

SOME TYPE DESIGNATIONS, WITH NOTES ON PACIFIC ELATERIDAE (Coleoptera)

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This paper is based on studies made in 1956-58 in European museums under National Science Foundation Grant 2898, sponsored by Bishop Museum. An effort was made to locate as many as possible of the types of the 1200-odd species of elaterid beetles described from the Pacific area, or known to occur there. That area, as here defined, includes Polynesia, Melanesia, Micronesia, the islands (but not the mainland) of the Indo-Malayan region, and the Austro-Malayan region. Also included are parts of Queensland and northern Australia where Papuan species occur or are likely to be found.

Type material was studied and compared, and in some cases redescribed and photographed. Numerous male specimens were dissected and photographs taken of their aedeagi, in a search for separating characters. The lectotypes discussed in the text were selected and designated as such by the writer, and were selected, other factors being equal, from material in the museum which supplied the describer with the original material. This was done in the case of Candèze's species, and not necessarily from his personal collection, because he plainly stated that duplicates were donated to him by correspondents after a species had been described. When a single specimen was involved, Candèze is believed in all cases to have returned the holotype to the museum from which it came. Usually accepted as the type of a species was any specimen so designated by a label written or printed by the describer himself. In some museums the label "Type", "Typus" or "Ex-Typis" is attached to all specimens presumed to have been before the describer when writing his description, but specimens so labelled were sometimes found, which on chronological or other evidence, could not have been part of the original material.

Candèze described well over half of the elaterid species known from the area under consideration; hence the sources as well as the present location of his type material are of interest. Candèze's first collection of Elateridae includes (except for material loaned him) all the specimens on which he based his 4-volume "Monographie" (1857-63), the first fascicle of his "Élatérides nouveaux" (1865) and the first fascicle (the only one published) of his "Révision" (1874). This collection was acquired by Janson and is now in the British Museum (Natural History) in London.

A second large collection was the basis of Candèze's papers published after 1874. It was purchased in 1899 by the Institut Royal des Sciences Naturelles de Belgique, and is now in the Brussels museum. A note by Candèze in his personal copy of "Catalogue méthodique" (1891) in Brussels, lists the components of this collection (translation):

1. Duplicates donated (after description) by correspondents
2. Castelnau collection, about 1872
3. Mniszech collection, purchased from van Lansberge, June 1881

4. 8 cartons purchased from Reiche, 1875
5. Fairmaire collection, March 1894
6. Specimens received directly from collectors in their respective countries
7. Semper (Philippine Is.), April 1875
8. Montchicour [sic] (Raffray insects), 1894.

Candèze described numerous species from the islands of the East Indies, and from New Guinea and its adjacent islands, sent him by the Leiden and Genoa museums; some duplicates of these are in his second collection.

Discrepancies will be noted between the location of some types given here (mainly of Blackburn's species) and their location as recorded by Neboiss (1956, "A Check List of Australian Elateridae [Coleoptera]". *Nat. Mus. Victoria, Mem.* **22** (2): 1-75). In the British Museum, Blackburn types were found clearly designated by "T" or "Type" printed in his own hand; possibly other specimens of the same species are similarly labelled in Australian museums.

Among familiar terms used here in discussing aedeagal structure, one expression should be defined. When the lateral lobes are expanded apically, the prominence on their outer margin below the constriction at the base of the expansion, is referred to here as the "shoulder."¹ The lower angle of the apical expansion, here called the "subapical angle", when acute, is termed by Neboiss the "apical hook."

The following are used in the text to indicate the museums from which material was studied:

BM British Museum (Natural History), London
 COPENHAGEN Universitets Zoologiske Museum, Copenhagen
 DEI Deutsches Entomologisches Institut, Berlin
 GENOA Museo Civico di Storia Naturale "Giacomo Doria", Genoa
 IRSNB Institut Royal des Sciences Naturelles de Belgique, Brussels
 LEIDEN Rijksmuseum van Natuurlijke Historie, Leiden
 OXFORD Hope Collection, University Museum, Oxford
 PARIS Musée Nationale d'Histoire Naturelle, Paris
 STOCKHOLM Naturhistoriska Riksmuseum, Stockholm.

Material was examined also from the Sir Joseph Banks and Broun collections in the British Museum (N. H.); the Fauvel collection of New Caledonia Coleoptera in the IRSNB; the Fleutiaux collection in the Paris Museum; and the Schwarz collection in the DEI.

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My grateful thanks go to Dr. Delfa Guiglia of the Genoa Museum, Miss Christine von Hayek of the British Museum (N. H.), Dr. J. M. Vrydagh of the IRSNB, and Mrs. Ella Zimsen of the Copenhagen Museum; these persons were especially generous of their time and effort in my behalf. Among others to whom thanks are due, are these:

British Museum (N. H.). W. E. China, keeper of Insects; J. D. Bradley; E. B.

1. Neboiss uses "shoulder" for "the tapered basal portion of the median lobe" (1957, *Austral. Jour. Zool.* **5** (4): 497).

Britton; J. W. A. Balfour-Browne; Miss L. E. Cheesman; B. J. Clifton; the late F. I. van Emden; Sir Guy A. K. Marshall; H. Oldroyd; R. D. Pope; M. E. Bacchus; and Peter Green.

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Universitets Zoologiske Museum, Copenhagen. Director R. Spärck; S. L. Tuxen; Sv. G. Larsson; and Henning Lemche.

Naturhistoriska Riksmuseum, Stockholm. L. Brundin; and René Malaise.

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Zoologisch Museum, Amsterdam. G. Kruseman; and C. A. W. Jeekel.

Museo Civico di Storia Naturale "Giacomo Doria". Director Enrico Tortonese; and Felice Capra.

Musée Nationale d'Histoire Naturelle, Paris. Director E. Seguy; A. Villiers; Guy Colas; and E. Viette.

On numerous occasions Prof. Dr. Hans Sachtleben generously sent the writer material for examination from the Deutsches Entomologisches Institut in Berlin; similar assistance was received from Dr. K. Delkeskamp, Curator of the Zoologisches Museum, Humboldt Universität, Berlin. Useful information concerning German museums and the whereabouts of certain collections, was received from Dr. Erich Schmidt of Bonn; from Prof. Dr. R. Danneel, Zoologisches Institut, Bonn University; Dr. R. Hertel, Staatliches Museum für Tierkunde, Dresden; and from Prof. Dr. H. Wiedner, Zoologisches Museum, Hamburg.

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SUBFAMILY ADELOCERINAE

Genus *Lanelater* Arnett, 1952

ereptus (Cand.), 1874, Rév. Élat.: 13; variety of *Agrypnus mastersi* M' L.

Type: BM. Single ♀: 37 mm; Nicoll Bay, West Australia. "*Agrypnus ereptus* mihi. Specimen communicated to Candèze and returned as '*Agryp. mastersi* M' L. var. C, *A. ereptus* Jans. Mss.'". Fleutiaux (1902, Soc. ent. France, Bull.: 164) states antennal segments 2 and 3 are of equal length in *ereptus*, and thus separates it from *mastersi* in which 3 is longer than 2. Actually, segment 3 in type *ereptus* is nearly twice as long as 2. The sides of the prothorax are less widely rounded anteriorly in *ereptus* than in *mastersi*, but the other differences noted by Fleutiaux become less marked if a series of *mastersi* is examined. The prosternum is rugosely punctate in *ereptus*, but not, as in *mastersi*, with deep, transverse, subparallel grooves anterior of the mucro.

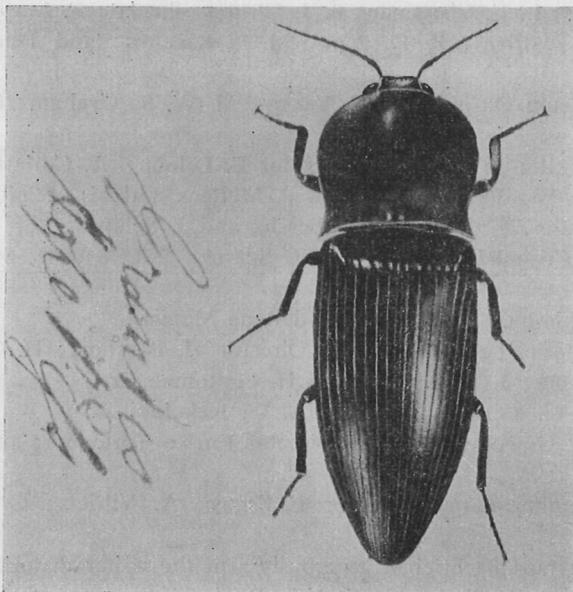


Fig. 1. *Lanelater grandis* (Hope). Lectotype of *Agrypnus grandis* in Hope Collection, University Museum, Oxford; ♀, length about 36 mm. It has Hope's label which reads: "Grandis Hope Pt. Ess.". The specimen has the prothorax deflexed; without relaxing it, 2 photographs were taken, 1 perpendicular to the plane of the prothorax, the other at right angles to that of the elytra. The illustration is a composite of the 2.

grandis (Hope), 1842, Ann. Mag. Nat. Hist. 9: 428 (*Agrypnus*).
NEW COMBINATION.

Type: OXFORD. Lectotype: single ♀; 36 mm (Fig. 1); Hope's label: "*Grandis* Hope Pt. Ess.". Port Essington was a settlement on the Coburg Peninsula, Northern Territory, Australia. Segments 3-11 of the left antenna are on a card attached to the lectotype. A "lost" species until catalogued by Neboiss (1956, Nat. Mus. Victoria, Mem. 22 (2): 3.) A stouter insect than *mastersi* with the elytra relatively wider and more strongly attenuate behind; its pronotum is duller than is usual in *mastersi*. The striking feature of this species is the relatively great width of the prothorax, which to the writer appears wider than in *mastersi* or its variant *laticor.*

hageni (Cand.), 1887, Leyd. Mus., Notes 9: 189 (*Agrypnus*).

Type: LEIDEN. Lectotype: 1st of 4 (numbered); ♀; 30 mm long; Serdang, Tandjong Morawa (Hagen); "*A. Hageni* Cdz. n. sp." (Candèze's label). There is a specimen from Nias I. in the Leiden series; it has the impression near the base of the elytra much reduced on stria 7, and almost disappearing on 8. *L. hageni* is less robust than *politus*, and its elytral striae are deeply impressed, whereas in *politus* they are not at all impressed. Compared with *mucronatus*, *hageni* is more strongly attenuate, and its pubescence shorter and less silky than in *mucronatus*.

pacificus (Cand.), 1882, Élat. nouv. 3: 1 (*Agrypnus*).

Type: IRSNB. 1st of 3; designated by Candèze; probably ♀; 34 mm; Woodlark I. The genitalia have been damaged and all but 2 segments of one antenna are missing. The other specimens in the series (Queensland; New Britain) are doubtfully conspecific.

ponderatus (Cand.), 1897, Élat. nouv. 6: 5 (*Agrypnus*).

Type: IRSNB. Lectotype: 1st of 2 "Ex-Typis"; probably ♀; 36 mm; "n. sp. *ponderatus* Cand. Mindanao. St [audinger]". Elytra obliquely truncate at tips, the outer angle

of truncation bluntly mucronate and the more prominent; the inner angle rounded. Known from Palawan also.

rubiginosus (Cand.), 1865, *Élat. nouv.* 1: 5 (*Agrypnus*).

Type: LEIDEN. Lectotype: 1st of 2; ♀ 35 mm; "Müller, Sumatra". This species can be recognized by its sulcate scutellum and reddish golden pubescence.

sobrinus (Cand.), 1887, *Leyd.*

Mus., Notes 9: 190
(*Agrypnus*).

Type: LEIDEN. Lectotype: 1st of 2 (numbered); ♀; 32 mm; Boenga Maas, Palembang, Sumatra (van Hasselt); "*A. sobrinus* Cdz. n. sp.". This differs from *hageni* in having (1) no deep impression near the base of elytral striae 7 and 8; and (2) antennal segment 3 relatively longer than in *hageni*.

tomentosus (Fabricius), 1798,

Ent. Syst., Suppl.: 130
(*Elater*).

The type of *tomentosus* was said by Fabricius to be in the Kiel Museum. However, Mrs. Ella Zimsen, Conservator of Insects in the Copenhagen Museum where the Kiel collection is on loan, states that the type cannot be found and is presumed lost.

Genus *Adelocera* Latreille,
1829 (of Hyslop, 1921)

fuscus (Fabricius), 1801, *Syst.*
Eleuth. 2: 228 (*Elater*).
NEW COMBINATION.

Type: COPENHAGEN (Kiel Museum coll.); single, probable ♀; 11.5 mm; "*fuscus*"



Fig. 2. *Adelocera fuscus* (Fabricius). Type of *Elater fuscus* Fabricius in the Kiel Museum Collection on loan to the Universitets Zoologiske Museum, Copenhagen; probably ♀, length about 11.5 mm. The label "fuscus" is in Fabricius' writing. The photograph was taken by Dr. Sv. G. Larsson (March 1959) who kindly permits its reproduction here.

