near anterior and posterior angles respectively; pronotal puncturation variable in size and separation, in median part punctures as large as those on head, $0.3-0.4$ diameter apart, but laterally, especially on explanate margins punctures much larger and transverse in shape. Scutellum elongate ($3:2$), acute apically, surface with two rows of appressed setae. Elytra $1.01\times$ as long as wide and $1.95\times$ as long as pronotum, sides somewhat explanate, the edges crenulate; each elytron with four costae on 3, 5, 7 and 11 interval, costae not very sharp and I-III developed only in basal $\frac{2}{3}$ of elytra, costa IV forms lateral border of elytron when viewing from above; striae feebly impressed; strial punctures very small and separated longitudinally by $1-1.5$ diameter; intervals, especially costulate, with fairly densely situated and appressed setae. Ventral side as in fig. 139. TL = 3.11 mm.

Holotype (probably ♂): Queensland, Lamington, Binna Burra, 28.15S x 153.06E, 15. XI. 1982, E-Y: AU-69 (S. ENDRÓDY-YOUNGA) (ANIC).

Murmidinae JACQUELIN DU VAL

This subfamily includes only three genera, *Murmidius* LEACH, *Myhocerus* ERICHSON and *Botrodus* CASEY, both *Myhocerus* and *Botrodus* have limited distribution to the New World, while *Murmidius* is a cosmopolitan genus known also from Australia.

SEN GUPTA and CROWSON (1973) considered monogeneric tribe *Ostomopsini* in *Murmidiinae* because of five pairs of functional spiracles, crenulate ventrite V and hind wing without subcubital fleck. But this genus differs considerably from murmidiines by the lack of transverse occipital ridge, absent antennal cavities, 3-segmented tarsi and femoral lines on metasternum and ventrite I absent. It seems that pronotum of *Ostomopsis* is of a different structure and much more resembles true cerylonids than murmidiines. Because of unclear relation of *Ostomopsis* to any group of cerylonids it is treated here, following LAWRENCE and STEPHAN (1975), as an independent subfamily not represented in Australia. It may be discovered in Australia, because *O. solitaria* SCOTT or related species is known from New Caledonia and the Loyalty Island.

Murmidius LEACH

Murmidius LEACH, 1822: 41. Type species, by monotypy: *Murmidius ferrugineus* LEACH, 1822 [= *Murmidius ovalis* (BECK, 1817)].

Ceutocerus GERMAR, 1824: 85. Type species, by monotypy: *Ceutocerus advena* GERMAR, 1824 [= *Murmidius ovalis* (BECK, 1817)].

The only member of this genus found in Australia — *M. ovalis* can easily be distinguished from other Australian cerylonids by small, oval and histerid-like form; head with frontoclypeal suture and transverse occipital ridge (fig. 141); 10-segmented antennae with scape strongly asymmetric (fig. 146), antennomere X elongate, club one-segmented; prothorax with antennal cavities situated at frontal angles (fig. 142); prosternum with admedian lines and procoxal cavities open externally but closed internally (fig. 143); mesosternum transverse, metasternum and ventrite I with femoral lines (fig. 144), ventrite V with crenulate hind edge; tarsi 4-segmented.

This genus contains at least 15 species, mainly from Central and South America. The Old World species belong to the *ovalis*-group and have been revised by HINTON (1942).

Biology. In natural habitats species are collected from dead leaves, cut grass piles, hay and forest litter. The biology, including description of all development stages of pest of man stored products — *M. ovalis* was provided by HALSTEAD (1968).

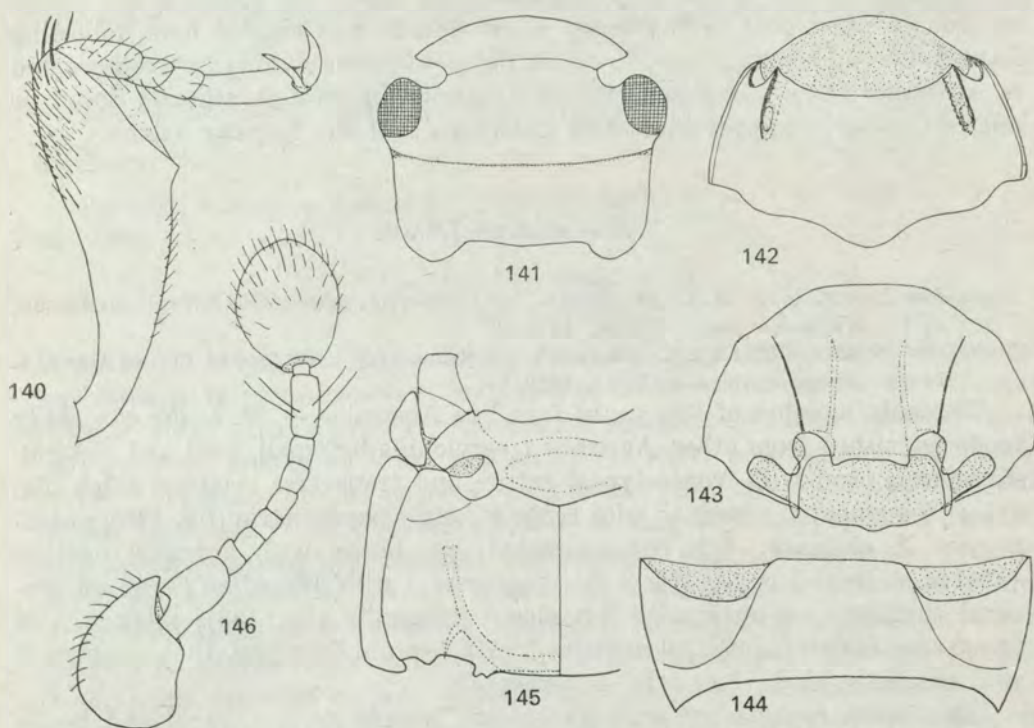
Murmidius ovalis (BECK)

(Figs. 141–146)

Hister ovalis BECK, 1817: 7. Type locality: "Bavaria, West Germany". (Type not examined). — HINTON 1942: 44; LAWRENCE and STEPHAN 1975: 141.

Diagnostic combination. Body moderately convex; colour brown to brownish-black; surface feebly shiny; vestiture consists of fine recumbent, yellowish setae. Pronotum widest at base, about 0.8× as long as wide; margins entirely

visible; each side with shallow groove which extends from mesal anterior margin of antennal cavity to $\frac{1}{2}$ - $\frac{2}{3}$ of distance to base of pronotum. Elytra with punctures arranged in a distinct rows; striae punctures round or slightly oval, separated longitudinally by 1-3 diameters; intervals micropunctured. TL = 1.2-1.4 mm.



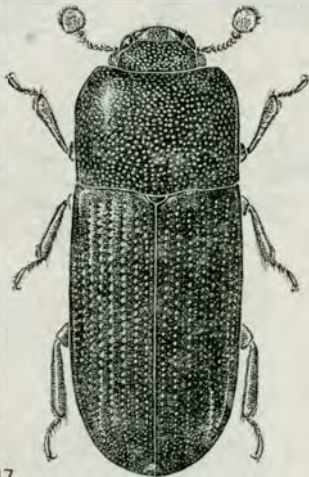
Figs. 140-146. *Murmidius ovalis*: 140 - protibia and tarsus; 141 - head, dorsal; 142 - pronotum; 143 - prosternum; 144 - abdominal ventrite I, ventral; 145 - pterothorax, ventral; 146 - antenna.

The Australian specimens slightly differ from those from Europe as listed by HINTON (1942) in larger average size, elytral striae more feebly impressed and intervals sometimes reticulate instead of smooth or micropunctured. Since I have examined large number of specimens from all over the World, including many Australian forms, I have not found any character listed by HINTON adequate to separate a species, because of their great variability.

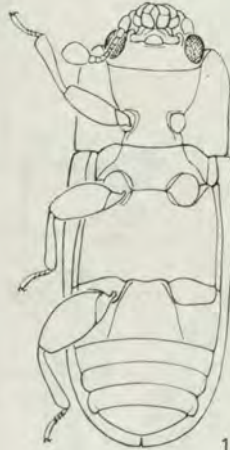
Distribution in Australia. Queensland: Mount Tamborine. New South Wales: Gosford; Stanwell Park; Cootamundra; Tamworth. Victoria: Melton; Eltham; Linga; Hamilton. Tasmania: no further locality. South Australia?: Mt Lofty. Total 40 specimens examined (MVM, SAM, IZPAN).

Metaceryloninae HEINZE

This group originally proposed by HEINZE (1944) to include genus *Metacerylon* GROUVELLE, consists of only three genera distributed in both Old and New Worlds, and very similar to true *Euxestinae* in all the external and internal characters. The taxonomic rank of this group is still unclear, because of affinities to *Teredinae* (*Bothrideridae*) and to *Euxestinae*, and properly associated larvae of *Metaceryloninae* may shed some light on that problem.



147



148

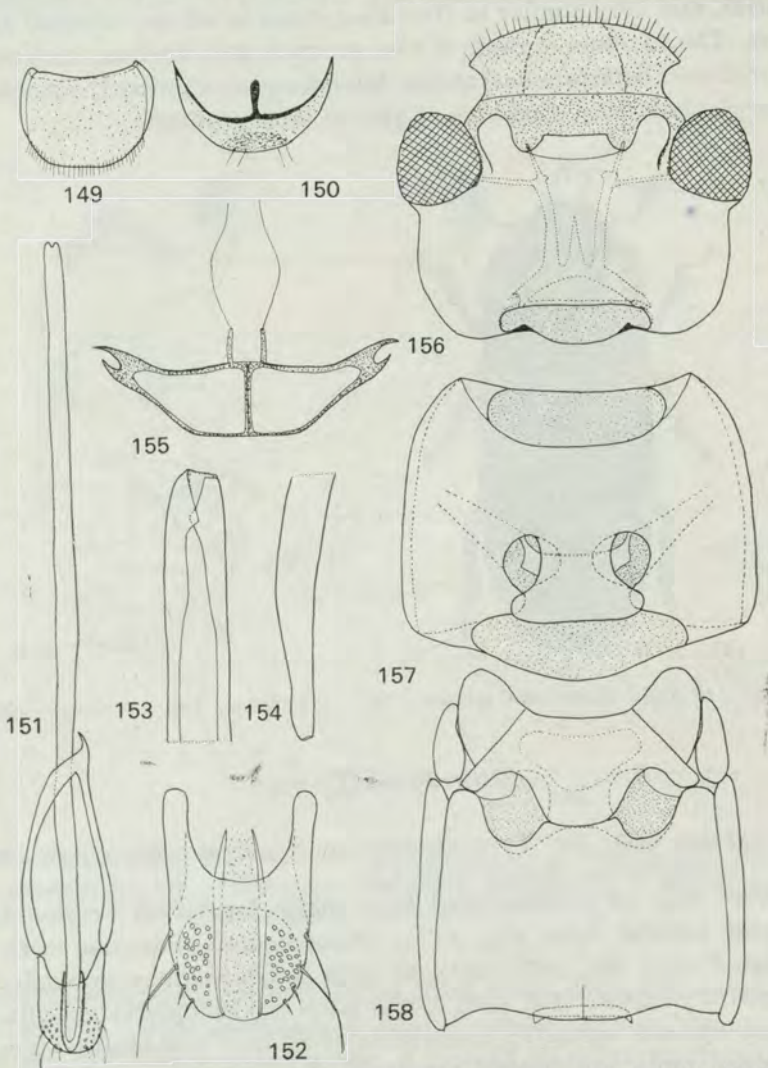
Figs. 147-148. *Micruloma minuta*: 147 - habitus; 148 - ventral side.

Micruloma CARTER

Micruloma CARTER, 1919: 140. Type species, by monotypy: *Acthosus minutus* CARTER, 1906. - In *Cerylonidae*: KASZAB 1978: 173.

Micruloma may be distinguished from other Australian *Cerylonidae* by the elongate and parallel form (fig. 147); 10-segmented antennae with compact one-segmented club (fig. 167); labrum with ligula slightly expanded apically and trapezoidal mentum (fig. 159), labial palpi not aciculate; maxilla (fig. 160) with lacinia spinose apically; mandibula (fig. 161) tridentate apically, with well developed mola and fringed prostheca; labrum (fig. 162) transverse with curved mesal arms, labral rods invisible; frontoclypeal suture and median process of corpotentorium present (fig. 156); prosternal process widened apically, cavities broadly closed externally, open or slightly closed internally (fig. 157); mesocoxae widely separated, metasternum without femoral lines (fig. 158); metendosternite as in fig. 155, with narrowly separated anterior tendons; aedeagus with an asymmetrical anterior tegminal lobe lying above the median

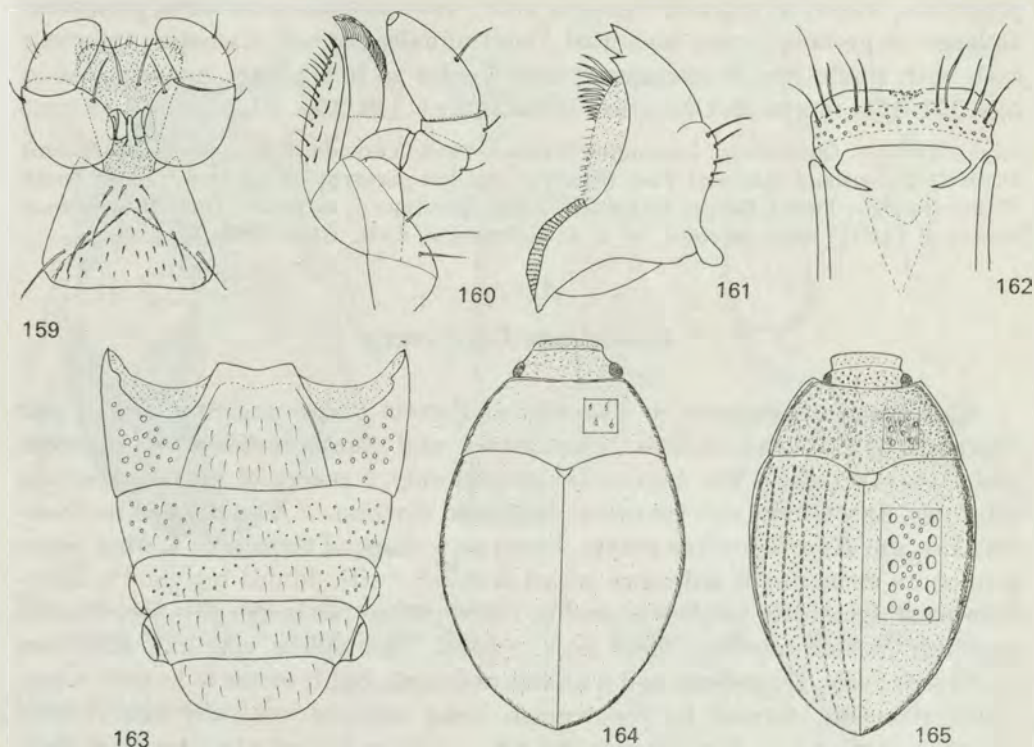
lobe, which lacks anterior struts (figs. 151–154); abdomen with lateral lobes on ventrites III and IV, ventrite I with femoral lines (fig. 148); legs with oblique trochanter, 4–4–4 tarsi and spinose outer margin of tibia (fig. 166).



Figs. 149–158. *Micruloma minuta* ♂: 149 – tergite VIII, ventral; 150 – sternite VIII, dorsal; 152 – tegmen, basal piece, dorsal; 151 – aedeagus, dorsal; 153 – median lobe, basal part; 154 – median lobe, apical; 155 – metendosternite, ventral; 156 – head, ventral; 157 – prothorax, ventral; 158 – pterothorax, ventral.

This monotypic genus was originally described in *Tenebrionidae*, *Ulomini* but transferred to *Cerylonidae* by KASZAB (1978). It has been placed in *Metacerylonini* by PAL and LAWRENCE (1986). *Micruloma* is very similar to *Meta-*

cerylon GROUVELLE, which occurs mainly in Africa and South America (ŚLIPIŃSKI 1982), but not in Indo-Australian region. The previously placed here species with 10-segmented antennae from New Guinea and Ceylon should be placed in a new genus, because they lack lateral lobes on abdominal ventrites and femoral lines on ventrite I. *Micruloma* differs from *Metacerylon* in having two lateral lobes on abdomen and 10-segmented (instead of 8–9) antennae.



Figs. 159–165. 159–163 – *Micruloma minuta*: 159 – labium, ventral; 160 – left maxilla, ventral; 161 – right mandible, dorsal; 162 – labrum-epipharynx, dorsal; 163 – abdomen, ventral. 164, 165 – *Hypodaenella* species, body outlines: 164 – *atropolita*; 165 – *tasmaniae*.

Micruloma minuta (CARTER)

(Figs. 147–163)

Aethosus minutus CARTER, 1906: 252. Type locality: “Queensland Richmond Range”. (Cotype, SAM, examined). – In *Micruloma*: CARTER 1919: 146.

Cerylon nigrescens CARTER et ZECK, 1937: 206. Type locality: “Queensland National Park”. (Holotype, QMB, examined). *Syn. n.*

Diagnostic combination. Body moderately convex; colour dark-brown; vestiture consists of very sparse and fine setae on lateral sides of elytra visible

under $100\times$ magnification. Head with anterior clypeal margin rounded; antenna as in fig. 167; frontal punctures as large as eye facets, 0.8–1 diameter apart; interspaces finely reticulate. Pronotum $0.78\times$ as long as wide, widest at anterior $\frac{1}{3}$ but sides almost parallel (fig. 147); anterior margin unbordered, lateral margins visible in basal $\frac{3}{4}$, narrow; discal punctures almost as large as frontal ones, one diameter apart; interspaces smooth, shiny. Scutellum transverse, triangular, micropunctured. Elytra 1.6–1.69 \times as long as wide and 2.24 \times as long as pronotum, widest at anterior $\frac{1}{3}$; each with 8 rows of strial punctures, punctures as large as pronotal ones, separated longitudinally by one diameter; intervals each with single row of micropunctures. Venter as in fig. 148. Aedeagus as in figs. 151–154, tergite and sternite VIII as in figs. 149, 150. TL = 2.02–2.31 mm.

Distribution. Queensland: Lamington National Park; Kuranda; Bunya Mountains; Cairns District; Queensland National Park (holotype and one paratype of *nigrescens*). New South Wales: Dorrigo; Tweed Range; Richmond Range (paratype of *minutus*). Total 18 specimens examined (ANIC, data provided by J. F. LAWRENCE; SAM, QMB, IZPAN).

Euxestinae GROUVELLE

This group corresponds to *Euxestini* of EMDEN (1928) and SEN GUPTA and CROWSON (1973) and includes *Cycloxenini* and *Tachyoryctidini* of JEANNEL and PAULIAN (1945). The subfamily includes only 7 genera of rather uncertain affinities. SEN GUPTA and CROWSON suggested division of *Euxestinae* into *Euxestus*-like and *Hypodacne*-like groups, based on a shape of tarsomere I, wing venation and a structure of aedeagus, which is called "with double tegmen" a structure possibly similar to the "siphon" in *Coccinellidae*. Although this structure is probably misinterpreted; there is a ventral, incomplete ring-like structure in *Hypodacnella*, *Hypodacne* and *Euxestus* aedeagus, but it seems to be only a tegmenal structure, formed by the tegmen being inflexed ventrally and it only covering median lobe from the ventral side, and could hardly be compared with the typical double tegmen of *Byturidae* or *Diphyllidae* (= *Biphyllidae*). Known larvae of *Euxestinae* are characterized by the elongate urogomphi, normal clavicorn mouth-parts and 2 stemmata on each side of head.

Hypodacnella gen. n.

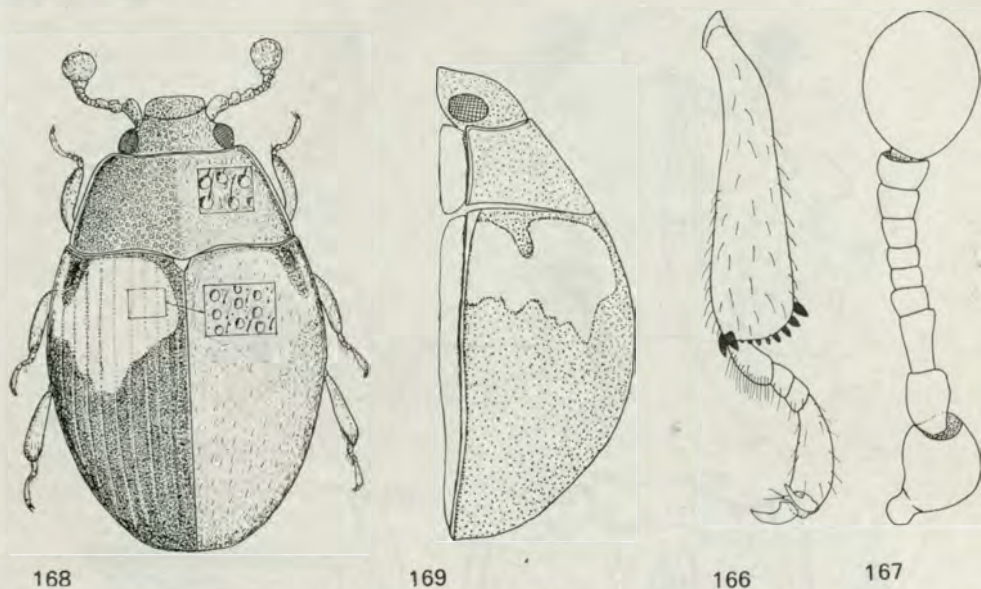
Type species: *Euxestus bivulneratus* LEA, 1921.

Gender: feminine.

Etymology: the name is a simple modification of the name *Hypodacne* to express close relationships to that genus.

Diagnosis.

In having simple tarsomere I *Hypodaenella* is very similar to the Holarctic genus *Hypodaene* LÉCONTE, but it can be distinguished from that genus by well developed admedian prosternal lines, complete femoral lines on metasternum and ventrite I, ventrite IV with lateral lobes.