(Fabricius' writing; on pin beside specimen). There is no locality label; the type locality was stated to be Amboina, where de la Billardière, its collector, is known to have been from September 6 to October 13, 1792. The propleura of the type have deeply incised grooves for reception of the tarsi, as does also the metasternum; antennal sutures are open for about 1/2 their length. The sides of the prothorax are weakly crenulate near their base, and are vaguely carinate along the outer margin almost to the anterior margin. A pair of round, widely spaced impressions is present on the pronotum behind the middle. The elytra are "crenato-striatis", as described; the claws are simple. This insect plainly belongs in the genus *Adelocera* of Latreille, but the writer has been unable to associate it with any other described *Adelocera* from the Pacific area. It is not a *Cratonychus* (*Melanotus*), to which genus Dejean and Erichson assigned it (see p. 397).

lindensis (Blackburn), 1891, Linn. Soc. N. S. Wales, Proc. ser. 2, 6: 504 (*Lacon*).

Type: BM (drawer 13a). Sex undetermined; 5.5 mm. "T"; "891". The number perhaps refers to a locality in Blackburn's register, deposited in the South Australian Museum. The original description gives the type locality as near Port Lincoln, South Australia.

setulosa (Cand.) 1882, Élat. nouv. 3: 8 (*Lacon*).

Type: IRSNB. Lectotype: 1st of 2 "Ex-Typis"; sex undetermined; 11 mm; "n. sp. *Setulosus* Cdz. Sumbawa Lsb." This specimen is nearer the 12 mm of the description than the one beside it. Type localities are Sumbawa and Flores, but no specimen from the latter island was found in Brussels or Leiden

Genus *Adelocera* subgenus *Compsolacon* Reitter, 1905

angulicollis (Cand.), 1891, Leyd. Mus., Notes 13: 243 (*Lacon*).

Type: LEIDEN. Lectotype: 1st of 3; sex undetermined; 8 mm; pass (Poentjak) between Buitenzorg and Preanger, West Java (Pasteur); Candèze's identification. Crenulation of the sides of the prothorax may be confined to the basal 2/3, or continue forward nearly to the anterior margin. Hind angles of the prothorax are divergent and truncate, the outer corner of the truncation prominent. Pubescence on scutellum conspicuously white. None of the "Ex-Typis" specimens in the IRSNB is from the type locality.

asperulata (Cand.), 1878, Mus. Gen., Ann. 12: 103 (*Lacon*).

Type: GENOA (drawer 3). Lectotype: 1st of 10; sex undetermined; 10.5 mm; "N. Guinea, Isola Yule" (D' Albertis). The sides of the prothorax are weakly crenulate near the base only. This species is very close to *crassa* (Cand.) from Cape York, as identified by Candèze, but probably is distinct. Differences are: (1) head nearly flat in *asperulata*; strongly impressed in *crassa*; (2) prothorax crenulate toward base and hind angles convergent in *asperulata*; in *crassa* the prothorax is not crenulate, the hind angles divergent.

beccari (Cand.), 1880, Mus. Gen., Ann. 15: 192 (*Lacon*).

Type: GENOA (drawer 3). Lectotype, sex undetermined; 10 mm; Mt. Singalan, Sumatra. Its catalogue card (5218) has Candèze's label: "*L. Beccarii* n. sp". The sides

of the prothorax are coarsely crenulate, a character not mentioned in the description. A cotype is in the IRSNB.

crassa (Cand.), 1874, Rév. Élat.: 88 (*Lacon*).

The type, in the von Bruck collection, was lost in the bombing of the Bonn Museum during the recent war (*teste* Prof. Dr. R. Danneel). A specimen (GENOA) from Cape York, the type locality, identified by Candèze as *crassa*, has the sides of the prothorax without crenulations. Two specimens are under this name in the IRSNB, one from "Brisb.", the other with 2 labels: "Brisbane C. G." and "Australia, Somerset, L. M. D'Albertis".

duplex (Blackburn), 1891, Linn. Soc. N. S. Wales, Proc. ser. 2, 6: 506 (*Lacon*).

Type: BM. Single, sex undetermined; 4 mm; "T 1347 V"; identified by Blackburn. Neboiss records the type as in the Australian Museum, Sydney.

farinensis (Blackburn), 1900, Roy. Soc. So. Austral., Trans. 24: 49 (*Lacon*).

Type: BM. Single ♂; about 5.5 mm; Blackburn's label: "6710 Lyndh. T".

impressa (Cand.), 1878, Mus. Gen., Ann. 12: 102 (*Lacon*).

Type: GENOA (drawer 3). Lectotype: 1st of 2; sex undetermined; 12.5 mm; Andai, New Guinea (Beccari). Both specimens are about the same size and fall short of the 15 mm called for by the description. The tarsal sulci on the propleura are, at most, weakly suggested.

insularis (Cand.), 1874, Rév. Élat.: 74 (*Lacon*).

Type: BM (drawer 12). Lectotype: 1st of 9; sex undetermined; 5.5 m; Mysol (Wallace); "*insularis*" (Candèze's identification). The 1st of several type localities mentioned is the Moluccas, which makes eligible as lectotype any of the Wallace material from Batchian, Mysol or Waigiou; there is in the BM one from each of those islands. The Batchian and Waigiou specimens are labelled "named by Candèze", which suggests that they were identified after the species had been described. The sides of the prothorax are crenulate towards the base, a character not mentioned in the description. A specimen, identified by Candèze, adds Sarawak to the known range of *insularis*.

labiosa (Cand.), 1874, Rév. Élat.: 86 (*Lacon*).

Type: BM. Sex undetermined; 6 mm; Freemantle, West Australia; "*Lacon* sp. nov. impressions tarsalis sur le pro- et metathorax *L. labiosus* mihi Champion Bay & Freemantle." The type locality is given as Swan River. The tarsal sulci on the propleura are fairly deep, but not well defined; those on the metasternum are broadly shallow. The description read: "...sulcis tarsalibus quatuor bene definitis", which, in a marginal note in the Museum's copy of the "Revision", has been amended by C. J. Gahan to read "*male*", with Candèze's "*bene*" underlined. The sides of prothorax are finely crenulate.

mansueta (Blackburn), 1892, Linn. Soc. N. S. Wales, Proc. ser. 2, 7: 288 (*Lacon*).

Type: BM. Single, sex undetermined; 5.5 mm; "5293, NSW. T"; "Australia"; Blackburn's identification. The description gives the type locality as near Narrabri, N. S. W.

Very close to, but distinct from, *lacrymosa* (Cand.); differences: (1) in *mansueta* the costiform intervals on the elytra are less prominent than in *lacrymosa* and do not end in bulbate tubercles; (2) pronotum less strongly convex in *mansueta* than in *lacrymosa*; (3) crenulation on sides of prothorax finely denticulate in *mansueta*, coarse in *lacrymosa*; and (4) hind angles of prothorax truncate at tip, not acute as in *lacrymosa*.

marmorata (Cand.), 1874, Rév. Élat.: 94 (*Lacon*).

Type: BM (drawer 13a). ♀; 9 mm; designated by Candèze; Queensland.

octava (Cand.), 1874, Rév. Élat.: 95 (*Lacon*).

Type: BM. Single ♀; 12.5 mm; Queensland. There are 2 small, vague impressions on the basal slope of the pronotum; the hind angles are briefly unicarinate. The sulci on the propleura are wide and shallow.

palpalis (Cand.), 1882, Élat. nouv. 3: 13 (*Lacon*).

Type: IRSNB. Lectotype: 2nd of 3; sex undetermined; 16 mm; northern Australia; the only specimen labelled as from the Monchicourt coll.

princeps (Cand.), 1874, Rév. Élat.: 89 (*Lacon*).

Type: BM. Single specimen, sex undetermined; 24 mm; Cape York; Candèze's designation. The sides of the prothorax are crenulate only near the base.

pupilla (Cand.), 1892, Mus. Gen., Ann. ser. 2, 12: 802 (*Lacon*).

Type: GENOA (drawer 3). Lectotype: 1st of 7; probably ♀; 8 mm; Dilo, New Guinea (Loria). The prothorax is crenulate on the sides, but not as strongly as in *gracilis*; its hind angles are briefly, but definitely truncate in *pupilla*, not acute as in *gracilis*. The elytra are about as wide as the prothorax, whereas in *gracilis* they are definitely wider than the greatest width of the prothorax.

schwaneri (Cand.), 1874, Rév. Élat.: 73 (*Lacon*).

Type: LEIDEN. Single of undetermined sex; 10 mm; Borneo; designated by Candèze. Described from 2 specimens, the other, in the von Bruck collection, was destroyed in the bombing of Bonn. The prothorax is subquadrate, its sides coarsely crenulate; its hind angles diverge slightly from the outline of the sides, their tips widely subtruncate. A transverse ridge, interrupted on the middle, on the pronotum, behind the middle.

variola (Cand.), 1874, Rév. Élat.: 92 (*Lacon*).

Type: BM. ♀; 9 mm; Candèze's label: "*Lacon variolus* Cdz. n. sp. Queensland". The sides of the prothorax are crenulate, a character not mentioned in the description.

Genus **Lacon** Laporte de Castelnau, 1836
(of Hyslop, 1921)

Arnett (1953, Coleop. Bull. 7: 7) proposed the name *Zalepia* for Castelnau's *Lacon* as interpreted by Hyslop (1921, "Genotypes of the Elaterid Beetles of the World". U. S. Nat. Mus., Proc. 58: 621-80). The change may well be justified, but until the writer has weighed further the evidence in its support, he continues in Hyslop's use of *Lacon*.

modestus (Boisduval), 1835, Voy. Astrolabe, Ent. 2: 108 (Elater).

Type: BM (drawer 6). Lectotype: 1st of 3; sex undetermined; about 12.5 mm; New Holland; "*Adelocera modesta* Boisd. Cand. Type Cdze" (Janson's label); "e coll. De jean" (Janson's label). Selected mainly on the evidence of Janson's labels, which are attached to the 1st specimen only. New records for the species from the Pacific, from specimens in the BM: Amboina, Bali, Java and Sumatra.

Genus **Meristhus** Candèze, 1857

nigritulus Cand., 1895 Élat. nouv. 5: 10.

Type: IRSNB. 1st of 3 "Ex-Typis"; sex undetermined; 3 mm; Sumatra; Candèze's designation. The type locality is Palembang, Sumatra; Fleutiaux has recorded the species from Luzon.

Genus **Myrmodes** Candèze, 1857

akidiformis Cand., 1857, Mon. Élat. 1: 169.

Type: BM. Holotype ♂; 17 mm; Raffles Bay, New Holland (Laferté coll.); Candèze's type designation. The aedeagus was dissected and mounted with the type; its lateral lobes, slightly shorter than the median lobe, are more or less parallel-sided, weakly arcuate on the apical 1/3, and inconspicuously expanded at the tip.

SUBFAMILY HEMIRRHIPINAE

Genus **Anthracalaus** Fairmaire, 1888

pasteuri Cand., 1891, Leyd. Mus., Notes 13: 244.

Type: LEIDEN. Holotype, probably ♀; 28 mm; Nias I.; Candèze's designation. The elytral striae are represented by lines of very light punctures at the base of 3, 4 and 5 only.

westermanni (Cand.), 1857, Mon. Élat., 1: 216 (*Alaus*).

Type: COPENHAGEN. Holotype, probably ♀; 34 mm; western Java. The 1st sternite does not have the fringe of modified hairs usual in female *Alaus*, but despite this the specimen is believed to be a female.

Genus **Alaus** Eschscholtz, 1829

albatus Cand., 1896, Élat. nouv. 6: 15.

Type: PARIS ?. (box 52) Probably ♂; 18 mm; Tasmania [!]; identified by Candèze; "Type" [Fleutiaux's label]. The type locality is northern Australia. Generally whitish with pair of small blackish markings (anteriorly divergent) on pronotum, and a short, blackish spot (2 intervals wide) on side of each elytron at about the middle. No specimen of *al-*

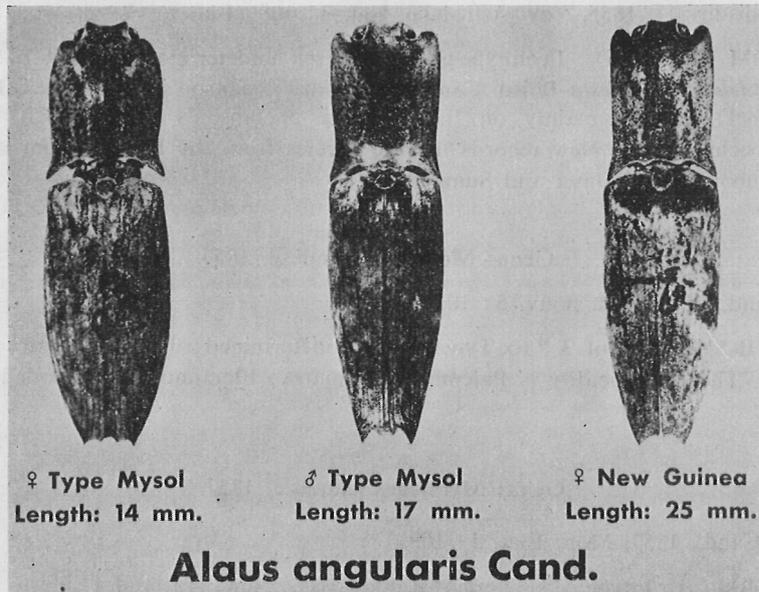


Fig. 3. *Alaus angularis* Candèze. Specimens in the British Museum (Nat. Hist.). Left: Type ♀, Mysol I.; center: Type ♂, Mysol I., right: ♀ (det. Van. Zwaluwenburg), Hollandia, New Guinea. Similarities and differences of the 3 are shown to support the opinion that the Type ♀ is not conspecific with the Type ♂ of *angularis*, and that the New Guinea ♀ is a true *angularis*.

batus was found in the IRSNB.

angularis Cand., 1874, Rév. Élat.: 145.