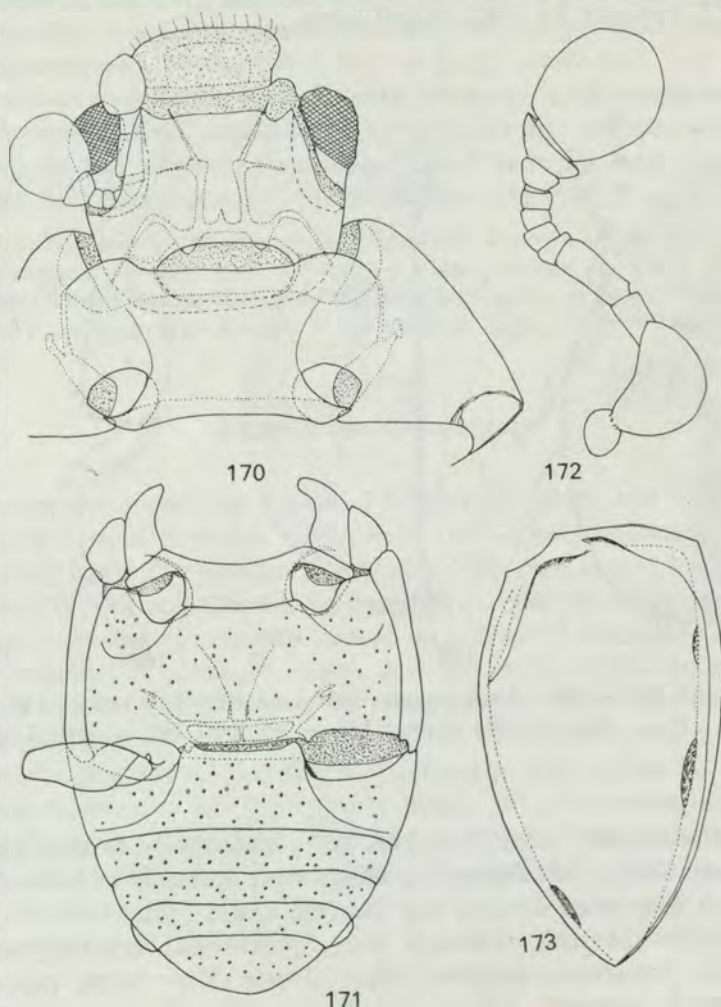
Figs. 166-169. 166, 167 - *Micruloma minuta*: 166 - protibia and tarsus; 167 - antenna, ventral. 168, 169 - *Hypodaenella kasiae*: 168 - habitus; 169 - lateral silhouette.

Description.

Body oval to broadly oval (figs. 168, 169), moderately to strongly convex; surfaces usually shiny, unicoloured or bicoloured, glabrous or sparsely clothed with short and fine hairs. Length between 1.6 and 3 mm.

Head slightly inclined, narrower than prothorax; frontoclypeal suture well developed; transverse occipital ridge absent. Eyes large, moderately to coarsely faceted. Antenna 10-segmented (fig. 172) with asymmetric scape and pedicel which is much shorter than antennomere III, antennomeres IV-VIII short, subequal, IX transverse, X forming large, apically rounded club. Labrum (fig. 177) transverse with tormae curved mesally and well developed rods. Mandible (figs. 174, 175) tridentate apically with fringed prosthema and well developed mola. Maxilla (fig. 176) with lacinia narrow and bearing two apical spines; last palpomere subtruncate apically. Labium (fig. 179) with trapezoidal mentum bearing raised triangular area; ligula slightly expanded

apically, then rounded, covered by dense microsetae; labial palps fusiform, subtruncate apically. Tentorium as in fig. 170. Antennal groove on ventral side of head well developed and curved, reaching far behind eyes.

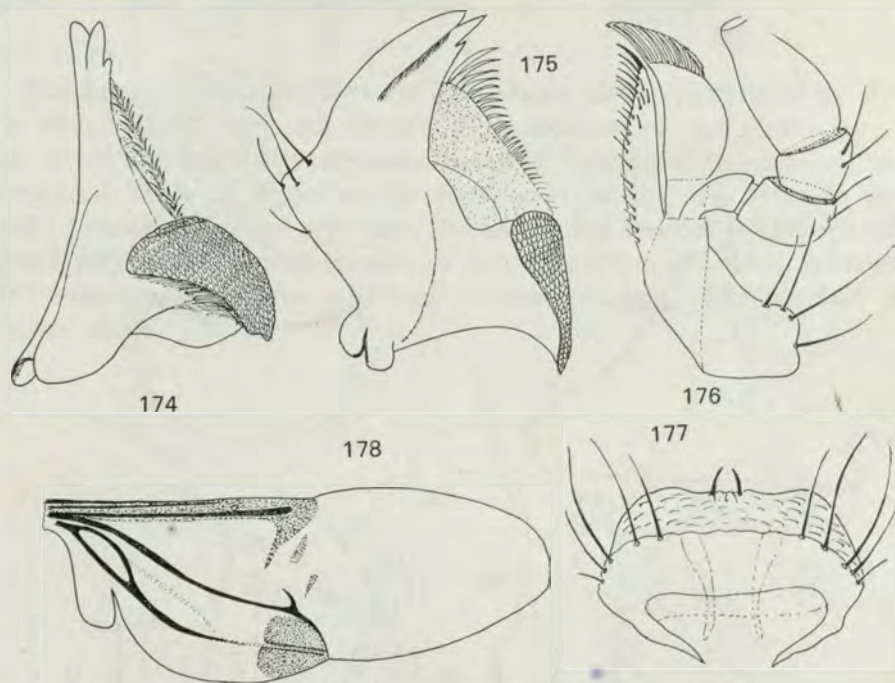


Figs. 170-173. *Hypodacnella euxestoides*: 170 — head and prothorax, ventral; 171 — ptero-
thorax and abdomen, ventral; 172 — antenna; 173 — elytron, ventral.

Prothorax wide, transverse, usually about $0.5\times$ as long as wide, widest at base, then arcuately narrowing apically; prosternum (fig. 170) slightly convex with two admedian lines diverging anteriorly. Procoxae rounded externally, with well developed internal extensions; coxal cavities internally and externally closed. Scutellum small, triangular.

Pterothorax (fig. 171). Mesosternum simple, about $2\times$ as wide as mesocoxa diameter; sternal meeting in a straight line. Metasternum with well developed femoral lines, devoid of median impressed line. Metacoxae widely separated.

Elytra (fig. 173) usually with rows of strial punctures; epipleura almost complete, gradually narrowing apically with very shallow depression receiving lateral lobe of ventrite IV; ventral side with apparent elytral-abdominal interlocking keels.



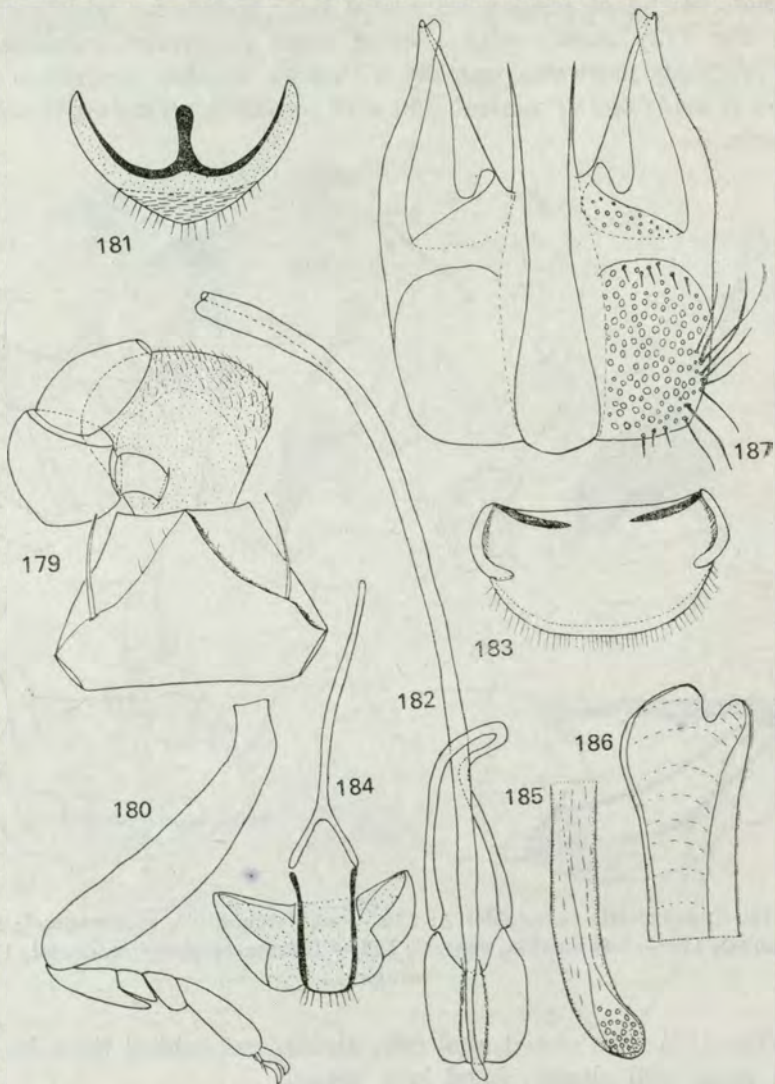
Figs. 174-178. *Hypodacnella euxestoides* ♂: 174 - right mandible, mesoventral; 175 - left mandible, dorsal; 176 - left maxilla, ventral; 177 - labrum-epipharynx, dorsal; 178 - hind wing.

Wing (fig. 178) with closed anal cell, divided subcubital fleck by the first anal vein; radial cell absent; jugal lobe present.

Legs. Tarsomeres simple or tarsomere I slightly lobed below, especially in protarsi, but lobe never reach behind tarsomere II (figs. 180, 211, 212); empodium present.

Abdomen (fig. 171) with ventrite I with femoral lines, ventrite IV with lateral lobes that fit into depressions of elytral epipleura.

Aedeagus (figs. 182, 185-187) with asymmetrical anterior tegminal lobe lying above the median lobe which lacks anterior struts. Tergite and sternite VIII as in figs. 181 and 183; sternite IX as in fig. 184.



Figs. 179-187. *Hypodacnella euxestoides* ♂: 179 — labium, ventral, one palp removed; 180 — protibia and tarsus; 181 — sternite VIII, ventral; 182 — aedeagus, dorsal; 183 — tergite VIII, ventral; 184 — sternite IX, dorsal; 185 — median lobe, apical part; 186 — same, basal part; 187 — tegmen, basal piece, dorsal.

Distribution.

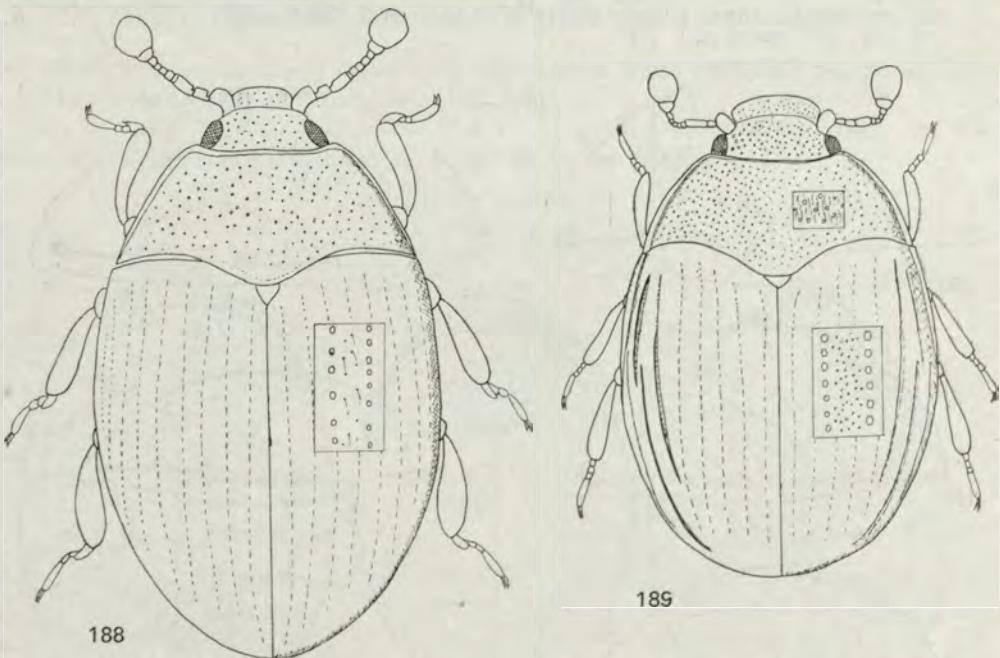
Tasmania, eastern coast of Australia, New Zealand and New Caledonia (undescribed species).

Biology.

Adults were extracted from logs and bark and from rain-forest litter. According to SEN GUPTA and CROWSON (1973) the supposed larvae of *H. bivulnerata* were collected in leaf litter and from decayed wood from base of fallen tree with adults of many *Hypodacnella* species.

Remarks.

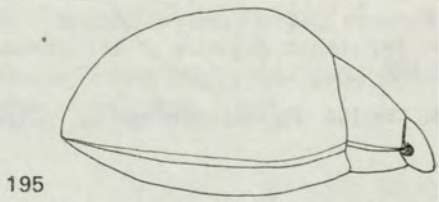
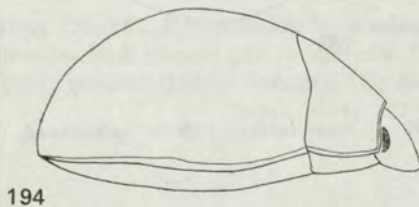
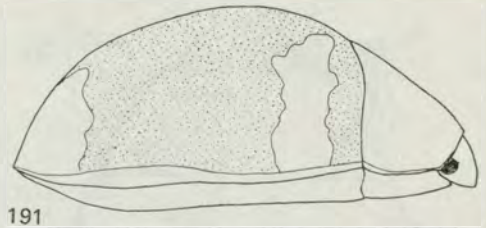
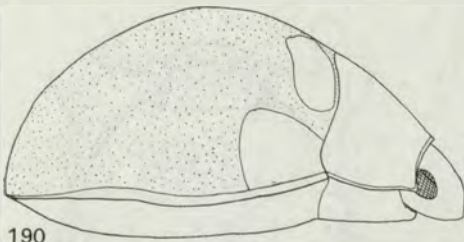
The recently described larva of *Hypodacne edithae* (REITTER) by NIKITSKY and BELOV (1979) supports division *Hypodacne* sensu SEN GUPTA and CROWSON (1973) into two distinct genera. Larva of *Hypodacne* differs from the above mentioned larva of *Hypodacnella bivulnerata* having the thoracic segments without branched lateral processes, the abdominal tergites I–VIII without long lateral projections, lightly sclerotized and almost parallel-sided, without branched urogomphi and the vestiture consists of long, hair-like and apically clubbed setae.



Figs. 188–189. *Hypodacnella* species, habitus: 188 – *euxestoides*; 189 – *sebastiani*.

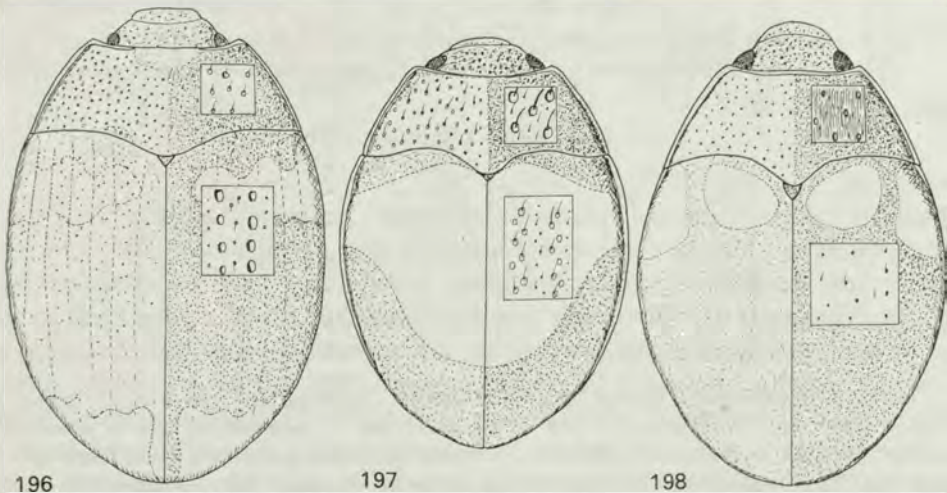
Key to the Australian species of *Hypodaenella*

1. Elytra bicoloured with yellow, orange or red spots. 2.
- Elytra unicoloured, brown to black (very rarely there is a lighter mark on humeral angle). 6.
2. Head and pronotum densely and coarsely punctured; elytra with large yellow basal spots (figs. 168, 169), dorsal surface usually with metallic shine. *H. kasiae* sp. n., p. 61.
- Head and pronotal punctures much finer and those on pronotum several diameters apart; elytral spots red or orange. 3.
3. Elytra with large central spot at base (fig. 197); pronotum and elytra with obvious vestiture visible under 25× magnification. *H. vulnerata* (LEA), p. 61.
- Elytra usually with separate spots basally and vestiture barely visible under 100× magnification. 4.
4. Anterior margin of pronotum distinctly bordered; elytral intervals nearly smooth, often striae punctures barely traceable as well; elytra strongly convex, only with basal spots (fig. 198). *H. bivulnerata* (LEA), p. 60.
- Anterior margin of pronotum unbordered, at least in middle, but if bordered elytral apices reddish; striae punctures always well visible and intervals micropunctured; body more elongate and flattened 5.



Figs. 190–195. *Hypodaenella* species, lateral silhouettes: 190 – *bivulnerata*; 191 – *medionigra*; 192 – *vulnerata*; 193 – *tasmaniae*; 194 – *euxestoides*; 195 – *atropolita*.

5. Basal spot on elytra very small and red, apices reddish; margins of elytra invisible from above; punctures on elytral intervals almost as large as those in rows.
 *H. ventrale* (LEA), p. 62.
- Basal spot on elytra large and orange (fig. 196), apices orange to reddish; elytral margins very narrow but almost entirely visible from above; punctures on elytral intervals no more than 0.5× as large as those in rows.
 *H. medionigra* (LEA), p. 62.
6. Body strongly convex, GD/EL = 0.6–0.7 (figs. 194, 195) 7.
 — Body more elongate and flattened, GD/EL = 0.49–0.54 9.
7. Tarsomere I simple; elytral striae not impressed and punctures barely traceable; intervals almost smooth (black individuals of *H. bivulnerata*, p. 60).
 — First tarsomere slightly lobed below (fig. 180). 8.
8. Body length 2.4–2.86 mm; anterior pronotal margin distinctly bordered; elytral punctures small but all arranged in rows; colour brown to fuscous; feebly shiny.
 *H. euxestoides* sp. n., p. 66.
- Body length 1.6 mm; anterior margin of pronotum unbordered; elytra smooth or finely micropunctured; colour black; surface strongly shiny.
 *H. atropolita* (LEA), p. 65.
9. Elytral striae VII and VIII grooved and interval between them convex; body comparatively shorter and oval (fig. 189).
 *H. sebastiani* sp. n., p. 63.
- All elytral striae finely impressed but none of them grooved; intervals flat; body more elongate and flat (fig. 165).
 *H. tasmaniae* (LEA), p. 63.
- Note. *H. atra* (LEA) is not included in the key above, see p. 65.



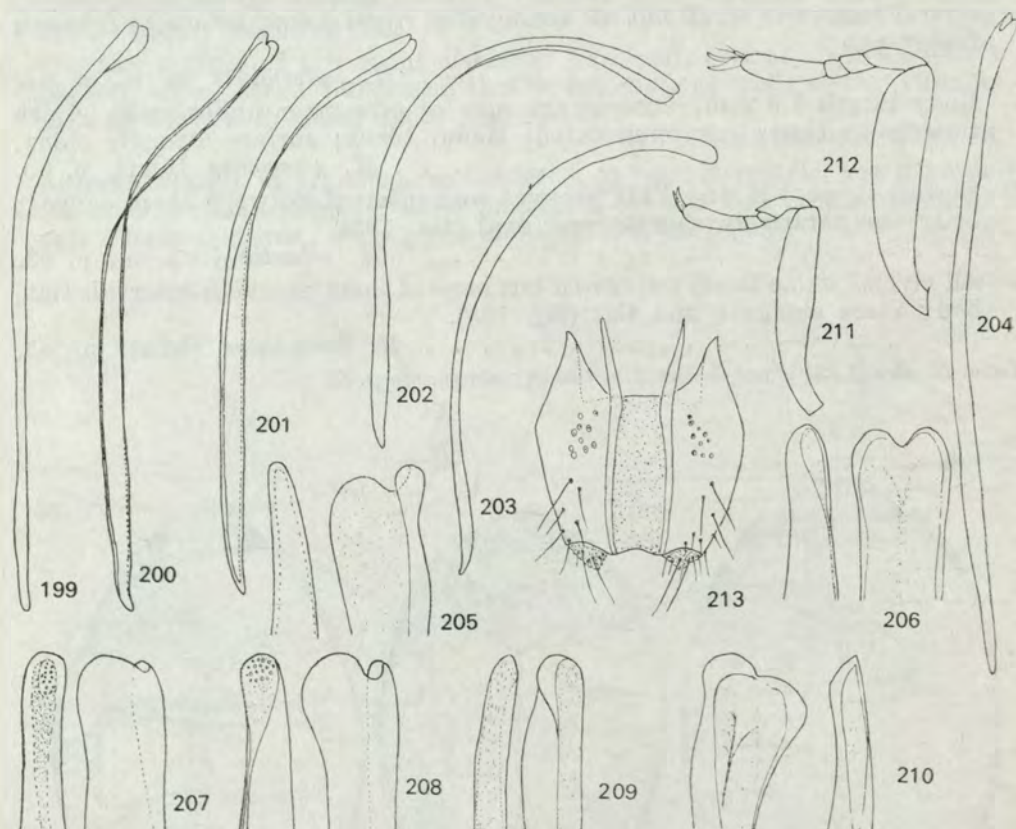
Figs. 196–198. *Hypodacnella* species, body outline: 196 — *medionigra*; 197 — *vulnerata*; 198 — *bivulnerata*.

Hypodacnella bivulnerata (LEA) **comb. n.**

(Figs. 190, 198, 199, 208, 215)

Euxestus bivulneratus LEA, 1921a: 236. Type locality: "Queensland Tambourine". (Holotype, SAM, examined). — EMDEN 1928: 106, 108. — In *Hypodacne*: SEN GUPTA and CROWSON 1973: 381.

Diagnostic combination. Colour black with elytral red spots as in fig. 198, very rarely elytra uniformly black. Head with frontal punctures as large as eye facets, 1–2 diameters apart, interspaces with dense, transverse linear microsculpture. Pronotum with anterior margin entirely bordered; lateral margins visible in anterior $\frac{2}{3}$ – $\frac{3}{4}$; discal punctures $0.5\times$ as large as those on head, several diameters apart; interspaces with fine linear microsculpture, rarely smooth. Elytra strongly convex (fig. 190), in lateral aspect highest in basal one-third;



Figs. 199–213. *Hypodacnella* species, males: 199–204 — median lobe, ventral, all drawn to the same scale: 199 — *bivulnerata*; 200 — *ventralis*; 201 — *medionigra*; 202 — *sebastiani*; 203 — *kasiae*; 204 — *tasmaniae*. 205–210 — apices and basal parts of median lobe: 205 — *tasmaniae*; 206 — *medionigra*; 207 — *ventrale*; 208 — *bivulnerata*; 209 — *kasiae*; 210 — *sebastiani*. 211–212 — protibia and tarsus: 211 — *atropolita*; 212 — *tasmaniae*. 213 — *tasmaniae*, tegminal, basal piece.

striae not impressed; elytral punctures in barely visible rows, sometimes almost smooth. Tarsomere I simple. Aedeagus as in figs. 199, 208, 215, median lobe $1.57\times$ as long as abdomen. TL = 1.89–1.98 mm.