Types: BM. ♂; about 17.5 mm; Mysol (Wallace); Candèze's designation. ♀; 14 mm; Mysol; "Female Type ex Wallace". The ♂ description has positional priority on the page. Candèze noted that the single ♀ before him was smaller than the ♂, and appeared to be a poorly developed individual; *Alaus* females generally are larger than males of the same species. However, differences more significant than size are evident between the 2 types of *angularis*:

♂ <i>angularis</i> Type	♀ <i>angularis</i> Type
<i>Head</i>	
1. More deeply concave than in ♀	
2. Antennal segment 4 plainly longer than 3 (seg. 3-2.3; seg. 4-5.2; not mm)	Segment 4 not greatly longer than 3 (seg. 3-2.3; 4-2.5)
<i>Prothorax</i>	
3. Conspicuously longer than wide	Only slightly longer than wide
4. Anterior angles rounded, prominent	Anterior angles subacute, not prominent
5. Sides nearly straight	Sides arcuate
6. Carina on hind angles heavy	Carina fine

Elytra

- | | |
|---|---|
| 7. Outer angle of apical emargination plainly longer than the inner | Outer angle of emargination not greatly longer than the inner |
| 8. Interval 3 strongly tuberculate at top of basal slope | Interval 3 finely carinate near base, not tuberculate |

Body

- | | |
|-----------------------------------|-------------------------------------|
| 9. Slender; 3.6× longer than wide | More robust; 3.0× longer than wide. |
|-----------------------------------|-------------------------------------|

Ignoring differences 3, 5 and 9, which may be sexual, the writer believes that the insects described as the 2 sexes of *angularis* are not conspecific. He believes a ♀ of *angularis* is a specimen in the BM, about 25 mm long, from Hollandia, New Guinea, 300–600 m. It agrees structurally with the ♂ type of *angularis* from Mysol, and the 2 further agree as to similar pronotal markings which are absent from the purported type ♀ of *angularis*. Figure 3 shows some of the differences between the 2 types, and the similarities shared by the type ♂ and the New Guinea ♀. Candèze's ♀ of *angularis* has not been identified with any other described species; it may be new.

bicornutus Heller, 1914, Nova Guinea 9: 640.

cornutus Gahan 1915, Rpt. Coleop. coll. Dutch New Guinea (Zool. Soc. Sep.): 2 (39).

New synonymy.

Type: Dresden Natural History Museum (not seen); according to Prof. Dr. Rolf Hertel it has Heller's type label, and is from the Aroa River, SE New Guinea. Heller's 2nd specimen, a cotype, in the Amsterdam Zoological Museum was seen by the writer; a ♀ with Heller's identification; about 35 mm long (head spines not included); Hellwig Mts., New Guinea, 1000–1300 m. Gahan's holotype of *cornutus* is in the BM; a ♀; about 39 mm; Uakwa Valley, Snow Mts., Dutch New Guinea, 1200–1800 m. Comparison of the cotype of *bicornutus* and the holotype of *cornutus* shows agreement in every significant particular. The Amsterdam cotype is denuded, but unrubbed specimens show the elytra to have (1) a pair of light-colored, backwardly diverging fascia beginning at about the middle on interval 4; and (2) 2 short, forwardly divergent bands at about the apical 1/4. In some specimens still another fascia is suggested on the elytra, forward of those at about the middle.

brevipennis Cand., 1875, Soc. ent. Belg. Bull., 18: 120.

Type: IRSNB. 1st of 2; ♀; 18 mm; "Philippines"; Candèze's designation.

cerastes Cand., 1865, Élat. nouv. 1: 16.

Type: IRSNB. 1st of 5; ♀; 28 mm; Ternate I.; Candèze's designation. The type locality is Batchian, in the Moluccas, but no specimens from there were found in the IRSNB or in the BM. The prothoracic hind angles diverge from the outline of the sides, and are incurved at the tip; they are finely uncarinate, the carina close to the outer margin.

colffsi Cand., 1882, Élat. nouv. 3: 17.

Type: IRSNB. 1st of 2 "Ex-Typis"; ♀; 21 mm; Sumbawa; Candèze's designation. The cotype, from the 2nd type locality, Flores, also is a ♀. The stout, flat hind angles of the prothorax diverge strongly from the outline of the sides, their single carina nearer the outer than the inner margin.

cristatus Cand., 1874, Rèv. Élat.: 150.

Type: BM. ♂; 34 mm; Aniteum, New Hebrides; Candèze's designation. ♀ from Espiritu Santo is also in the BM. Differs as follows from *A. schwarzi* Fleut. (*sulcicollis* Schwarz 1902, preocc.) of the Solomons: (1) frontal margin of head reflexed on middle; deflexed in *schwarzi*; (2) a definite tubercle on basal slope of pronotum in *crisatus*; none in *schwarzi*; and (3) prothoracic hind angles strongly unicarinate in *crisatus*; feebly so in *schwarzi*.

dohertyi Fleut., 1940, Soc. ent. Belg., Bull. et Ann. 80: 93.

Type: PARIS (box 50). 1st of 2; ♀; 32 mm; Salibabu, Talaaur Is.; Fleutiaux's designation. A cotype is present from the Sula Is., ♀ about 31 mm. Close to *appendiculatus*, but with the tips of the elytra more widely emarginate than in that Moluccan insect, and the angles of the emargination about equally prominent, whereas in *appendiculatus* the sutural angle is the more prominent. The short elevated ridge on elytral interval 3 is sharper in *dohertyi* than in *appendiculatus*. The former insect has 2 small black spots on the pronotum, which are lacking in the latter.

doriae Gestro, 1875, Mus. Gen., Ann. 7: 1000.

Type: GENOA (drawer 5). Lectotype: 1st of 4 (numbered); ♀; 47 mm; Hatam, New Guinea (Beccari). Another ♀ and 2 ♂♂ from Hatam measure 40 mm and 41 mm. The black markings on the elytra, especially the large one, at about the middle (extending from lateral margin to about interval 3) are much reduced in the ♂.

elaps Cand., 1874, Rèv. Élat.: 132.

Type: BM. ♀; 18 mm; Sarawak (Wallace); Candèze's designation. This species can be separated thus from *A. boreli* Cand., the type of which is in the BM, and which it closely resembles:

♀ <i>elaps</i> Type	♀ <i>boreli</i> Type
1. Pronotum without median tubercle	A prominent tubercle at top of basal slope of pronotum
2. Ridge on elytral interval 3 not prominent	Elytral ridge prominent near base
3. Outer angle of apical emargination of elytra longer than inner angle	Angles of apical emargination subequal in length.

Specimens of *elaps* from Java are often more brownish than those from Borneo and Laos, which are fuscous to black. *A. hurria* Cand. has a prominent, transverse, median, basal tubercle on the pronotum, absent in *elaps*.

engelhardi Cand., 1883, Leyd. Mus., Notes 5: 11.

Type: LEIDEN. Single ♂; 28 mm; Saleyer I. (Engelhard); Candèze's designation. This insect is remarkable for the heavily hirsute clypeus, and the thick, erect hairs on the prosternal lobe; this latter character it has in common with the ♂ of *A. infumatus* of New Guinea.

farinosus (Montrouzier), 1860, Soc. ent. France, Ann. ser. 3, 8: 255 (*Agrypnus*).

Type: BM. ♀; 23 mm; New Caledonia; "*Alaus farinosus* Montr. Cdze. (*Agrypnus fari-*

nosus Montr.) Type ex coll. Doué"; bears Museum's type label. Only females of this species are known to the writer.

ferrugineus Fleut., 1934, Haw. Ent. Soc., Proc. 8: 475.

Type: PARIS. Holotype ♂, lacks head and prothorax (described as 15 mm); Amboina; Fleutiaux's designation. ♀ from Piroe, Ceram is 16 mm. A rusty red-brown insect with a black spot on elytral intervals 6, 7 and 8, behind the middle.

gibboni Newman, 1857, Ent. Soc. London, Trans. ser. 2, 4: 51.

Type: BM ? ♀; 33 mm; Moreton Bay; "*Alaus gibboni* Newman. Cand. Type" (Janson's label). Inquiry by Miss von Hayek reveals that the type is not in the Hope Museum at Oxford; the BM specimen may well be the holotype. The hind angles of the prothorax are strongly unicarinate, wide and divergent, the tips recurved. The tips of the elytra are arcuately emarginate with the inner angles the more prominent. The length is stated as "1.5 unc.". Miss von Hayek suggests that the abbreviation is for the Latin *uncia*, the 12th part of any whole; i. e., a 12th part of a foot, or 1 inch.

hurria Cand., 1882, Élat. nouv. 3: 7.

Type: IRSNB. 1st of 3; ♀; 23 mm; Deli, eastern Sumatra; Candèze's designation. Other specimens in the IRSNB identified by Candèze, are from Sambas, western Borneo and from Malacca, both new records for *hurria*.

hybris Cand., 1900, Élat. nouv. 7: 5 (21).

Type: IRSNB. Single ♀; 25 mm; "Key Ins." It compares as follows with *A. boreli* (New Britain to Java):

♀ <i>hybris</i> Type	♀ <i>boreli</i>
1. Frontal margin of head perpendicular on middle	Frontal margin of head deflexed
2. Lateral margin of propleura deflexed	Lateral margin not deflexed
3. Apex of elytra truncate, the angles not mucronate	Apex of elytra emarginate, all 4 angles mucronate

infumatus Cand., 1874, Rév. Élat.: 144.

Type: LEIDEN. Holotype ♀; 20 mm; Andai, New Guinea (Rosenberg). Candèze's key (*t. c.*: 120) separates *infumatus* from *angularis* by the triangular macula on each elytron of the former. Also, in *infumatus* the length and width of the prothorax are nearly equal, whereas in *angularis* the prothorax is notably more elongate.

keili Cand., 1898, Leyd. Mus., Notes 20: 63.

Type: LEIDEN. Lectotype: 1st of 2; ♀; 40 mm; Benkoelen, Sumatra, Liwa plateau, 1000 m. A cotype in the IRSNB is from Nias I. Unlike most *Alaus*, in *keili* the ♀ does not have a fringe of modified hairs on the hind margin of the apical sternite.

lactellus Cand., 1874, Rév. Élat.: 130.

Type: BM. ♂; 14.5 mm; Sarawak (Wallace); Candèze's designation. The Doria speci-

men mentioned in the description is in GENOA.

lacteus (Fabricius), 1801, Syst. Ent. 2: 230 (*Elater*).

Type: COPENHAGEN. Single ♀; 17 mm; Sumatra (Daldorff); Sehestedt-Tonder Lund coll. It has the Museum's type label.

lansbergei Cand., 1882, Élat. nouv. 3: 19.

Type: IRSNB. 1st of 4 "Ex-Typis"; ♀; 31 mm; Ardjoeno, eastern Java; Candèze's designation.

laportei Cand., 1882, t. c.: 17.

Type: IRSNB ? 1st of 3; ♀; 30 mm; Borneo; det. Candèze. This is eligible as lectotype if the locality is acceptable. The designation of Malacca as the type locality is probably erroneous, for Candèze twice corrected it, by inference: *laportei* (among other species) is listed from Borneo without mention of Malacca (1890, Soc. ent. Belg., Ann. C. R.: 76); later (1891 Cat. méthodique: 32) only N W Borneo is given as the locality.

modigliani Cand., 1892, Mus. Gen., Ann. ser. 2, 12: 797.

Type: IRSNB. 1st of 2 "Ex-Typis"; ♀; 25 mm; Engano; Candèze's designation. There are 4 cotypes in GENOA. The prothoracic hind angles are stout, divergent and incurved at the tip; unicarinate with carina bisecting the angle. Tips of the elytra are obliquely emarginate, the outer angle more prominent than the inner.

montraveli (Montrouzier), 1860, Soc. ent. France, Ann. ser. 3, 8: 253 (*Agrypnus*).

Type: BM. ♀; 44 mm; New Caledonia; "*Alaus montraveli*, Montr. Cdze.....Type ex coll. Doué" (Janson's label). Only females of this species are known to the writer.

From *A. farinosus* (Montr.) from New Caledonia, *montraveli* can be separated as follows: (1) antennal segments 2 + 3 are shorter than 4 in *montraveli*; in *farinosus* they are as long as 4; (2) in *montraveli* the tips of the elytra are obliquely emarginate, the inner angles the more prominent; in *farinosus* they are subarcuately emarginate with all four angles equally prominent.

morphnus Cand., 1900, Élat. nouv. 7: 4 (80).