This species may be distinguished by the oval and convex body and each elytron with one or two humeral spots; anterior margin of pronotum bordered and lateral margins well visible from above. In *H. vulnerata* there is only one central spot on elytra and obvious vestiture. Black individuals are easily distinguished from those of *H. atropolita* by well visible pronotal margins, simple tarsi and much larger and more convex body.

Distribution. Queensland: Cairns District; Lamington, Binna Burra; Tambourine Mt. (holotype, 7 paratypes); Bunya Mount.; Kenilworth-Yabba. New South Wales: SE border NSW and Qld.; Wollongong. Total 116 specimens examined (MCZ, MVM, SAM, TMP, IZPAN).

Hypodacnella vulnerata (LEA) **comb. n.**

(Figs. 192, 197)

Euxestus vulneratus LEA, 1921a: 235. Type locality: "Queensland, Cairns". (Holotype, SAM, examined).

Diagnostic combination. Colour black with single large spot mediobasally (fig. 197) of orange colour; vestiture consists of short, whitish, inclined setae, well visible under $25\times$ magnification. Frontal punctures as large as eye facets, interspaces smooth, shiny. Pronotum with anterior margin unbordered; lateral margins entirely visible from above; discal punctures about $0.5\times$ as large as those of head; interspaces shiny, micropunctured. Elytra in lateral aspect highest about the middle (fig. 192); GD/EL = 0.6; elytral striae not impressed, punctures as large as those of pronotum, often confused; intervals micropunctured; margins visible in basal $\frac{4}{5}$. Tarsomere I simple. (Aedeagus not studied). TL/EW = 1.39; TL = 1.8–2.05 mm.

Distribution. Queensland: Cairns (holotype and paratype); Little Mulgrave R. (3 paratypes). Total 5 specimens examined, all from the type series (SAM).

Hypodacnella kasiae **sp. n.**

(Figs. 168, 169, 203, 209, 217, 222)

Diagnostic combination. Body short-oval, convex; head, pronotum, most of elytra, pterothorax and abdomen black with metallic greenish shade; head appendages, legs and elytral spots yellowish; prosternum and ventral part of head brown. Head surface including clypeus coarsely punctured, punctures a little larger than eye facets, 0.5 diameter apart; interspaces densely reticulate; antenna as in fig. 222. Anterior margin of pronotum entirely bordered; lateral margins not clearly visible from above; discal punctures as large as those on head, one diameter apart; interspaces with dense, linear microsculpture. Elytra widest at basal $\frac{1}{3}$, each with strongly contrasting yellow spot (fig. 168); in lateral aspect elytra highest at about anterior third; GD/EL = 0.74; each

elytron with 10 coarse rows of punctures, striae not impressed; intervals micropunctured, setose. Tarsomere I simple. Aedeagus as in figs. 203, 209, 217, median lobe about $1.3\times$ as long as abdomen. $TL/EW = 1.44$; $TL = 1.9-2.0$ mm.

Holotype ♂: Queensland, Bunya Mountains 26.52S x 151.40E, 12. XI. 1982, E-Y: AU-64 (S. ENDRÖDY-YOUNGA) (ANIC).

Paratypes - 10 specimens with same data as holotype (TMP, IZPAN).

This is the most distinctive species of the genus by its yellow spots on elytra, densely punctured pronotum and metallic shine. This beautiful beetle is dedicated to my wife Kasia G. WINISZEWSKA-ŚLIPIŃSKA, who not only understands my fascination for beetles, but also tolerates and shares it.

Hypodaenella medionigra (LEA) **comb. n.**

(Figs. 191, 196, 201, 206, 214, 221)

Euxestus medioniger LEA, 1922: 297. Type locality: "N. S. Wales, Dorrigo". (Holotype, SAM, examined).

Diagnostic combination. Body colour brownish-black with orange spots on humeral and apical parts of elytra (fig. 196), head and anteromedial part of pronotum brighter than elytra. Frontal punctures $0.75\times$ as large as eye facets, 1.2-2 diameters apart; interspaces with transverse, linear microsculpture; antenna as in fig. 221. Anterior margin of pronotum almost completely bordered, only unbordered medially; lateral margins narrow, entirely visible; discal punctures diameter $0.5\times$ as large as those on head, several diameters apart; interspaces smooth, only in mediobasal part with fine linear microsculpture. Elytra moderately convex (fig. 191); $GD/EL = 0.52-0.57$; margins visible in basal $\frac{2}{3}$; striae not impressed; strial punctures as large as those of pronotum and in regular rows; intervals micropunctured or almost smooth, if micropunctured, punctures in intervals 0.5 or less as large as strial ones. Tarsomere I simple. Aedeagus as in figs. 201, 206, 214, median lobe $1.57\times$ as long as abdomen. $TL/EW = 1.42-1.45$; $TL = 2.4-2.6$ mm.

Distribution. New South Wales: Dorrigo (holotype, 3 paratypes); Upper Willams R.; Mount Corrieuday; NSW National Park. Total 13 specimens examined (MVM, SAM, TMP, IZPAN).

Hypodaenella ventrale (LEA) **comb. n.**

(Figs. 200, 216, 223)

Euxestus ventralis LEA, 1921b: 362. Type locality: "N. S. Wales, Forest Reefs". (Holotype, SAM, examined).

Diagnostic combination. Body colour black, head brownish-black, elytra with small red humeral spot and reddish apices. Frontal punctures $0.8\times$ as large as eye facets, 2-4 diameters apart; interspaces with fine linear microsculpture; antenna as in fig. 223. Pronotum with anterior margin entirely bordered, but marginal line barely traceable medially; margins narrow, entirely visible; discal punctures very fine, $0.3\times$ as large as those on frons, several diameters apart; interspaces smooth, shiny. Elytral outline similar to *tasmaniae* but

slightly more convex; $GD/EL = 0.58$; margins invisible; elytral punctures not arranged in definite rows; striae not impressed; punctures on intervals dense and almost as large as those in rows, both about twice as large as those on pronotal disc. Tarsomere I simple. Aedeagus as in figs. 200, 216, median lobe $1.60\times$ as long as abdomen; $TL/EW = 1.47$. $TL = 2.5-2.6$ mm.

Distribution. New South Wales: Blue Mountains; Forest Reefs (holotype, 6 paratypes); Mt. Corricuday. Total 15 specimens examined (SAM, MVM, TMP, IZPAN).

Hypodacnella tasmaniae (LEA) **comb. n.**

(Figs. 165, 193, 204, 205, 212, 213)

Tritomidea tasmaniae LEA, 1910: 226. Type locality: "Tasmania, Hobart". (Holotype, SAM, examined). — In *Euzestus*: LEA 1922: 296.

Diagnostic combination. Body comparatively elongate and flattened; surfaces black but head and anteromedial part of pronotum often piceous. Frontal punctures $0.7\times$ as large as eye facets, 2-4 diameters apart; interspaces with fine, linear microsculpture. Pronotal anterior margin unbordered; lateral margins narrow but entirely visible; discal punctures $0.5\times$ as large as those on frons, 2-4 diameters apart; interspaces with fine linear microsculpture. Elytra moderately convex (fig. 193); $GD/EL = 0.5$; margins visible in basal $3/4$; striae slightly impressed and their strial punctures barely traceable, but still slightly larger than pronotal ones (fig. 165); intervals densely punctured, punctures about $0.5-0.7\times$ as large as those in rows. Protibia and tarsus as in fig. 212. Aedeagus as in figs. 204, 205, 213, median lobe $1.66\times$ as long as abdomen; $TL/EW = 1.5$. $TL = 2.78-2.31$ mm.

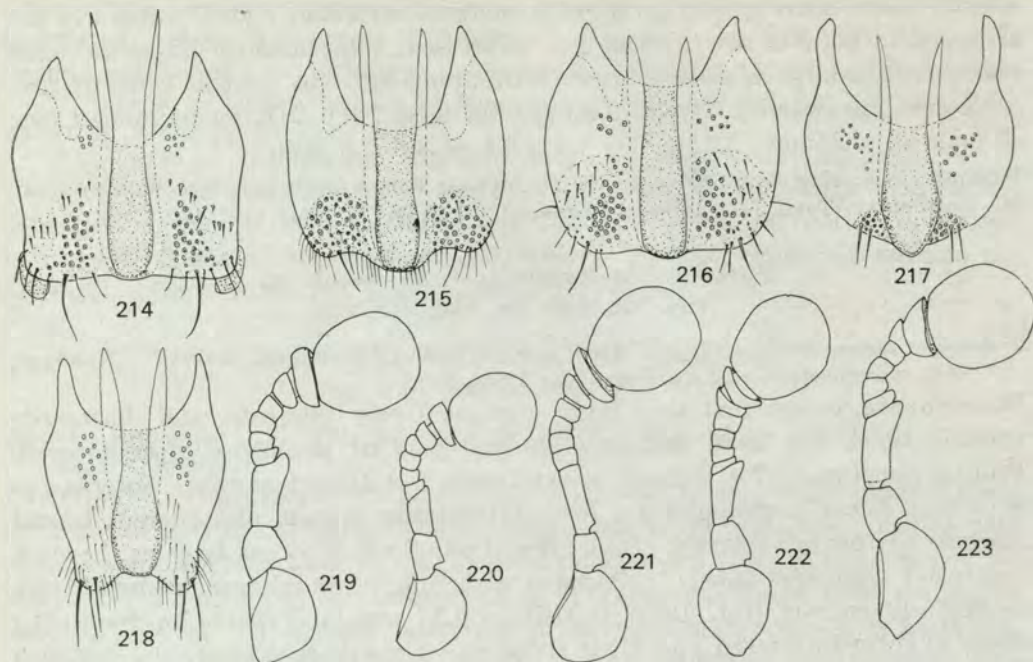
Distribution. Tasmania: Hobart (holotype, 3 paratypes); Tasmania National Park Victoria: Western Port Bay; Dividing Range; near Whitefield; Bandenong Ranges; Mt. Hotcham. New South Wales: Gleen Innes. Total 34 specimens examined (MHNG, MVM, SAM, TPM, IZPAN).

This species is fairly easily distinguished by the flattened and elongate body form, slightly impressed but not deeply grooved elytral striae and unbordered anterior pronotal margin. *H. ventrale* resembles this species, but differs in having small red humeral spots and elytral apices reddish, punctures on elytral intervals almost as large as those in rows and the pronotal margins barely visible from above.