Type: IRSNB. Lectotype: 2nd of 2; ♀; 33 mm; "Deutsch N. Guin.". The sides of the prothorax are arcuately rounded from the base of the hind angles in this species; in *cerastes* they are narrowed from the base of the angles in a nearly straight line (females compared).

nanus Cand., 1874, Rév. Élat.: 130.

Type: LEIDEN. ♂; 12 mm; Ardjoeno, Java (Hekmeijer); Candèze's designation. The aedeagus was dissected and mounted with the type; its lateral lobes are arcuately widened on the outer margin toward the apex.

nebulosus Cand., 1857, Mon. Élat. 1: 232.

Type: BM. Lectotype: ♀; 28 mm; "Manilla"; "*Alaus nebulosus* Cdze. Type ex coll.

Laferté" (Janson's label). Candèze's key (1874: 120, 121) places *nebulosus* under the couplet "prothorax without longitudinal carina"; the prothorax does have nevertheless, a very fine median ridge extending its entire length.

nubilus Cand., 1857, *t. c.*: 230.

Type: BM. Lectotype: ♀; 40.5 mm; Java; id. by Candèze (underside of 3rd label); "Type ex coll. Dejean" (Janson's label).

pantherinus Cand., 1882, *Élat. nouv.* 3: 16.

Type: IRSNB. Single ♀; 20 mm; Mindanao; Candèze's designation. A robust insect in which (in ♀) the prosternal lobe is deflexed and on the middle widely emarginate in the front of a V.

platteuwi Cand., 1890, *Soc. ent. Belg., Ann. C. R.*: 76.

Type: IRSNB. 1st of 2 "Ex-Typis"; ♀; 25 mm; Bandjermassing, Dutch Borneo; Candèze's designation. It is similar to *A. ritsemae*, but stouter.

quadrivittatus Cand., 1897, *Élat. nouv.* 6: 14.

Type: DEI (not seen). Readily recognized by the stripes on the pronotum; these are whitish, while the vestiture on the elytra is yellowish. Type locality is Bangkey I., east of Celebes; Leiden specimens add Taliaboe I., Sulu Archipelago to its known range.

rectangularis Schwarz, 1902, *Deut. Ent. Zeit.*: 311.

Type: DEI. ♀; 31 mm; Larat I., Tenimber Archipelago. Very close to *boreli* from Java, New Guinea and New Britain; the differences are mainly in color and in clarity of pattern. Possibly *rectangularis* is a subspecies of *boreli*.

ritsemae Cand., 1889, *Leyd. Mus., Notes* 11: 95.

Type: LEIDEN. 1st of 2; ♀; 24 mm; Tandjong Morawa, Serdang, Sumatra (Hagen); Candèze's designation. The other specimen, a ♀, 27 mm, is from Nias I. The color pattern of this species is similar to that of *A. hurria*. In *hurria* the lateral macula on the elytra reaches nearly to the humerus, and is fully 1/2 as long as the wingcover; in *ritsemae* this mark does not extend forward much beyond the middle, and its entire length is not more than 1/3 that of the elytron.

rosenbergi Cand., 1874, *Rév. Élat.*: 138.

Type: LEIDEN. Lectotype: 4th of 5; ♀; 28 mm; Tondano, Celebes (Rosenberg). Only females of this species are known to the writer.

scops Cand., 1874, *t. c.*: 137.

Type: BM. ♀; 20 mm; Dorey, New Guinea (Wallace); Candèze's designation (underside of lowest label). No males are known. Very close to *A. sericeus* Cand. from northern Australia and eastern New Guinea, but antennal segment 4 is relatively shorter than in *sericeus* (measurements not in mm):

	Seg. 2	Seg. 3	Seg. 4
♀ <i>scops</i> Type	1.6 (1)	2.3 (1.3)	3.9 (2.4)
♀ <i>sericeus</i> Type	1.7 (1)	3.2 (1.8)	6.2 (3.6)

semperi Cand., 1875, Soc. ent. Belg., Bull. 18: 120.

Type: IRSNB. 1st of 2; ♀; slightly less than 15 mm; Mindanao; Candèze's designation. The other, a ♀, 19 mm, from Mindanao, is doubtfully conspecific.

sericeus Cand., 1874, Rév. Élat.: 148.

spinicollis Van Zwal., 1951, Haw. Ent. Soc., Proc. 14: 323.

Types: BM. *A. sericeus*: (drawer 22). ♀; 25 mm; Rockhampton, Queensland. *A. spinicollis*: Holotype ♀; 30 mm; Humboldt Bay distr., Bewani Mts., Dutch New Guinea; allotype ♂; Sabron, Camp 2, 600 m, Cyclops Mts., Dutch New Guinea (Cheesman). The 2 species have many similarities, but appear to be distinct:

1. In *spinicollis* the vestiture is brighter and composed of more brown scales than in *sericeus*; e. g., the areas at base of pronotum and elytra are bright orange brown in *spinicollis*, whereas in *sericeus* the colors are drabber and less contrasting.

2. Two acute, well developed spines arise from the anterior margin of the prothorax in *spinicollis* (rarely abortive); in *sericeus* there is no suggestion of spines.

3. The carina on the prothoracic hind angles in *spinicollis* is nearer the outer margin than in *sericeus*, and anteriorly is more nearly parallel with the margin. In *sericeus* the carina more nearly bisects the angle, and diverges mediad anteriorly.

4. The aedeagi are similar but different. In *spinicollis* the outline of the outer margin of the lateral lobes is more strongly constricted below the subapical angle than in *sericeus*, and the expanded apical portion of the lobes is relatively narrower than in *sericeus*.

From *A. prosectus* Cand. of Queensland and New South Wales, *sericeus* and *spinicollis* differ consistently in having the prothorax slightly longer than wide; in *prosectus* it varies from as long as wide (♂), to a little wider than long (♀). (Measured from the middle of the anterior to the middle of the hind margin of the prothorax, and across its widest part, exclusive of the hind angles.)

sulaensis Cand., 1897, Élat. nouv. 6: 14.

Type: IRSNB. Single ♀; 30 mm; Sula I.; id. by Candèze; Museum's type label. Candèze remarks that this species, as well as *appendiculatus*, *vollenhoveni*, *montraveli* and *farinosus*, has the sides of the mucral cavity elevated, horizontal and V-shaped. This key, based on the type ♀ of *sulaensis* and females of the others (as well as of *bubonias*), may help separate these species:

1. Apex of elytra entire, the sutural angle spinose 2
Apex of elytra definitely truncate or emarginate 4
2. Antennal segment 3 intermediate in length between 2 and 4; clearly shorter than 4
..... **appendiculatus**
Antennal segment 3 as long as 4, or longer..... 3
3. Patches of reddish brown vestiture on elytra; ridge on elytral interval 3 curved

- briefly laterad anteriorly (the 2 ridges more or less parallel) **sulaensis**
 Whitish patches of vestiture on elytra; ridge on interval 3 sinuous, curved broadly laterad anteriorly **bubonias**
4. Vestiture yellow; prothoracic hind angles widely truncate; tips of elytra truncate **vollenhoveni**
 Vestiture white or brownish; hind angles of prothorax incurved or acute; tips of elytra emarginate 5
5. Large insects (45 mm); elytral striae deep, intervals generally convex **montravelli**
 Smaller insects (25 mm); striae lightly impressed, intervals flat on disc behind scutellum **farinosus**

timoriensis Cand., 1874, R v.  lat.: 137.

The holotype ♂ is said by Cand ze to be in Leiden. It could not be found there, and must be presumed lost. There is no specimen of *timoriensis* in the BM or in the IRSNB.

velutinus Cand., 1880, Mus. Gen., Ann. 15: 189.

Type: GENOA (drawer 4). Lectotype: single ♀; 28 mm; Fly River, New Guinea (D'Albertis); with Museum's type label. A cotype ♂ (repaired) is in the IRSNB.

vollenhoveni Cand., 1865,  lat. nouv. 1: 14.

Type: LEIDEN. Lectotype: 2nd of 5; 28 mm; Toelabollo, Celebes (Rosenberg). Janson labelled a ♀ in the BM as the type, but Cand ze expressly states his material is in Leiden.

wallandi Cand., 1883, Leyd. Mus., Notes 5: 207.

Type: IRSNB. Single ♂; 22.5 mm; Benkoelen, Sumatra; Cand ze's designation. The aedeagus was dissected and is mounted with the specimen. This species is very close to *A. lacteus*, and the writer believes it to be only a variant of the latter; their aedeagi are indistinguishable. Variation occurs in characters on which the species are supposed to differ, such as color, maculation of the elytra and outline of the tips of the elytra.

Genus *Tetrigus* Cand ze, 1857

australicus Blackburn, 1895, R. Soc. So. Austral., Trans. 19: 35.

Type: BM. Single ♂; 37 mm; "108 N. Qv./Type" (Blackburn's label).

parvulus Fleut., 1941, Soc. ent. France, Bull. 46: 18.

Type: PARIS (box 56). Single ♀; nearly 13 mm; Borneo; Fleutiaux's designation. This species is slightly smaller than the Philippine *T. bakeri* Fleut., the type of which also is in PARIS. *T. parvulus* has sparser punctation on the pronotum than occurs in *bakeri*; the tips of the elytra are more briefly dehiscent and less acutely and elongately mucronate than in *bakeri*.

SUBFAMILY CAMPSOSTERNINAE

Genus *Campsosternus* Latreille, 1834

aureolus (Hope), 1832, in Griffith, Anim. Kingd. : 363 (*Elater*).

Type: OXFORD. ♂; 33 mm; identified in Hope's writing. The type locality is Taneserim. The antennae of the type are incomplete.

eschscholtzi Hope, 1843, Ent. Soc. London, Trans. 3: 292.

Type: OXFORD. Probably ♀; 34 mm; "Type"; identified in Hope's writing. The type locality is "Manilla".

proteus Hope, 1843, *t. c.* : 291.

Type: OXFORD. ♀; 34 mm; "Manilla"; "*Rutilans* ♀ ?" identified in Hope's writing.

Comparison of the type with a ♀ of *C. rutilans* Chevr. from the Philippines, identified by Candèze, shows no structural differences. *C. rutilans* is a darker green with violaceous overtones; *proteus* is a paler green with golden iridescence. Candèze's suggestion that *proteus* is a variety of *rutilans* is probably valid.

rosicolor Hope, 1843, *t. c.* : 290.

The type was from the Dupont collection and therefore might be expected to be in the BM. It was not found there or in the Hope Museum, Oxford.

rutilans Chevrolat, 1841, Rev. Zool. : 42.

Type: PARIS (box 80). Probably ♂; 27 mm; orange red label (? locality); "*rutilans* Chev. *type/rutilans* typique Cand. Mon." (Fleutiaux's label). Only a single leg is entire.

Genus *Dioxypterus* Fairmaire, 1881

bennigseni Schwarz, 1902, Deut. Ent. Zeit. 1902: 314.

Type: DEI. Lectotype: 1st of 2 (numbered) "Typus"; ♂; 10 mm; "Baining Berge", New Britain; coll. Bennigsen. The 2nd is a cotype ♀; nearly 13 mm; Baining Mts.

flexuosus Fairmaire, 1881, Le Naturaliste 3: 406.

Type: IRSNB (drawer 92). Lectotype: 1st of 2 "Ex-Typis"; ♀; 12 mm; Fiji; "Type" (Candèze's writing); identified by Fairmaire.

guttulatus Fairmaire, 1881, *t. c.* : 406.

Type: IRSNB (drawer 92). Lectotype: single ♀, 13 mm; Fiji; Candèze added a type label.

nigrotransversus Fairmaire, 1881, *t. c.* : 406.

Type: IRSNB (drawer 92). Lectotype: 1st of 2; ♀; 12 mm; Fiji; id. by Fairmaire.

undulatus Schwarz, 1902, Deut. Ent. Zeit. 1902: 316.

Type: DEI. ♀; 14 mm; "patria Fidschi Insel?"; "Typus" Schwarz's id. label. Speci-

mens are known from New Guinea only. The type of var. *fulvoscutellatus* Heller, 15 mm; Alkmaar, New Guinea, is in the Zoological Mus., Amsterdam.

Genus *Oxynopterus* Hope, 1842

candèzei Fleut., 1927, *Elat. Indo-Chine Franc.* 1: 121, footnote; n. n. for *O. audouini* Cand. 1874, not *O. audouini* Hope, 1842.

Type: BM. Lectotype: ♀; 65 mm; Malacca; "audouini" (Candèze's writing on underside of Janson's label). The only one labelled by Candèze. The tip of each elytron is emarginate in *candèzei*, spinose in *audouini* Hope.

Genus *Pectocera* Hope, 1842

malaisiana Cand., 1882, *Élat. nouv.* 3: 24.

Type: IRSNB. Lectotype: 1st of 5 "Ex-Typis"; ♂; 25 mm; Celebes; "n. sp. *Malaisiana* Cdz. (Candèze's label).

SUBFAMILY TETRALOBINAE

Genus *Pseudotetralobus* Schwarz, 1902

albertisi (Cand.), 1878, *Mus. Gen., Ann.* 12: 108 (*Tetralobus*).

Type: GENOA (drawer 9). ♀; 30 mm; Somerset, Australia (D'Albertis). The visible portion of the ovipositor suggests the lateral lobes of an aedeagus. No specimens of *albertisi* were found in the IRSNB.

australasiae (Gory), 1836, *Soc. ent. France, Ann.* 5: 513 (*Tetralobus*).

Type: BM (drawer 43). ♂; 39 mm; "New Holland"; Museum's type label; "*australasiae* Gory (type)" (underside of 2nd label from bottom). The aedeagus was dissected and mounted with the specimen.

capucinus (Cand.), 1882, *Élat. nouv.* 3: 27 (*Tetralobus*).

Type: IRSNB. 1st of 2; ♂; about 39 mm; Cleveland Bay, northern Australia; Candèze's designation. The type locality is given as Somerset.

fortnumi (Hope), 1842, *Zool. Soc. London, Proc.* 1842: 74 (*Tetralobus*).

Type: OXFORD. ♂; 25 mm; "Fortnumi Hope SA" (Hope's label). The initials are presumably for South Australia; the type locality is Adelaide.

murrayi (Cand.), 1857, *Mon. Élat.* 1: 382 (*Tetralobus*).

Type: BM. ♀; 43 mm; Port Philip, Queensland; "...Type ex coll. Murray" (Janson's label). The pronotum of *murrayi* has no median groove, whereas in *australasiae* it is grooved on its entire length; the elytral striae, even on the sides, are less evidently punctured in *murrayi* than in *australasiae*.

SUBFAMILY DICREPIDIINAE

Genus *Sephilus* Candèze, 1878

frontalis Cand. 1878, Mus. Gen., Ann. 12: 109.

Type: GENOA (drawer 9). Single probable ♀; 25 mm; Sarawak (Doria). The sternopleural sutures are straight, deep, and widely separated; the prothoracic hind angles are stout, divergent and strongly unicarinate; the tips of the elytra are entire; tarsal segment 1 is briefly lamellate, while on 2 and 3 the lamella is longer. The specimen has been riddled by insect feeding; the genitalia are missing but its general appearance suggests it is ♀. The terminal segment of the maxillary palpus has been damaged so that its tip appears to be acute.

Genus *Sossor* Candèze, 1883

This genus belongs in the subfamily Senodoniinae (p. 404). It was formerly placed in the Dicrepidiinae.

Genus *Propsephus* Hyslop, 1921

hawaiiensis (Cand.), 1883, Élat. nouv. 3: 42 (*Ischiodontus*). Specific status restored.

euaensis (Schwarz), 1902, Deut. Ent. Zeit. 1901 (2): 352 (*Psephus*). New synonymy.

Type: IRSNB. Lectotype: 1st of 3 (numbered); ♂; 10.5 mm; "Samoa" (Candèze's writing); "n. sp. *Hawaiiensis* [sic] Cdz. Sandwich I." (Candèze's label). As the neotype of *euaensis* I designate a specimen in the DEI sent me by Prof. Dr. Sachtleben for examination. It is ♂; about 9.5 mm; Eua I, Tonga group; "Eua. Mus. Godeffroy No. [not filled in] / coll. Schwarz/Typus [Museum's label]/*euaensis* Schw. [Schwarz writing on pink label]/*Propsephus euaensis* Schw. [Sachtleben's label] / Dtsch. Entomol. Institut, Berlin". The Elateridae in the Godeffroy Museum (where Schwarz' type was deposited) were destroyed during the war. The neotype specimen in the DEI appears to have been original Schwarz material not deposited in the Godeffroy Museum.

The aedeagi of the lectotype *hawaiiensis* and of the type *euaensis*, dissected and mounted with their respective specimens, appear to be identical in all respects (the median lobe of the *hawaiiensis* aedeagus has its tip broken; hence that of type *euaensis* is shown, pl. 1, 1). Nor are there external differences between the two (even the arcuation of the sides of the prothorax is the same); the writer therefore reduces *euaensis* to synonymy under *hawaiiensis*.

Earlier (1928, Ins. Samoa 4 (2): 115) I considered *hawaiiensis* a synonym of *tongaensis*. With the types of both available, these differences are apparent:

1. The prothorax of *tongaensis* is more strongly transverse, and its sides more strongly arcuate than in *hawaiiensis*; its greatest width is across about the middle, instead of across the tips of the hind angles as in *hawaiiensis*. The median groove on the pronotal basal slope is stronger in *hawaiiensis* than in the other species. The punctuation on the pronotum becomes coarser toward the sides, and confluent anteriorly in *tongaensis*; whereas in *hawaiiensis* it is finer and not at all confluent.

2. In *tongaensis* the elytral striae are more deeply impressed and the punctures more linear than in *hawaiiensis*, the intervals convex and subrugosely punctulate; in *hawaiiensis*

the intervals are flat.

3. The aedeagi are similar, but in *hawaiiensis* the sides of the lateral lobes are widened toward the base whereas in *tongaensis* they are nearly parallel-sided below the subapical angle (pl. 1, 1 & 2)

P. hawaiiensis and *P. tongaensis* are, therefore, valid species and *hawaiiensis* is hereby restored to specific rank. Candèze's Samoa label on the lectotype of *hawaiiensis* would seem to be a correction of the original type locality; the species does not occur in Hawaii. Perpetuation of the geographical error in the specific name is unfortunate.

major (Cand.), 1878, Élat. Nouv. 2: 25 (*Anchastus*).

The type is said to have been in the Godeffroy Museum, which was destroyed during the war. Two ♀♀ from Samoa, identified as *major* by Fleutiaux, were sent by Dr. Sachtleben from the DEI for examination, but I have seen no specimen which might be the type. This species was not found in the IRSNB. *P. major* is known from Samoa only and is a common species there; the original type locality, Fiji, is probably erroneous. It is usually a blackish brown insect; the pronotum is rather strongly convex, and the unicarinate prothoracic hind angles diverge hardly at all from the outline of the sides. The expanded apical portion of the lateral lobe of the aedeagus (about 1/4 as long as the lobe itself) is subtriangular with a short, acute subapical angle.

rufipes (Schwarz), 1902, Deut. Ent. Zeit. 1901 (2): 351 (*Psephus*)

Type: DEI. ♀; 13 mm; Tonga Tobu, Tonga; labelled: "Tonga Mus. Godeffroy No. [not filled in] / Coll. Schwarz/Typus [Museum's label]/var. rufipes Schw. [Schwarz' writing]/Propsephus rufipes Schw. [Sachtleben's writing]/Dtsch. Entomol. Institut, Berlin". A ♀ symbol has been added. Inasmuch as none of Schwarz' types in the Godeffroy survived the destruction of that museum, I designate this specimen as the neotype of *rufipes*. A shiny species with flavous pilosity; brown, with legs and sides of the elytra reddish brown. Antennae exceed tips of prothoracic hind angles by about 2 segments. The prothorax is transverse, but not as strongly so as in *tongaensis*; the hind angles are sharply unicarinate, the carina more or less bisecting the angle. The mucro is strongly upcurved behind the fore coxae, almost at right angles to the plane of the prosternum.

tongaensis (Cand.), 1878, Élat. nouv.: 25 (*Anchastus*).

vitiensis Van Zwal., 1940, Bishop Mus., Occ. Pap. 16 (5): 112. **New synonymy.**

Type: IRSNB (drawer 121). Lectotype: 1st of 2 (numbered); ♂; 10 mm; "Viti Monfr."; "Tonga Tab." (Candèze's writing). The aedeagus was dissected and mounted with the specimen (pl. 1, 2). The 2nd specimen also from "Tongatab", identified by Candèze as *tongaensis*, differs from the lectotype, and in the writer's opinion is *hawaiiensis*. The holotype ♀ of *vitiensis* is in the BM. Comparison of a paratype ♂ from Fiji with the lectotype of *tongaensis*, supports the conclusion that the 2 are the same; both externally and on aedeagal characters, they are identical.

KEY TO MID-PACIFIC PROPSEPHUS

(Samoa, Fiji, Tonga and Marquesas)

1. Reddish fuscous species with greenish metallic elytra (Marquesas) **aenescens**

- Generally rufous or blackish, without metallic colors 2
- 2 (1). Antennae long, exceeding 1/2 the body length, even in the ♀ 3
 Antennae shorter, exceeding prothoracic hind angles by not more than 3 segments, even in the ♂ 4
- 3 (2). Antennal segments very wide; prothorax strongly transverse (Samoa)..... **upoluensis**
 Antennal segments slender; prothorax not strongly transverse (Samoa)... **gracilicornis**
- 4 (2). Antennal segment 3 shorter than 4 (2+3 about as long as 4); (Fiji)... **zimmermani**
 Antennal segment 3 as long as 4 5
- 5 (4). Prothorax strongly transverse; hind angles conspicuously sinuate on outer margin (Tonga ; Fiji) ; (*vitiensis*) **tongaensis**
 Prothorax moderately transverse ; hind angles only slightly sinuate..... 6
- 6 (5). Mucro abruptly bent upward behind fore coxae, at about 90° angle (Tonga).. **rufipes**
 Mucro less abruptly bent upward, at an angle of about 45° 7
- 7 (6). Large blackish insects (not less than 16 mm); frontal margin of head more or less straight on middle ; elytra convex (Fiji ? ; Samoa)..... **major**
 Smaller, rufous insects (13 mm long, at most); frontal margin of head more arcuate than in *major* ; elytra somewhat depressed on disc (Tonga ; Samoa ; Fiji ?) ; (*euaensis*)..... **hawaiiensis**

SUBFAMILY CONODERINAE

Genus *Simodactylus* Candèze, 1859

The transfer by Fleutiaux (1928, *Elat. Indochine Franc.* 2: 120–121) of *Anathesis*, *Melanthoides* and *Pachyderes* from the Pachyderinae to the Conoderinae, prompts removing *Simodactylus* also to the latter subfamily.

cinnamomeus (Boisduval), 1835, *Faune Océanie*, Col.: 106 (*Elater*).

Type: BM. Probably ♂ ; 12.5 mm ; “*Elater cinnam* Bdv. Cdze. Cand.” (Janson’s label) ; “*Elater mihi* h. in *Nouv. Holland. De Latreille*” (Dejean’s label). No trace of genitalia remains, but the specimen is believed to be ♂. The type locality is suspect; except for the type, the writer has seen no *cinnamomeus* from Australia. The species appears restricted to Polynesia except for a single record from Jaluit. A Fiji specimen in the BM labelled “*cinnamomeus* var. a” is *S. tasmani*. Another, “var. b”, from Polynesia, is paler in color than the type and has the median part of the pronotum dusky; its aedeagus agrees with that of Hawaiian specimens of *cinnamomeus*.

delfini Fleut., 1907, *Rèv. Elat. Chili* (*Rev. Chil. His. Nat.* 11): 175.

Type: PARIS (box 123). ♀ ; 14 mm ; “*Ile de Paques/Mus. Santiago Germain*” ; Fleutiaux’s designation. The species is known only from Easter I. and references to its occurrence on the American mainland are erroneous. Fleutiaux’s note attached to ♂ in PARIS reads: “*G. Simodactylus* n’est pas du Chili mais de Océanie occidental.”

guttatus (Cand.), 1878, *Mus. Gen., Ann.* 12: 110 (*Monocrepidius*).

Type: GENOA (drawer 12). Lectotype: 1st of 3 “Typus” (numbered) ; ♀ ; 16 mm ; Acqui Conora, Ternate I., Moluccas (Beccari). The description calls for a body length of

18 mm, but none of the *guttatus* in Genoa or in the IRSNB exceeds 16 mm. *S. guttatus* differs from *S. similis* (Cand.), the holotype ♂ of which also is in GENOA, in having (1) the sides of the mucral cavity prominent, their base horizontal; (2) interval 3 of the elytra elevated; and (3) tarsal segment 4 widely dilated; in *similis* the dilation is slight.

luzonicus Fleut., 1934, Soc. ent. Belg., Bull. et Ann. **94**: 365.

Type: PARIS (box 123). Single ♀; 15 mm; Mt. Banahao; Fleutiaux's designation. An elongate yellowish species, with black or blackish as follows: (1) head and appendages; (2) subtriangular macula occupying 3/4 of the anterior margin of the pronotum, and narrowing backward (with irregular margins) to the hind margin where it is as wide as the scutellum; (3) legs, distal part of mucro, and parts of meso- and metasternum; (4) abdomen (sides and apex yellowish brown). Tarsal segment 4 is moderately wide (about as in *philippinensis*) but not as wide as in *S. pallidus* Fleut. or *S. tasmani*. The tips of the elytra are more strongly dehiscent and produced longer in *luzonicus* than in *philippinensis*.

pulcherrimus Cand., 1889, Élat. nouv. **4**: 89.