Hypodacnella sebastiani **sp. n.**

(Figs. 189, 202, 210, 218, 219)

Diagnostic combination. Body short-oval (fig. 189), moderately convex; colour black to piceous with reddish legs and head appendages. Frontal punctures about $0.75\times$ as large as eye facets, 1-1.5 diameter apart; interspaces with fine transverse, linear microsculpture. Antenna as in fig. 219. Anterior margin of pronotum unbordered; lateral margins narrow but entirely visible; discal punctures slightly smaller than those of frons, several diameters apart; inter-



Figs. 214–223. *Hypodacnella* species, males: 214–218 — tegmen, basal piece, dorsal, all drawn to the same scale; 219–223 — antenna. 214, 221 — *medionigra*; 215 — *bivulnerata*; 216, 223 — *ventrale*; 217, 222 — *kasiae*; 218, 219 — *sebastiani*; 220 — *atropolita*.

spaces with fine, linear microsculpture. Elytra broadly oval, in lateral aspect similar to *H. tasmaniae*, only more convex; $GD/EL = 0.55$; margins narrow and visible in basal $3/4$; striae feebly impressed and their punctures barely traceable, but slightly larger than pronotal ones; striae VII and VIII grooved and the interval between them slightly convex; all intervals densely micropunctured, interval punctures as large or slightly smaller than serial ones. Tarsomere I simple. Aedeagus as in figs. 202, 210, 218, median lobe $1.52 \times$ as long as abdomen. $TL/EW = 1.42$. $TL = 2.23$ – 2.4 mm.

Holotype: Queensland, Bunya Mountains, 26.52S x 151.40E, 11. XII. 1982, E-Y: AU-63 (S. ENDRÖDY-YOUNGA) (ANIC).

Paratypes — 9 specimens (MVM, TMP, IZPAN): same data as holotype (IZPAN, TMP); Lamington Binna Burra, 28.15S x 153.06E, 15. XI. 1982, AU-70, same coll. (TMP); same but 16. XI. 1982, AU-69 (IZPAN). New South Wales: Mount Corricuday, 32.50S x 149.42E, 1000 m, 13. XI. 1982, same coll. (TMP, IZPAN); Blue Mountains, 8. III. (H. J. CARTER) (MVM). Not paratype: New South Wales, no locality (C. G. OKE) (MVM).

Biology. The recently collected specimens were taken under dead "oak" bark and from logs and bark.

This species is characterized by the moderately convex, short-oval body, unicoloured elytra with fairly impressed striae and unbordered anterior margin

of pronotum. The similar *H. tasmaniae* has more elongate and flattened body, all the elytral intervals flat and the striae VII and VIII not grooved. The species is named after Dr. Sebastian ENDRÖDY-YOUNGA, who discovered in Australia several interesting species of *Cerylonidae*.

Hypodaenella atropolita (LEA) **comb. n.**

(Figs. 164, 195, 211, 220)

Euxestus atropolitus LEA, 1921b: 363. Type locality: "N. S. Wales, Tamworth". (Holotype, SAM, examined).

Diagnostic combination. Body colour black; surface convex, glabrous and shiny. Frontal punctures $0.8\times$ as large as eye facets, about one diameter apart; interspaces finely reticulate; eyes comparatively coarsely faceted; antenna as in fig. 220. Anterior margin of pronotum unbordered; margins not visible; surface convex, micropunctured; discal punctures $0.5\times$ as large as frontal ones, several diameters apart; interspaces smooth and shiny; vestiture contains of sparse microsetae, visible under $120\times$ magnification. Elytra strongly convex (fig. 195) and in lateral aspect highest about the middle; elytra widest in basal third then rather abruptly narrowing apically; $GD/EL = 0.65$; elytral surface smooth or irregularly micropunctured. Protibia as in fig. 211, tarsomere I slightly lobed. (Aedeagus not examined). $TL/EW = 1.32$. $TL = 1.65$ mm. Distribution. New South Wales: Tamworth (holotype, 4 paratypes); Clarence Range (2 paratypes of var. ?). Queensland: Cooyar Palms Park. Total 9 specimens examined (SAM, TMP, IZPAN). The two Queensland specimens were females and no males were available to illustrate the genitalia.

Biology. The Queensland specimens were collected in palm forest litter.

By its slightly lobed tarsomere I (especially in protarsi) and unicoloured, black body this species is similar to *H. euxestoides* but is at once distinguished by its much smaller size of a different silhouette, unbordered anterior margin of pronotum and its lateral margins invisible from above. The black individuals of *H. bivulnerata* differ in having well visible lateral margins of pronotum, bordered anterior margin and barely traceable rows on elytra.

Hypodaenella atra (LEA) **comb. n.**

Euxestus ater LEA, 1921b: 363. Type locality: "Queensland, Brisbane". (Holotype, SAM examined).

The taxonomic status of this species remains unsolved, because the holotype and only available paratype are in poor condition, and I have not had any specimen that may belong to this species to examine its structures on slide. This species seems to be very close if not conspecific with *H. atropolita*, and the only differences are in more regular body shape and convexity, fine rows of punctures on elytra and elytral intervals finely reticulate instead of smooth in *H. atropolita*.

Distribution. Queensland: Brisbane (holotype, paratype) (SAM).

Hypodacnella euxestoides sp. n.

(Figs. 170–188)

Diagnostic combination. Body colour piceous-brown; feebly shiny; vestiture consists of sparse microsetae, visible under $100\times$ magnification. Frontal punctures about $0.5\times$ as large as eye facets, 2–3 diameters apart; interspaces with transverse linear microsculpture; antenna as in fig. 172. Anterior pronotal margin completely bordered; margins wide, visible in anterior $\frac{2}{3}$; base with shallow, interrupted medially, marginal line (fig. 188); interspaces smooth, only mediobasally with fine linear microsculpture. Elytra widest at anterior $\frac{1}{4}$ and in lateral aspect highest at anterior $\frac{1}{2}$ (fig. 194); GD/EL = 0.6; striae not impressed, stria punctures somewhat confused and as large as pronotal ones; intervals micropunctured. Protibia as in fig. 180; tarsomere I slightly lobed below. Aedeagus as in figs. 182, 185–187, median lobe $1.57\times$ as long as abdomen. TL/EW = 1.44–1.46. TL = 2.4–2.86 mm.

Holotype: Queensland, Bunya Mountains, 26.52S x 151.40E, 12. XI. 1982, E-Y: AU-63 (S. ENDRÖDY-YOUNGA) (ANIC).

Paratypes – 21 specimens (ANIC, MVM, TMP, IZPAN): same data as holotype (TMP, IZPAN); Lamington, Binna Burra, 28.15S x 153.06 E, 18. XI. 1982, AU-76, same coll. (TMP); as holotype but AU-64 (TMP, IZPAN); Lamington, Binna Burra, AU-70, 15. XI. 1982, same coll. (TMP); Atherton, VI. 1951 (C. OKE) (MVM).

Biology. Most of the specimens have been collected in forest litter, *Tristania* forest litter and from logs and bark.

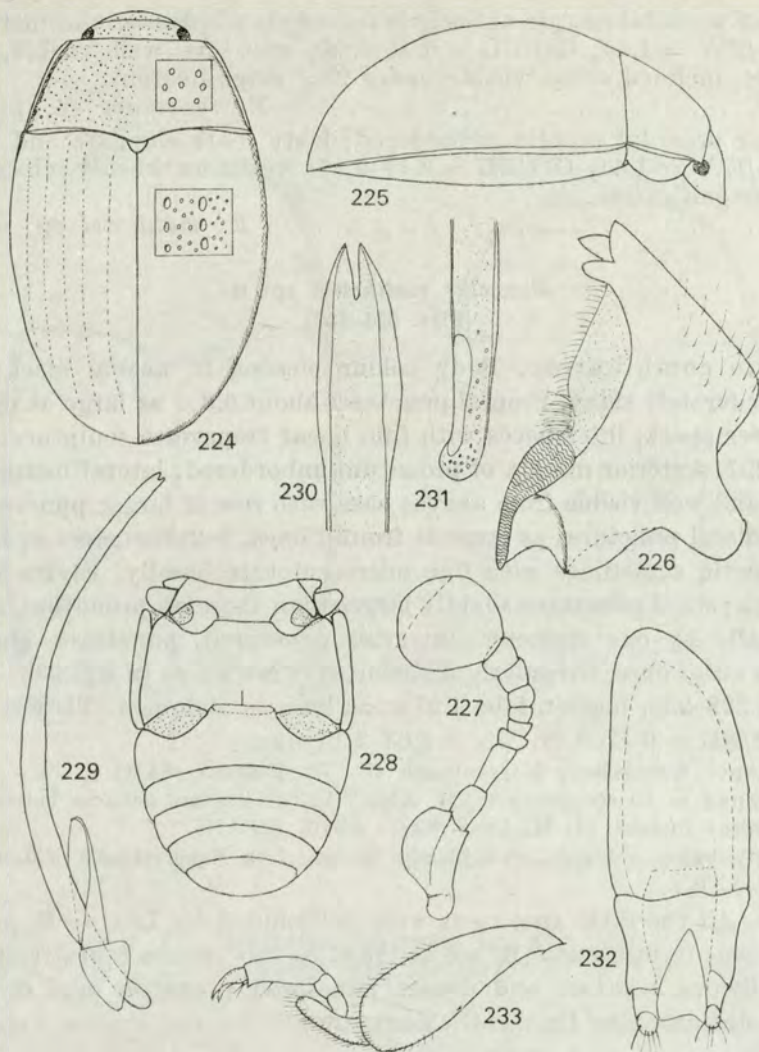
This is the largest species of the genus. Members of this species may be distinguished by the slightly lobed tarsomere I, entirely bordered anterior pronotal edge and punctured elytra.

Euxestus WOLLASTON

Euxestus WOLLASTON, 1858: 411. Type species, by monotypy: *Euxestus parki* WOLLASTON, 1858. — EMDEN 1928 (complete synonymy).

Members of this genus differ from *Hypodacnella* in having narrower mandible (fig. 226), metasternum and ventrite I without femoral lines (fig. 228); ventrite IV simple, without lateral lobes; prosternum without admedian lines and tarsomere I with long, ventral lobe (fig. 233).

SEN GUPTA and CROWSON (1973) supposed *Euxestus* to be absent from Australia, although it had been reported from that area by LEA (1921) under the name *E. parki* WOLLASTON. Here the LEA's opinion is confirmed and his specimens are described as a new species (*E. matthewsi*) because I have not found any described species to be conspecific with those specimens (*E. parki* is an endemic species of Madeira). On the other hand the next two species discovered by J. F. LAWRENCE in the Clarence R. near Iron Range do not belong to any known species group and seem to be endemic to Queensland, apparently extending natural range of this genus.



Figs. 224–233. *Euxestus matthewsi* ♂: 224 – body outline; 225 – lateral silhouette; 226 – right mandible; 227 – antenna; 228 – pterothorax and abdomen, ventral; 229 – aedeagus, ventral; 230 – median lobe, basal piece; 231 – same, apical piece; 232 – tegmen, dorsal; 233 – protibia and tarsus.

Key to the Australian species of *Euxestus*

1. Protibia short and wide (fig. 236); elytral margins wide and well visible in basal $\frac{3}{4}$; elytral punctures minute and barely traceable, not arranged in definite rows. *E. elongatulus* sp. n., p. 68.
- Protibia longer and apparently narrow (figs. 233, 240); elytral margins almost invisible from above; elytral punctures arranged in definite rows, well visible 2.

2. Anterior pronotal margin entirely bordered; body shorter and more convex — $TL/EW = 1.46$, $GD/EL = 0.64-0.66$; vestiture well visible, consists of short, inclined setae, visible under $25\times$ magnification.
 *E. fungorum* sp. n., p. 6
- Anterior pronotal margin unbordered; body more elongate and flatter — $TL/EW = 1.83$, $GD/EL = 0.41-0.47$; vestiture hardly visible under $100\times$ magnification.
 *E. matthewsi* sp. n., p. 6

Euxestus matthewsi sp. n.