Type: Madrid Museum (?) (not seen). The type locality is Tayabas, Luzon. Specimens from Davao and Surigao, Mindanao, and from Mt. Banahao, Luzon are in the PARIS museum. The head is black; the pronotum varies from entirely orange yellow with hind angles and hind margin black, to partially yellowish with median black line of variable length; scutellum and elytral suture are black, the elytra with 2 blackish, transverse bands (of variable extent) at about the anterior 1/3, and at the middle.

tasmani Cand., 1895, Élat. nouv. **5**: 24.

Type: IRSNB. Lectotype: 1st of 4 (numbered) "Ex-Typis"; ♀; 13.5 mm; Fiji. It is the only specimen with Candèze's identification. The aedeagus of specimen 4 was dissected; it agrees in all respects with the figure published earlier (1957, Ins. Micronesia **16** (1): 17, fig. 6-b) as the aedeagus of *tasmani*.

tertius Cand., 1882, Élat. nouv. **3**: 44.

trivittatus Schwarz, 1906, Deut. Ent. Zeit. **1906**: 353.

Type (*tertius*): IRSNB. Lectotype: single ♀; 11.5 mm; New Guinea. There are 3 longitudinal blackish vittae on the pronotum; the outer 2 reach neither the front nor hind margin, and are narrower than the middle stripe which extends the full length of the pronotum, and onto the head as a black spot. The blackish sutural band on the elytra disappears before reaching the apex. Tarsal segment 4 is moderately widely lobed. In the absence of a definite type of *S. trivittatus*, Prof. Dr. Sachtleben loaned the writer an "historisches Exemplar" from the DEI. ♂; 11.5 mm; New Guinea. Type locality is Shortland I. The 3 longitudinal black bands on the pronotum are about equally spaced with respect to one another and to the side margins. Tarsi cannot be seen clearly, but segment 4 appears to be but weakly dilated instead of widely, as described. The aedeagus of the DEI example of *trivittatus* is shown in pl. 1, 3. The two are very similar but differ as follows: (1) in *tertius* the pronotum is shallowly grooved on the basal slope only; in *trivittatus*, the groove extends forward of the basal slope and is well defined on the slope itself; (2) in *tertius* the outer angle of the apical emargination of the elytra is obtuse; in *trivittatus* the outer angle is briefly mucronate.

The following key to the Philippine species of *Simodactylus* omits *cinnamomeus* which is doubtfully present on Luzon. The head of *cinnamomeus* is brownish, whereas in these keyed species, it is black.

1. Elytra unicolorous or with black sutural stripe; sides of mucral cavity sloping in 2 planes; lobe of tarsal segment 4 not strongly expanded 2
Elytral coloration not as above; sides of mucral cavity sloping in a single plane;
lobe of tarsal segment 4 wide **pulcherrimus**
2. Pronotum with black median stripe; no sutural stripe on elytra **luzonicus**
Pronotum without median stripe; stripe along at least part of elytral suture.....
..... **philippinensis**

Genus *Conoderus* Eschscholtz, 1829

arouensis (Cand.), 1878, Mus. Gen., Ann. 12: 112 (*Monocrepidius*).

Type: GENOA (drawer 11). Lectotype: 1st of 2 "Typus" ♂, 10 mm; "Isole Aru, Wokan"; (Beccari). The aedeagus (pl. 1, 4) is very slender. In common with some other Papuan and Australian *Conoderus* (*compactus*, *contiguus*, *planiusculus*, *rufifrons*, *seniculus*, *umbraculatus* and *ventralis*) this species has the median lobe of the aedeagus markedly shorter than the lateral lobes. The lobe on tarsal segment 4 is wide in *arouensis*.

basilaris (Cand.), 1878, *t. c.*: 116 (*Monocrepidius*).

Type: GENOA (drawer 11). Lectotype: 1st of 2 "Typus"; probably ♀; 6 mm; Somerset (D'Albertis). Punctuation on head and prothorax is rather coarse in *basilaris*; the lobe on tarsal segment 4 is narrow. The 2nd specimen, 5.5 mm, is a ♂; its aedeagus is stout, the lateral lobes are robust, narrowed distally and nearly acute at the apex, and shorter than the median lobe.

compactus (Cand.), 1878, Élat. nouv. 2: 19 (*Monocrepidius*).

Type: IRSNB (drawer 133). Lectotype: 1st of 5 "Ex-Typis"; ♂; 9.5 mm; Rockhampton, Queensland. Its aedeagus (pl. 1, 5) is slender; the apical expansion of the lateral lobes is more strongly transverse than in *arouensis*.

contiguus (Cand.), 1878, Mus. Gen., Ann. 12: 114 (*Monocrepidius*).

Type: GENOA (drawer 11). Lectotype: 1st of 3 "Type"; sex undetermined; 8.5 mm; Sorong, New Guinea (D'Albertis). The lobe of tarsal segment 4 is wide in *contiguus*. The aedeagus of a ♂ *contiguus* from New Guinea in the IRSNB, has the median lobe much shorter than the lateral lobes; the latter widen gradually toward the apex but have no subtriangular expansion. A specimen from the Aru Is. is in the BM, a new locality record.

cristatus (Cand.), 1880, Mus. Gen., Ann. 15: 190 (*Monocrepidius*).

Type: GENOA (drawer 11). Lectotype: single ♀; 12 mm; Fly River, New Guinea (D'Albertis); id. by Candèze. Tarsal segment 4 is widely lobed.

disjunctus (Cand.)

See *Anchastus disjunctus*, p. 377.

evanescens (Cand.), 1897, *Élat. nouv.* 6: 33 (*Monocrepidius*).

Type: IRSNB. Lectotype: 1st of 7 "Ex-Typis"; probably ♀; 5.5 mm "Borneo N. I. Banguay St."; Candèze's id. label. All the specimens bear the dual locality label. A cylindrical species; tarsal segment 4 is widely lobed.

evillardii (Le Guillou), 1844, *Rev. Zool.* 7: 22 (*Monocrepidius*).

Type: PARIS (Box 127). Sex undetermined; 14 mm; no locality, but orange label and "29"; designated by Fleutiaux as the type of *evillardii* as redescribed by Candèze (1859, *Mon. Elat.* 2: 235). The vestiture on alternate intervals of the elytra is conspicuous.

fasciatus (Cand.) 1865, *Élat. nouv.* 1: 25 (*Monocrepidius*).

Type: BM. Lectotype: ♂ 6.5 mm; Sarawak (Wallace); id. by Candèze. The transverse band on the elytra behind the middle is difficult to see. The lateral lobes of the aedeagus are broadly rounded at the apex, not notably expanded and not angulate; the shoulder slopes gently.

flavicans (Cand.)

See *Conoderus (Heteroderes) flavicans*, p. 375.

froggatti Van Zwal., 1940, *Bishop Mus., Occ. Pap.* 16 (5): 121.

Type: BM. Holotype ♂; 4.75 mm; Morobe, New Guinea. Very similar to *C. (Heteroderes) pusillus*, but the pronotal punctation is simple, whereas in *pusillus* it is double. The type of *pusillus* is in the BM (drawer 61); ♂ 4.3 mm; Dorey, New Guinea (Wallace). The sides of the prothorax near the base are nearly straight in *froggatti*, but arcuate in *pusillus*; this is not a sexual difference, for both type specimens are ♂. Their aedeagi are extremely similar, the lateral lobes being somewhat more slender in *froggatti* than in *pusillus*.

insularis (Cand.), 1896, *Leyd. Mus., Notes* 18: 141 (*Monocrepidius*).

Type: LEIDEN. Lectotype: 1st of 2; ♂; 7.5 mm; Bintang I., Riouw Arch. (van Hasselt); "♂ *Monocrepidius insularis* Cand. n. sp." (Candèze's writing). The 2nd is a cotype ♀, 10 mm. The lateral carina of the prothorax is inferior for much of its length; the lobe on tarsal segment 4 is narrow.

jekeli (Cand.), 1859, *Mon. Élat.* 2: 244 (*Monocrepidius*).

Type: BM. Lectotype: 1st of series; ♂; 8.5 mm; Victoria; id. by Candèze. The tips of the elytra and entire, and briefly dehiscent. The aedeagus was dissected and is mounted with the lectotype. Its lateral lobes are longer than the median one; they are arcuate on the distal 1/2 and asperate along the outer margin.

juvenis (Blackburn), 1888, *Linn. Soc. N. S. Wales, Proc. ser. 2*, 2: 1480 (*Monocrepidius*).

Type: BM. ♂; 11 mm; N. Territory, Australia; "T" (Blackburn's designation). The aedeagus of the type is shown (pl. 1, 6) and is remarkable for the extreme shortness of median lobe and the broadly spatulate lateral lobes. Similar spatulate lateral lobes together with an extremely short median lobe occur also in the aedeagi of *C. ventralis* (Cand.) and *C. regularis* (Cand.), both from N. Queensland. The aedeagi of all three species however, differ markedly one from another.

natunensis (Cand.), 1884, Leyd. Mus., Notes 16: 197 (*Megapenthes*). NEW COMBINATION.

Type: LEIDEN. Holotype ♂; 8 mm; Natuna I. Tarsal segment 4 has a lamella definite enough to warrant placing this species in *Conoderus*. The antennae are longer, and segments 4-10 more slender in the ♂ of *natunensis* than in ♂ *M. saleyeri*; segment 4 is longer than 2+3 in *natunensis*, and shorter than 2+3 in *saleyeri*.

pallipes (Eschscholtz), 1829, in Thon: Ent. Arch. 2: 31 (*Monocrepidius*).

Elater taitensis Boheman, 1858, Eug. Resa, Ent.: 68. New synonymy by Boheman, published here for the first time.

The location of Eschscholtz' type of *pallipes* is not known to me. That of *taitensis* is in STOCKHOLM (drawer 31-17); sex undetermined; about 7 mm; Tahiti; "*pallipes* Eschsch. *Amped. taitensis*" (Boheman's writing). The synonymy is valid if the generally accepted identification of *pallipes* is correct.

pauperatus (Cand.), 1878, Mus. Gen., Ann. 12: 113 (*Monocrepidius*).

Type: GENOA (drawer 11). Lectotype: 1st of 2; ♀, nearly 8 mm; Warbusi, New Guinea (Beccari). The lobe on tarsal segment 4 is rather wide. The prothoracic hind angles are unicarinate in *pauperatus*, strongly bicarinate in *yulensis* (Cand.).

planiusculus (Cand.), 1878, Élat. nouv. 2: 19 (*Monocrepidius*).

Type: IRSNB (drawer 140). Lectotype: 1st of 3 "Ex-Typis" ♂; 10 mm; Champion Bay, N W Australia. The aedeagus of the lectotype is partially visible; its lateral lobes are more or less parallel-sided, and considerably longer than the median lobe.

planus (Cand.), 1878, *t. c.*: 19 (*Monocrepidius*).

Type: IRSNB (drawer 141). Lectotype: 1st of 2; probably ♀; 8 mm; Sydney. It has Candèze's identification and "n. sp." label. The lobe on tarsal segment 4 is wider than the tarsus itself.

regularis (Cand.), 1878, Mus. Gen., Ann. 12: 115 (*Monocrepidius*).

Type: GENOA (drawer 11). Lectotype: 1st of 4 (numbered); ♀; 17 mm; Somerset, Australia (D'Albertis). A piceous black species with rufous appendages; tarsal segment 4 is widely lobed. Specimens 3 and 4 are not conspecific with the other 2 or with each other.

ruffrons (Cand.), 1878, Élat. nouv. 2: 18 (*Monocrepidius*).

Type: IRSNB (drawer 142). 1st of 4 "Ex-Typis" (numbered); ♀; 12 mm; Port Denison, Queensland; has Candèze's identification; the abdomen is missing. The aedeagus of specimen 4 was dissected and is illustrated (pl. 1, 7). Specimen 2 is not conspecific with the others.

seniculus (Cand.), 1878, *t. c.*: 19 (*Monocrepidius*).

Type: IRSNB (drawer 142). Lectotype: 1st of 12 "Ex-Typis"; ♀; 12 mm; Queensland; Candèze's id. label. The lobe of tarsal segment 4 is moderately wide. The aedeagus of specimen 10 was dissected; its lateral lobes are long and parallel-sided except for con-

vexity along middle of inner margin; the median lobe is very short.

simulans (Cand.), 1878, Mus. Gen., Ann. 12: 117 (*Monocrepidius*).

Type: GENOA (drawer 11). Lectotype: single of undetermined sex; 7 mm; Somerset, Queensland (D'Albertis). Pronotal punctation is mixed, but the larger punctures are simple and deep, not flat as in *Heteroderes flavicans*. The lobe on tarsal segment 4 is narrow. A cotype ♂ is in the IRSNB. The lateral lobes of its aedeagus are slender and subtriangularly expanded at the apex; they are considerably longer than the median lobe.

socius (Cand.), 1878, Élat. nouv. 2: 18 (*Monocrepidius*).

Type: IRSNB (drawer 143). Lectotype: 1st of 3; ♀; 11 mm; "n. sp. *Socius* Cdz. Melb?" (Candèze's label). The aedeagus is partially visible; its lateral lobes are without apical expansion.

squalescens (Cand.), 1887, Leyd. Mus., Notes 9: 286 (*Monocrepidius*).