(Figs. 224-233)

Diagnostic combination. Body colour piceous to nearly black; surface smooth, moderately shiny. Frontal punctures about $0.8\times$ as large as eye face one diameter apart; interspaces with fine linear transverse sculpture; antennae as in fig. 227. Anterior margin of pronotum unbordered; lateral margins relatively wide and well visible from above; base with row of larger punctures along the edge; discal punctures as large as frontal ones, 1-2 diameters apart; interspaces smooth, sometimes with fine microsculpture basally. Elytra widest at basal fourth; striae punctures slightly larger than those on pronotum, separated longitudinally by one diameter; intervals punctured, punctures about $0.3\times$ as large as striae ones, irregularly distributed. Protibiae as in fig. 233. Aedeagus as in figs. 229-232, median lobe $1.07\times$ as long as abdomen. $TL/EW = 1.83-1.88$; $GD/EL = 0.47-0.49$. $TL = 2.03-2.14$ mm.

Holotype: Queensland, Maryborough (E. W. FISHER) (SAM).

Paratypes — 19 specimens (SAM, ANIC, IZPAN); same data as holotype (SAM, IZPAN); Cairns District (A. M. LEA) (SAM, ANIC, IZPAN).

Not paratype — 2 specimens, Claudie R. near Iron Range, 19-25. VII. 1978 (J. F. LAWRENCE) (ANIC).

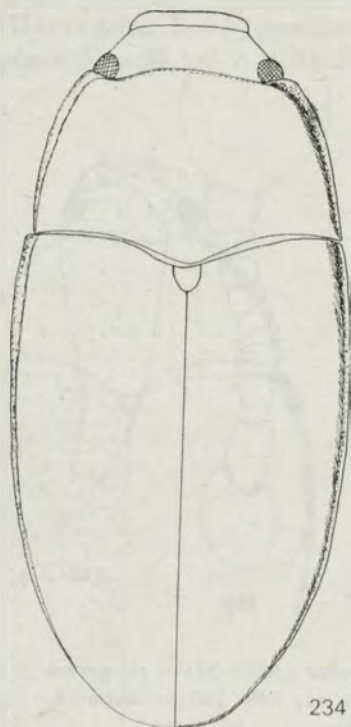
Remarks. All the SAM specimens were determined by LEA as *E. parki*. The two specimens from Claudie R. are assigned to this species tentatively because of more obvious vestiture and denser punctured pronotum and elytra. This species is dedicated to Dr. E. G. MATTHEWS.

Euxestus elongatulus sp. n.

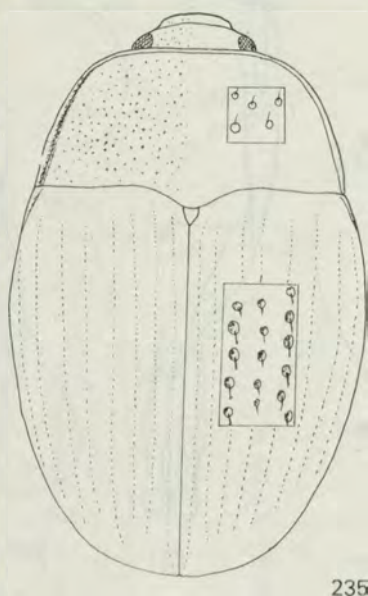
(Figs. 234, 236-238)

Diagnostic combination. Body elongate, moderately convex, glabrous, shiny; colour brown. Frontal punctures about $0.3\times$ as large as eye facets, several diameters apart; interspaces smooth shiny; antenna as in fig. 238. Pronotum with anterior margin unbordered; lateral margins wide and entirely visible from above (fig. 234); discal punctures as large as those on frons, separation variable; interspaces smooth. Elytra elongate; margins visible in basal $3/4$; surface as densely as pronotum micropunctured, punctures not arranged in definite rows. Femora and tibiae wide, protibiae as in fig. 236. Aedeagus as in fig. 237, median lobe $0.8\times$ as long as abdomen. $TL/EW = 1.77$; $GD/EL = 0.54$. $TL = 2.06$ mm.

26 Holotype ♂: Queensland, Claudie R. near Iron Range, 19–25. VII. 1978 (J. F. LAWRENCE) (ANIC).



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Figs. 234–235. *Euxestus* species, body outlines: 234 — *elongatulus*; 235 — *fungorum*.

Euxestus fungorum sp. n.

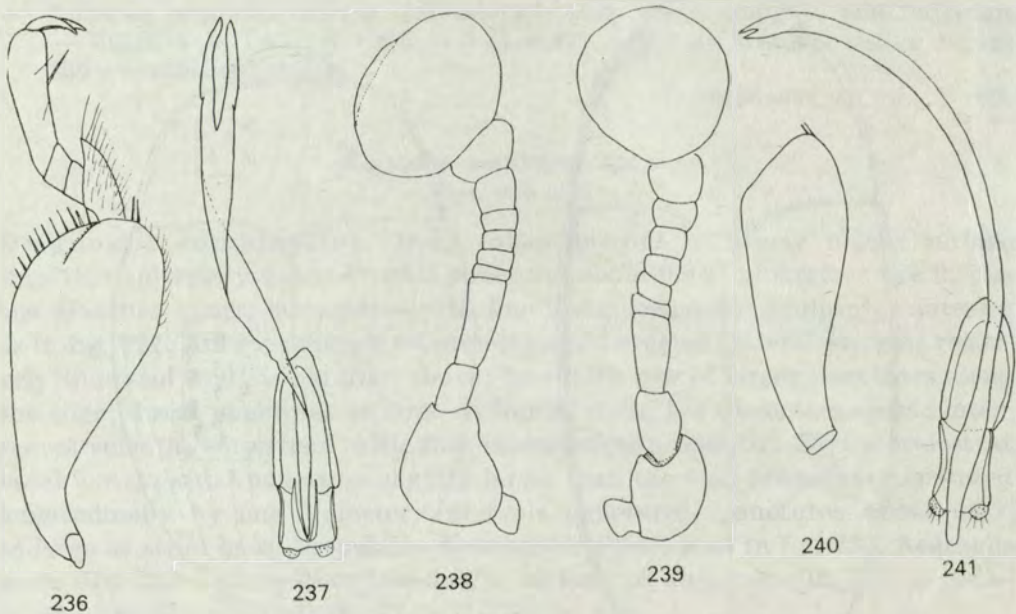
(Figs. 235, 239–241)

Diagnostic combination. Body short-oval (fig. 235), strongly convex; colour piceous to black; vestiture consists of short dense setae which are as long as diameter of pronotal puncture, visible under $25\times$ magnification. Head with frontal punctures about $0.5\text{--}0.8\times$ as large as eye facets, 2–3 diameters apart; interspaces smooth, shiny; eyes coarsely faceted; antenna as in fig. 239. Anterior pronotal margin entirely bordered; lateral margins narrow but almost entirely visible; discal punctures as large as frontal ones, 2–3 diameters apart; interspaces smooth. Elytra with regular rows of punctures; striae not impressed; intervals with an additional row of irregular punctures almost as large as serial ones. Protibia as in fig. 240. Aedeagus as in fig. 241, median lobe $0.85\times$ as long as abdomen. $TL/EW = 1.46$; $GD/EL = 0.64\text{--}0.66$. $TL = 1.83\text{--}1.91$ mm.

Holotype: Queensland, Claudie R. near Iron Range, 19–25. VII. 1978, JFL lot 78-111 (J. F. LAWRENCE) (ANIC).

Paratypes — 7 specimens (ANIC, IZPAN): same data as holotype; same but lot 78-107; same but lot 78-67 (ANIC, IZPAN).

Biology. All the specimens were collected from fungi fruit bodies — lot 67 from *Xylaria anisopleura*, lot 107 from unidentified *Agaricales* and lot 111 from *Rigidoporus zonalis*.



Figs. 236–241. *Euxestus* species: 236–238 — *elongatulus* ♂; 239–241 — *fungorum* ♂. 236, 240 — protibia; 237, 241 — aedeagus, dorsal; 238, 239 — antenna.

Protoxestus SEN GUPTA et CROWSON

Protoxestus SEN GUPTA et CROWSON, 1973: 379. Type species, by original designation: *Protoxestus australicus* SEN GUPTA et CROWSON, 1973.

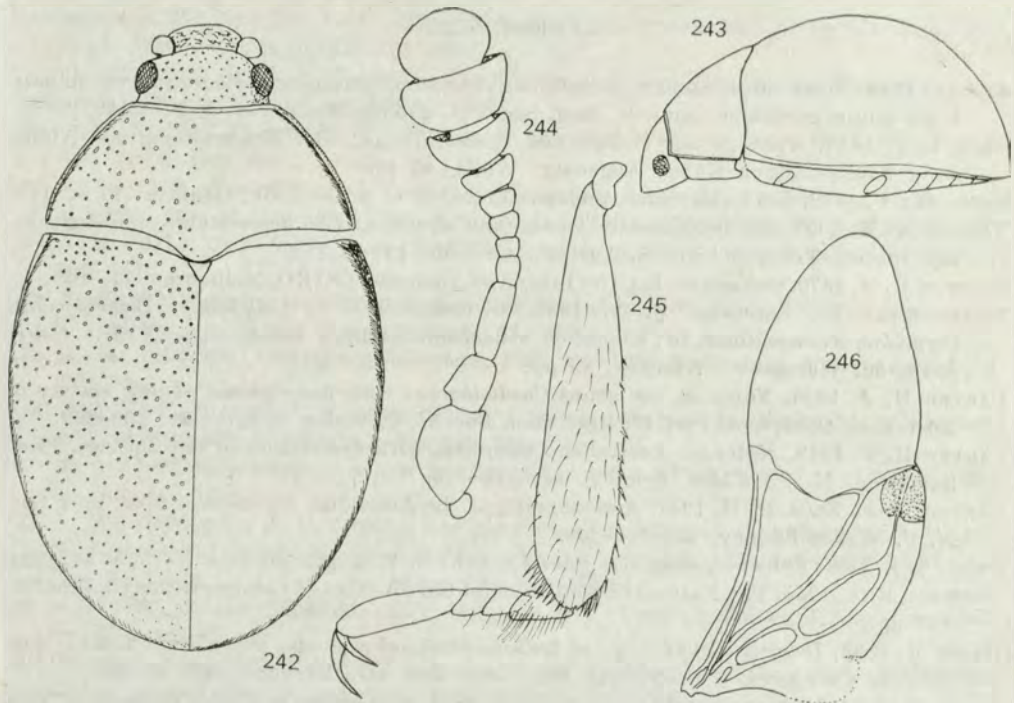
This genus was based on a single Australian species from Queensland, that was supposed being the most primitive member of *Euxestinae* and even of the entire family *Cerylonidae*. It is most closely allied to *Hypodaene* LEC., *Hypodacnella* gen. n. and *Pseudodacne* CROTCH, from which is easily distinguished in having 3-segmented antennal club and in lacking prosternal lines and femoral lines on the metasternum and first ventrite.

Protoxestus australicus SEN GUPTA et CROWSON (Figs. 242–246)

Protoxestus australicus SEN GUPTA et CROWSON, 1973: 380. Type locality: "Queensland, Mt. Glorious". (Holotype, BMNH, examined).

This species is easily distinguished from other Australian euxestines by the broadly oval and convex body shape (figs. 242, 243), 11-segmented antennae with clear 3-segmented club (fig. 244), narrow tibiae and simple tarsi (fig. 245)

and the lack of prosternal and femoral lines on the metasternum and ventrite I. Aedeagus and other internal structures, except wings (fig. 146), not examined. The jugal part of wing which had been mounted dry with the paratype in BMNH is missing, but *Protoxestus* wing (CROWSON, pers. comm.) is very similar to *Hypodacnella* and has a distinct jugal lobe. TL = 2.8 mm.



Figs. 242-246. *Protoxestus australicus* ♀: 242 - dorsal side; 243 - lateral silhouette; 244 - antenna; 245 - protibia and tarsus; 246 - hind wing, jugal part missing.

Distribution. Queensland, Mount Glorious, Brisbane, 13. IX. 1966 (R. A. CROWSON) (BMNH, holotype and paratype).

Biology. Recorded from decayed plank buttresses of dead tree *Laportea gigas*.

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REFERENCES

- AUBÉ C. 1843. Notes sur une nouvelle espèce de *Coleoptera* tetramère qui devra servir de base à une coupe générique nouvelle. Ann. Soc. ent. France, Paris, Ser. 2, 1: 93–95.
- BECK L. V. 1817. Beiträge zur Baierischen Insectenfauna, oder Beschreibung und Abbildung neuentdeckter Käfer. Augsburg, Wolff, 45 pp.
- BESUCHET C. 1972. Les Coléoptères Aculagnathides. Rev. suisse Zool., Genève, 79: 99–145.
- BLACKBURN T. 1903. Further notes on Australian *Coleoptera*, with descriptions of new genera and species. Trans. R. Soc. S. Austral., Adelaide, 27: 91–182.
- BRITTON E. B. 1970. *Coleoptera*. In: The Insects of Australia. CSIRO, Melbourne: 495–621.
- BURAKOWSKI B., ŚLIPIŃSKI S. A. 1986. Gwozdnikowate – *Colydiidae*, *Bothrideridae*, *Cerylidae*, *Anommatidae*. In: Klucze do oznaczania owadów Polski, Część XIX – *Coleoptera*, 59. Warszawa–Wrocław, 86 pp.
- CARTER H. J. 1906. Notes on the genus *Cardiothorax*: with descriptions of new species of Australian *Coleoptera*. Part II. Proc. linn. Soc. N. S. Wales, Sydney, 31: 236–260.
- CARTER H. J. 1919. Notes on Australian *Coleoptera*, with description of new species. Proc. linn. Soc. N. S. Wales, Sydney, 44: 137–173.
- CARTER H. J., ZECK E. H. 1937. A monograph of the Australian *Colydiidae*. Proc. linn. Soc. N. S. Wales, Sydney, 62: 181–208.
- CASEY T. L. 1890. Coleopterological notices. II. Ann. N. Y. Acad. Sci., New York, 5: 307–504.
- CROWSON R. A. 1955. The Natural Classification of the Families of *Coleoptera*. Lloyd, London, 187 pp.
- DAJOZ R. 1963. *Dolosus leleupi* n. g., et *Dolosus basilewskyi* n. sp., types d'une famille nouvelle de *Cucujoidea* (Coléoptères). Rev. Zool. Bot. afr., Tervuren, 67: 91–96.
- DAJOZ R. 1974. Nouveaux genres et nouvelles espèces de *Cerylonini* (Col., *Cerylonidae*). Zeit. ArbGem. Öster. Ent. (1973), Wien, 25: 22–40.
- DARLINGTON P. J. 1961. Australian Carabid beetles V. Transition of wet forest faunas from New Guinea to Tasmania. Psyche, Cambridge, 68: 1–24.
- EMDEN F. 1928. Die verwandtschaftliche Stellung von *Euxestus* nebst Beschreibung neuer Arten der Gattung. Ent. Tijdschr., Amsterdam, 71: 84–110.
- ERICHSON W. F. 1845. Naturgeschichte der Insecten Deutschlands, Abt. I, *Coleoptera*, Band 3, Lief. 2. Berlin, Nicolai, pp. 161–320.
- GERMAR E. F. 1824. Insectorum Species Novae aut minus cognitae descriptionibus illustratae. Halae, Hende, XXIV + 624 pp.
- HEINZE E. 1944a. Neue und wenig bekannte *Colydiidae* (*Coleopt.*) aus dem Ungarischen National-Museum. Ann. hist.-nat. Mus. hung., Budapest, 33: 1–22.
- HEINZE E. 1944b. Beiträge zur Kenntnis der Tribus *Cerylini* und *Metacerylini* (nov.) (*Coleoptera: Colydiidae*). Arb. morphol. taxon. Ent., Berlin-Dahlem, 11: 19–32.
- HEINZE E. 1944c. Zwei neue Arten der Gattung *Lapethus* CAS. (*Coleoptera: Colydiidae*). Arb. morphol. taxon. Ent., Berlin-Dahlem, 11: 112–117.
- HINTON H. E. 1942. A synopsis of the Old World species of *Murmidius* LEACH (*Coleoptera, Colydiidae*). Proc. roy. ent. Soc. London, B, 11: 39–45.

- JEANNEL R., PAULIAN R. 1945. Mission scientifique de l'Omo. Faune des terres des rats-taupes IV. *Coleoptera*. Mém. Mus. Hist. nat., N. S., Paris, **19**: 51-147.
- JOHN H. 1963. Die Gattung *Elytrotetantus* JOHN. Rev. Zool. Bot. afr., Tervuren, **67**: 300-326.
- KASZAB Z. 1978. Australische und südpazifische Tenebrioniden der Tribus *Phrenapatini* und *Gnathidiini* (*Coleoptera*) sowie synonymische Bemerkungen. Ann. hist.-nat. Mus. hung., Budapest, **70**: 163-177.
- KISTNER D. H. 1982. The social insect's bestiary. In: H. R. HERMAN (Ed.) Social Insects, III. Academic Press, New York, pp. 1-244.
- LAWRENCE J. F., NEWTON A. F. 1982. Evolution and Classification of beetles. Ann. Rev. Ecol. Syst., Palo Alto, **13**: 261-290.
- LAWRENCE J. F., STEPHAN K. 1975. The North American *Cerylonidae* (*Coleoptera: Clavicornia*). Psyche, Cambridge, **82**: 131-166.
- LEACH W. E. 1822. Characters of a new genus of coleopterous insects of the family *Byrrhidae*. Trans. linn. Soc., London, **13**: 41.
- LEA A. M. 1910. Australian and Tasmanian *Coleoptera* inhabiting or resorting to the nests of ants, bees, and termites. Proc. roy. Soc. Victoria, Melbourne, N. S., **23**: 116-230.
- LEA A. M. 1921a. On *Coleoptera*, mostly from Queensland. Mem. Queensl. Mus., Brisbane, **7**: 182-240.
- LEA A. M. 1921b. Notes on some miscellaneous *Coleoptera*, with descriptions of new species. Proc. linn. Soc. N. S. Wales, Sydney, **66**: 362-364.
- LEA A. M. 1922. On Australian *Coleoptera*, Part IV. Rec. S. Austral. Mus., Adelaide, **2**: 271-308.
- NIKIŃSKY N. B., BELOV V. V. 1979. Novye i maloizvestnye vidy *Clavicornia* (*Coleoptera*) iz TALYŠA. Zool. Ž., Moskva, **58**: 849-854.
- OKE C. 1932. *Aculagnathidae*. A new family of *Coleoptera*. Proc. roy. Soc. Victoria, Melbourne, **44**: 22-24.
- PAL T. K., LAWRENCE J. F. 1986. A new genus and subfamily of mycophagous *Bothrideridae* (*Coleoptera: Cucujoidea*) from the Indo-Australian region, with notes on related families. J. Austr. ent. Soc., Canberra, **25**: 185-210.
- SHARP D. 1855. On the *Colydiidae* collected by Mr. G. L. LEWIS in Japan, J. linn. Soc. Zool., London, **19**: 58-84.
- SEN GUPTA T., CROWSON R. A. 1973. A review of the classification of *Cerylonidae* (*Coleoptera, Clavicornia*). Trans. R. ent. Soc., London, **124**: 365-446.
- ŚLIPIŃSKI S. A. 1981. A review of the *Cerylonidae* (*Coleoptera*) from New Guinea. Ann. hist.-nat. Mus. hung., Budapest, **73**: 137-145.
- ŚLIPIŃSKI S. A. 1984. Notes on the *Lapethini* with a revision of the World *Lapethus* CASEY (*Coleoptera, Cerylonidae*), including descriptions of related genera. Pol. Pismo Ent., Wrocław, **54**: 3-104.
- ŚLIPIŃSKI S. A. 1985. Notes rectificatives concernant les publications de Roger DAJOZ relatives aux *Colydiidae* et *Cerylonidae* (*Coleoptera*). Rev. suisse Zool., Genève, **92**: 613-619.
- WEBB L. J., TRACEY J. G. 1981. Australian rainforest patterns and change. In: A. KEAST (Ed.) Ecological biogeography of Australia. Monographiae Biol., Vol. 41. W. JUNK, The Hague, pp. 603-693.
- WOLLASTON T. V. 1858. On additions to the Madeiran *Coleoptera*. Ann. Mag. nat. Hist., London, **2**: 411.

[Tytuł: Rewizja australijskich *Cerylonidae* (Coleoptera: Cucujoidea)]

Praca zawiera rewizję australijskich przedstawicieli rodziny *Cerylonidae* wraz z pełnymi opisami poszczególnych rodzajów, gatunków i kluczami do ich oznaczania. Rodzina *Cerylonidae* w Australii liczy 11 rodzajów i 39 gatunków, spokrewnionych głównie z przedstawicielami tej rodziny z Obszaru Orientalnego, a znacznie mniej z fauną Nowej Zelandii. Jako nowe dla wiedzy opisano trzy rodzaje (*Australiorylon*, *Lawrencella* i *Hypodacnella*) i 22 gatunki: *Australiorylon nevoissi*, *A. setosus*; *Cerylonopsis corpulentus*, *C. doyeri*, *C. australis*, *C. elongatulus*; *Philothermus tasmanicus*, *P. rotundus*, *P. oculatus*, *P. macrosetosus*, *P. microsetosus*, *P. norfolkiensis*, *P. margaretae*; *Lapethus queenslandicus*, *L. peckorum*; *Lawrencella costata*; *Hypodacnella kasiae*, *H. sebastiani*, *H. euxestoides*; *Euxestus matthewsi*, *E. elongatulus*, *E. fungorum*. Podano ponadto krótkie omówienie rozmieszczenia geograficznego i filogenezy australijskich *Cerylonidae* na tle fauny świata.

РЕЗЮМЕ

[Заглавие: Ревизия австралийских *Cerylonidae* (Coleoptera: Cucujoidea)]

Работа содержит ревизию австралийских представителей семейства *Cerylonidae* с полными описаниями отдельных родов, видов и ключами для их определения. Семейство *Cerylonidae* насчитывает в Австралии 11 родов и 39 видов, родственных главным образом с представителями этого семейства из Ориентальной области, а значительно меньше с фауной Новой Зеландии. Как новые для науки описаны три рода: *Australiorylon*, *Lawrencella* и *Hypodacnella*, и 22 вида: *Australiorylon nevoissi*, *A. setosus*; *Cerylonopsis corpulentus*, *C. doyeri*, *C. australis*, *C. elongatulus*; *Philothermus tasmanicus*, *P. rotundus*, *P. oculatus*, *P. macrosetosus*, *P. microsetosus*, *P. norfolkiensis*, *P. margaretae*; *Lapethus queenslandicus*, *L. peckorum*; *Lawrencella costata*; *Hypodacnella kasiae*, *H. sebastiani*, *H. euxestoides*, *Euxestus matthewsi*, *E. elongatulus*, *E. fungorum*. Приведена также краткая дискуссия касающаяся географического распространения и филогенеза австралийских *Cerylonidae* на фоне мировой фауны.

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