Type: IRSNB (drawer 143). Single ♀; 7 mm; Normantown, Carpentaria Bay, Queensland; Candèze's designation. The lobe on segment 3 is little if any wider than the segment which follows. No specimens of *squalescens* were found in Leiden.

squalidus (Cand.), 1878, Élat. nouv. 2: 20 (*Monocrepidius*).

Type: IRSNB (Drawer 143). Lectotype: 1st of 2 "Ex-Typis"; probably ♂; 6.5 mm; "n. sp. *Squalidus* Cdz. Adelaide" (Candèze's label). A slender, depressed species of doubtful generic position because of its tarsal structure. The lobe on segment 4 is very narrow, and is little more than a prolongation of the hind margin of the segment.

strigatus (Cand.), 1891, Cat. method.: 74 (*Monocrepidius*); new name for *M. striatus* Cand., 1878, Élat. Nouv. 2: 19, not *M. striatus* MacLeay 1872.

Type: IRSNB (drawer 142). Single ♂; 12 mm; Rockhampton, Queensland. A parallel-sided insect, with pronotum densely punctate and "mat". The lobe on tarsal segment 4 is moderately wide.

torresi (Cand.), 1880, Mus. Gen., Ann. 15: 190 (*Monocrepidius*).

vuilleti (Fleut.), 1916, Soc. ent. France Bull. 1916: 231; new name for *Monocrepidius flavobasalis* Heller, 1914, Nova Guinea 9: 641, not *M. flavobasalis* Schwarz 1907.
New synonymy.

Type: GENOA (drawer 11). Lectotype: single ♂; 10 mm; "Australia, Somerset". Neboiss has reported the type of *torresi* to be in the IRSNB, where there are 2 "Ex-Typis" specimens; of these one lacks head and thorax, the other is 11.5 mm, not 10 mm as described. Two New Guinea *flavobasalis*, identified, by Heller, are in the Amsterdam Mus., a ♂, 9 mm, and a ♀, 11 mm. The type of *torresi* in GENOA agrees well with the Amsterdam ♂ of *flavobasalis*, and their aedeagi (pl. 1, 8) are identical. I consider *C. vuilleti* (*flavobasalis*) to be a synonym of *torresi*.

tumidus (Cand.), 1887, Leyd. Mus., Notes 9: 286 (*Monocrepidius*).

Type: IRSNB (drawer 144). Single, sex undetermined; 10 mm; Normantown, Queensland; Candèze's designation. The occiput of the head is medianly carinate. The pro-

thorax is narrowed on the sides in a straight line from the tips of the hind angles, which are bicarinate. The tips of the elytra are widely emarginate, all the angles are mucronate with the outer ones the more prominent. The lobe on tarsal segment 4 is moderately wide. No *tumidus* were found in Leiden.

umbraculatus (Cand.), 1865, *Élat. nouv.* 1: 25 (*Monocrepidius*).

emarginatus (Schwarz), 1902, *Deut. Ent. Zeit.* 1902: 121 (*Monocrepidius*.) **New synonymy.**
propinquans Schenkling, 1925, *Coleopt. Cat.* 80: 110: new name for *Monocrepidius propinquus* Gahan 1915, not *M. propinquus* Cand. 1893. **New synonymy.**

Type: BM. (drawer 60). ♀; 7.5 mm; Dorey, New Guinea (Wallace); id. Candèze. Type of *emarginatus*, DEI; holotype ♀; 7.5 mm; Aru Is.; of *propinquans*, BM; sex undetermined; 9 mm; Utkwa Valley, Dutch New Guinea. Examination of the types convinces me that the above are all one species. The differences between *umbraculatus* and *propinquus* noted by Gahan, namely the terminal emargination of the elytra, and the coloration of wingcovers, are not constant. There is close similarity between *umbraculatus* and *contiguus*, both externally and on aedeagal structure. In the former, however, antennal segment 4 is relatively shorter than in *contiguus*; comparative lengths of the segments (not in mm) are these:

	Segment 2	Segment 3	Segment 4
<i>umbraculatus</i> ♂	1.0	1.5	2.8
<i>contiguus</i> ♂	1.0	1.4	3.4

ventralis (Cand.), 1878, *Élat. nouv.* 2: 18 (*Monocrepidius*).

Type: IRSNB (drawer 145). Lectotype: 3rd of 3; ♀; 17 mm; Rockhampton, Queensland; id. by Candèze. The 1st specimen (Peak Downs) is not from the type locality. The lobe on tarsal segment 4 is rather wide.

yulensis (Cand.), 1878, *Mus. Gen., Ann.* 12: 112 (*Monocrepidius*).

Type: IRSNB. Lectotype: single ♀; 11 mm; "N. Guinea Isole Yule"; id. by Candèze. ♀ in GENOA, 10 mm, was identified by Candèze but does not have his usual "n. sp." label. Tarsal segment 4 has a wide lobe.

KEY TO SOME NEW GUINEA SPECIES OF CONODERUS
 [Including *pallipes* (Esch.) and *variabilis* (Montr.)
 from Polynesia and New Caledonia respectively]

Current study of extensive New Guinea material reveals 4 or more species besides *corniculatus* and *cristatus* which have either a tubercle or carina on the basal slope of the pronotum; all appear to be undescribed.

- 1. An acute carina or flattened tubercle on basal slope of pronotum..... 2
- Neither carina nor tubercle on basal slope..... 3
- 2 (1). A short, laterally compressed tubercle at top of basal slope **corniculatus**
- An elongate median carina on basal slope..... **cristatus**

- 3 (1). Insects at least 14 mm long 4
 Smaller insects, not over 11 mm long 5
- 4 (3). Outer angle of apical emargination of elytra spinose, more prominent than the inner angle; pronotal punctation simple **mucronatus**
 Outer angle of apical emargination not spinose, not more prominent than the inner; pronotal punctation mixed **variabilis**
- 5 (3). Propleura concave or "guttered" along outer margin, at least anteriorly 6
 Propleura flat or nearly so; not "guttered" along outer margin 8
- 6 (5). Prothoracic hind angles strongly bicarinate; sides of prothorax strongly narrowed before middle; pronotal punctation simple **yulensis**
 Hind angles unicarinate or with vague 2nd (inner) carina; sides of prothorax more arcuate anteriorly than in *yulensis*; pronotal punctation mixed 7
- 7 (6). Antennal segment 4 about as long as 2+3 **arouensis**
 Antennal segment 4 considerably longer than 2+3 **pallipes**
- 8 (5). Elytra attenuate apically, tips entire; sides of prothorax evenly arcuate, hind angles covering toward rear..... 9
 Elytra not attenuate, tips briefly emarginate; sides of prothorax less strongly arcuate, hind angles parallel or weakly divergent..... 10
- 9 (8). Pronotum strongly convex, its punctation (high magnification) mixed... **horistonotus**
 Pronotum moderately convex, its punctation equal **pauperatus**
- 10 (8). Prothoracic hind angles short; apical emargination of elytra more or less transverse, the outer angle rounded **torresii**
 Hind angles more elongate; apical emargination of elytra strongly oblique, the outer angle produced and spinose..... **contiguus**

Genus *Conoderus* subgenus HETERODERES Latreille 1834

blackburni Van Zwaluwenburg, NEW NAME for *Conoderus carinatus* (Blackburn), 1882, Linn. Soc. N. S. Wales, Proc. ser. 2, 3: 1423 (*Heteroderes*); not *Conoderus carinatus* (Cand.), 1859, Mon. Elat. 2: 238 (*Monocrepidius*).

Type: BM. ♂; 11 mm; No. Territory; "T" (Blackburn's designation); has the Museum's type label.

flavicans (Cand., 1878, Mus. Gen., Ann. 12: 116 (*Monocrepidius*)). New subgeneric assignment. *cairnsensis* (Blackburn), 1893, R. Soc. So. Austral., Trans. 17: 206 (*Heteroderes*). New synonymy.

Type: GENOA (drawer 11). Lectotype (*flavicans*): 2nd of 2 "Typus"; ♀; 6 mm; Somerset, Queensland (D'Albertis). The type of *cairnsensis* in BM: ♂; about 6 mm; Cairns, Queensland; "T" (Blackburn's designation). Punctuation on the pronotum of *flavicans* is double and typical of the subgenus *Heteroderes*. Comparison of the 2 types convinces me of the synonymy indicated above; the 2 insects could hardly agree more completely.

pusillus (Cand.), 1865, Élat. nouv. 1: 26 (*Heteroderes*).

Type: BM (drawer 61). ♂; 4.3 mm; Dorey, New Guinea (Wallace); id. by Candéze; Museum's type label. It is extremely similar to *Conoderus froggatti* in all respects but pro-

notal punctation. The aedeagus of type *pusillus*, photographed from a slide mount, appears on pl. 1, 9.

Genus *Aeolus* Eschscholtz, 1829

australis (Cand.), 1859, Mon. Élat. 2: 284.

Type: STOCKHOLM (drawer 31-19). Lectotype: 1st of 7: probably ♀; 7 mm; "Sidney" (Kinberg). The occiput of the head has a very fine median carian. The propleura are concave along the anterior 1/2 of the lateral margin; the side margin of the prothorax is strongly inferior anteriorly, and visible from above only on about its posterior 1/3.

Genus *Aeoloderma* Fleutiaux, 1928

queenslandica (Blackburn), 1892, Linn. Soc. N. S. Wales, Proc. ser. 2, 7: 296 (*Aeolus*).
NEW COMBINATION.

Type: BM. Single ♂; 4.25 mm; "4298 N. Qn. T." (Blackburn's label); Museum type label. Complete absence of a carina on the prothoracic hind angles places this insect in *Aeoloderma*. Tarsal segment 4 is produced and somewhat dilated, but it is not lamellate.

SUBFAMILY PHYSORRHININAE

Genus *Anchastus* LeConte, 1853

It was shown earlier (1939, Haw. Ent. Soc., Proc. 10: 277) that on the basis of larval characters, the Hawaiian *Anchastus swezeyi* Van Zwal. is not congeneric with *A. sericeus* Cand. of N. America. At that time doubt was cast on the generic position of other so-called *Anchastus* from the Pacific, with the suggestion that the relative length of tarsal segment 1 to that of 2-5 inclusive, might satisfactorily separate the American from the Pacific species of the genus. This character has proved to be without value.

albertisi Cand., 1880, Mus. Gen., Ann. 15: 191.

Type: GENOA (drawer 16). Lectotype: single ♀; 10 mm; Fly River, New Guinea (D'Albertis). The species is recognized by the flavous, subapical ovoid mark on the elytra, and by the tubercle on the basal slope of the pronotum. There are no specimens in the IRSNB.

castelnaui Cand., 1878, Élat. nouv. 2: 24.

Type: IRSNB. Lectotype: 1st of 7 "Type"; probably ♂; 7 mm; "Bankok.". The head is evenly convex, its anterior margin broadly rounded, not prominent; the antennae exceed the tips of the prothoracic hind angles by more than 2 segments; the hind angles are finely bicarinate. Tips of the elytra are entire. Fleutiaux (1928, Élat. Indochine franc. 2: 143) adds Borneo and Sumatra to the known range of this species.

cinnamomeus Cand., 1894, Mus. Gen., Ann. ser. 2, 14: 493.

Type: GENOA (drawer 16). Lectotype: single ♀; 6.1 mm; Si-Rambé, Sumatra (Modigliani). A depressed species; prothorax transverse with sides strongly arcuate.

diploconoides Cand., 1897, *Élat. nouv.* 6: 48.

Type: IRSNB. Single ♀; 11 mm; Sumatra. A note by Fleutiaux suggests it is a *Simodactylus*. The frontal margin of the head is complete; the prothoracic hind angles are strongly bicarinate; the tips of the elytra widely emarginate with the outer angle the more prominent. The tarsi on all legs have segments 1 and (especially) 2 produced, but not lobed; 3 has a long lobe; 4 is not lobed and is very small; the hind coxal plates are strongly produced behind.

disjunctus (Cand.), 1892, *Mus. Gen., Ann. ser. 2*, 12: 803 (*Monocrepidius*). NEW COMBINATION.

Type: GENOA (drawer 16). Holotype, probably ♀; 8.1 mm; Ighibirei, New Guinea (Loria). The tarsal structure is typical of *Anchastus*: segment 2 not lobed; 3 lobed; 4 small, inconspicuous, without lobe. The hind coxal plates are strongly dilated and subquadrate. This insect is perhaps nearest *A. nitidulus* Cand., but that species (♀) has the prothorax more elongate, and the elytra relatively longer than in *disjunctus*. The head of *disjunctus* is dusky brown, black in *nitidulus*; the carinae on the bicarinate prothoracic hind angles meet at the apex in *disjunctus*, before the apex in *nitidulus*.

insulsus Cand., 1892, *Mus. Gen., Ann. ser. 2* 12: 804.

Type: GENOA (drawer 16). Lectotype: single ♀; 7 mm; Bujakori, New Guinea (Loria).

nigriceps Cand., 1865, *Élat. nouv.* 1: 27.

Type: LEIDEN. Lectotype: 1st of 3; ♂ (?); 10 mm; "Müller, Java". In *nigriceps* the double prosternal suture is wide, becoming wider behind; in *serdangensis* the space between the sutures is narrow and does not widen behind. In *nigriceps* the hind margin of the prothorax is convex on the middle but not tuberculate; in *serdangensis* there is a fairly prominent median tubercle on the hind margin.

nigripennis Cand., 1880, *Mus. Gen., Ann.* 15: 193.

Type: GENOA (drawer 16). Lectotype: single ♀; 7.9 mm; Mt. Singalang, Sumatra (Beccari). Though in appearance suggesting a *Pachyderes*, the prothorax is actually no wider than the elytra. A specimen in the IRSNB from Java supplies a new record.

serdangensis Cand., 1882, *Leyd. Mus., Notes* 5: 209.

Type: LEIDEN. Single of undetermined sex; 9.1 mm; Tandjong Morawa, Serdang, Sumatra (Hagen); "...n. sp. type unique!" (doubtfully Candèze's writing). There are no specimens of this species in the IRSNB.

simulans Cand., 1882, *t. c.*: 210.

Type: LEIDEN. Lectotype: 1st of 2; probably ♂; 5 mm; Tandjong Morawa, Serdang, Sumatra (Hagen). With rufous prothorax and black elytra, this species resembles

nigripennis. Differences between the 2, besides those noted by Candèze, are: (1) antennal segment 3 about twice as long as 2 in *nigripennis*, but of equal length in *simulans* (in both sexes); (2) prothoracic hind angles bicarinate in *nigripennis* (the outer carina weak), strongly unicarinate in *simulans*. New locality records for *simulans* from IRSNB specimens are Bodjo I. (off Sumatra) and Mentawai.

KEY TO SOME NEW GUINEA AND INDO-MALAYAN ANCHASTUS

1. Fine median carina on head (New Guinea)..... **pisciculus**
No carina on head..... 2
- 2 (1). Prothoracic hind angles unicarinate 3
Hind angles bicarinate 6
- 3 (2). Head and prothorax reddish, elytra black (Sumatra)..... **simulans**
Head and prothorax not contrasting in color with elytra..... 4
- 4 (3). Acute median tubercle on basal slope of pronotum (New Guinea)..... **albertisi**
Pronotum without tubercle 5
- 5 (4). Pronotum depressed, sides arcuate, strongly narrowed in front; punctation umbilicate (New Guinea)..... **longicornis**
Pronotum not depressed, sides subparallel at base, not strongly narrowed anteriorly; punctation not umbilicate (New Guinea)..... **insulsus**
- 6 (2). Pronotum depressed, sides strongly arcuate..... 7
Pronotum more convex, sides not strongly arcuate..... 8
- 7 (6). Head, pronotum and elytra concolorous in general (Sumatra)..... **cinnamomeus**
Head and prothorax rufous, elytra black (Sumatra; Java)..... **nigripennis**
- 8 (6). Rather elongate; cylindrical..... 9
Stouter, more attenuate behind, not cylindrical 10
- 9 (8). Black or blackish, base of elytra rufous; pronotum less convex, prothorax more elongate and elytra longer than in *disjunctus*; outer carina of prothoracic hind angles joining side margin well before apex (New Guinea) ... **nitidulus**
Fusco-brunneous, base of elytra not conspicuously rufous; pronotum more convex and less elongate, and elytra relatively shorter than in *nitidulus*; outer carina of hind angles joining side margin at or near apex (New Guinea).....**disjunctus**
- 10 (8). Elytra blackish, briefly reddish at base (Sumatra; Philippines)..... **vulneratus**
Elytra blackish with basal 1/2 rufous (Sumatra)..... **partitus**

SUBFAMILY AMPEDINAE

Genus *Ampedus* Dejean, 1833

boisduvali (Fauvel), 1863, Soc. Linn. Norm., Bull. 7: 143 (*Ludius*).

candèzei (Fauvel), 1867, *op. cit.*, ser. 2, 1: 185 (*Ludius*).

frontalis (Fauvel), 1904, Rev. ent. Caen 23: 128 (*Elater*).

marginellus (Fauvel), 1904, *t. c.*: 129 (*Elater*).

nigrita (Fauvel), 1904, *t. c.*: 128 (*Elater*).

Type: IRSNB. The types of these species are in the Fauvel collection. Fauvel de-

signed no types; the 1st specimen in each case is usually the only one with the specific name attached, and is presumed to be the type. Later specimens in Fauvel series bear either a locality label or none at all. Four specimens of *boisduvali* are from Noumea; 7 of *candezei* from Lifu. The following are holotypes: *frontalis*, probably a ♀, 15 mm, Lifu; *marginellus*, sex undetermined, 10 mm, New Caledonia; *nigrita*, ♀, 18 mm, Ourail.

Genus *Megapenthes* Kiesenwetter, 1858

agriotides Cand., 1865, *Élat. Nouv.* 1: 31.

Type: BM. Single ♀; 13 mm; Dorey, New Guinea.

A few species in the genus *Megapenthes* tend to a dilation of tarsal segment 4, thus making ambiguous their generic status. In *agriotides* segment 4 is weakly dilated, for which reason, presumably, in the BM collections it has been transferred to the *Simodactylus*, along with *M. emarginatus* Cand. and *M. junceus* Cand. The cordiform dilation of tarsal segment 4 is usually a strong character in *Simodactylus*, but in some species it becomes weak; thus demarcation between the 2 genera is not always clear cut.

anceps Cand., 1883, *Leyd. Mus., Notes* 5: 211.

Type: LEIDEN. Lectotype: single ♂; 14 mm; Tandjong Morawa, Serdang, Sumatra (Hagen). Segment 4 of the hind tarsus is slightly produced and somewhat expanded. The aedeagus is shown (pl. 1, 10).

angulosus Cand., 1875, *Soc. ent. Belg., Bull.* 18: 122.

Type: IRSNB. Lectotype: single ♂; 10 mm; E. Mindanao; id. by Candèze; "rev. E. Fleutiaux 1927".

automolus Cand., 1859, *Mon. Élat.* 2: 495.

Type: BM. Probably a ♀; 18 mm; Swan River. The frontal margin of the head is complete, even along the middle. The single carina on the prothoracic hind angles is acute behind, but blunt and poorly defined anteriorly. Schwarz and Schenkling both placed the species in *Neotrichophorus*.

bakeri Fleut.

See *Megapenthes variegatus*, p. (384).

basalis Cand., 1880, *Mus. Gen., Ann.* 15: 193.

Type: GENOA (drawer 15). Lectotype: 3rd of 3 "Typus"; ♂; 9.5 mm; Mt. Singalang, Sumatra (Beccari). Its aedeagus is fully extruded; the lateral lobes are prominently expanded at the apex. Specimen 1 lacks all but 2 segments of the antennae.

brunniventris Cand.

See *Megapenthes variegatus*, p. 384.

carinatus Cand., 1878, *Mus. Gen., Ann.* 12: 123.

Type: GENOA (drawer 15). Holotype ♀; 9 mm; Sarawak (Doria). There is a fine

median carina on the lower part of the head. The prothorax is comparatively wide and heavy, its hind angles strongly bicarinate.

cinereus Cand., 1889, *Élat. nouv.* 4: 35.

Type: IRSNB. Lectotype: 1st of 2 "Type"; sex undetermined; 9 mm; Java (Clement); "Mss. *Cinereus* Cdz. Limbang pres Mandang [Bandang ?] 6000 pds."

cirgens Cand., 1897, *Élat. nouv.* 6: 39.

Type: IRSNB (drawer 180). Lectotype: 1st of 10 "Type"; ♀; 7 mm; Kina Balu; id. Candèze. The prothoracic hind angles have a strong outer carina and a fine, inconspicuous inner one. The tips of the elytra are briefly emarginate.

coalescens Cand., 1897, *t. c.*: 40.

Type: IRSNB. Lectotype: 4th of 4 "Type"; ♂; 14 mm; Sintang, Borneo. The aedeagus (pl. 1, 11) was dissected and mounted with the specimen.

congestus Cand., 1897, *t. c.*: 42.

Type: IRSNB (drawer 181). Lectotype: single, probably ♀; 11 mm; "Balabak ex coll. Steinheil". Antennal segments 1 and 2 are rufous, the rest black; 3 and 4 are of equal length.

diploconoides Cand., 1875, *Soc. ent. Belg., Ann.* 18: 122.

Type: IRSNB. Lectotype: 2nd of 2 "Type"; ♂; 14.5 mm; "Philippines". This better fits the description than does specimen 2, a ♂ from the Philippines. That the 2 are not conspecific is confirmed by differences in their aedeagi; the aedeagus of the lectotype is shown in pl. 1, 12.

dolens Cand., 1859, *Mon. Élat.* 2: 495.

Type: BM. Single ♀; 14 mm; Swan River, W. Australia; Candèze's designation. The frontal margin of the head is complete, even along the middle, and is on a plane definitely anterior to that of the fronto-clypeal area. The carina on the prothoracic hind angles is acute and is nearer the inner than the outer margin.

dorsalis Cand., 1878, *Mus. Gen., Ann.* 12: 123.

Type: GENOA (drawer 15). Lectotype: 1st of 4 "Typus"; ♀; 6.5 mm; "Giava, Tcibodas" (Beccari). A median groove on the pronotum is well incised on the basal slope, but only weakly suggested on the disc; the prothoracic hind angles are acute, diverge slightly from the outline of the sides, and have a single carina very close to the outer margin.

emarginatus Cand., 1859, *Mon. Élat.* 2: 507.

Type: BM. Single ♀; 14 mm; Java (Buquet). The tips of the elytra are obliquely emarginate, the outer angle the more prominent. Tarsal segment 4 is somewhat expanded, as in *agriotides* and *junceus*.

inconditus Cand., 1859, *t. c.*: 504.

Type: STOCKHOLM (drawer 31-21). Lectotype: single, probably ♀; 11 mm; "Manilla"; "Typus". Antennal segment 3 is twice as long as 2; only 3 segments survive on each antenna. Among specimens of *inconditus* in the IRSNB are new island records from the Philippines: Mindoro and Samar.

inficetus Cand., 1883, Leyd. Mus., Notes 5: 210.

Type: LEIDEN. Lectotype: single ♂; 8.25 mm; Tandjong Morawa, Serdang, Sumatra (Hagen). The prothoracic hind angles are briefly but strongly unicarinate; the tip of each elytron is produced in a short spine. The aedeagus was dissected and mounted with the specimen; the lateral lobes are arcuately expanded at the apex; their subapical angle acutely produced. There are no specimens of *inficetus* in the IRSNB.

inflatus Cand., 1875, Soc. ent. Belg., Ann. 18: 122.

Type: IRSNB. Lectotype: 1st of 2 "Type"; ♂; 14 mm; "*Inflatus* Cdz. Philip." (Candèze's label). The aedeagus was mounted with the specimen; its lateral lobes narrow acutely at the apex.

infumatus Cand., 1880, Mus. Gen., Ann. 15: 194.

Type: GENOA (drawer 15). Lectotype: single, sex undetermined; 7 mm; Mt. Singalan, Sumatra (Beccari). Candèze noted resemblance in color of this species to *M. dorsalis*. Differences are these: (1) front of head excavate in *infumatus*; flat to weakly prominent in *dorsalis*; (2) prothoracic hind angles diverge strongly from outline of sides in *infumatus*; the divergence is weak in *dorsalis*; and (3) in *infumatus* the tips of the elytra are entire, and individually rounded; in *dorsalis* they are weakly truncate, the 4 angles equal and mucronate.

junceus Cand., 1865, Élat. nouv. 1: 30.

Type: BM. ♂; 11 mm; "*Megapenthes junceus* Cdz. Manille Thor". (Candèze's label). Segments 2 and 3 of the tarsi are somewhat prolonged beneath; 4 is weakly expanded.

litteratus Cand., 1892, Leyd. Mus., Notes 14: 10.

Type: LEIDEN. Lectotype: 1st of 2 "Type"; ♂; 13.5 mm; E. Java. Its aedeagus is shown in pl. 1, 13. The prothoracic hind angles are slender and bicarinate; the tips of the elytra are semicircularly emarginate, with all 4 angles mucronate.

The bilobed and rather strongly dilated segment 4 of the tarsi suggests a *Simodactylus*, but Candèze notes that the structure of the head and especially of the hind coxal plates incline him to place it in *Megapenthes*. The species is not in the Schwarz or Schenking catalogues. The aedeagus is shown in pl. 1, 13.

litratus Cand., 1887, Leyd. Mus., Notes 9: 287,

Type: PARIS (box 152). Holotype ♀; 5 mm; Normantown, Queensland (Ch. French); "... type de Candèze" (Fleutiaux's label). There are no specimens of *litratus* in Leiden or in the IRSNB.

Pronotum dark brown, with anterior margin, hind angles and median stripe, flavous. Elytra flavous with darker, broken, longitudinal vitta on each, about 2/3 length of wing-

cover. This stripe begins anteriorly on intervals 4 and 5, occupies 3 and 4 behind the middle, and interval 4 at apex; opposite the posterior end of the vittae are short, dark brown stripes on 6 and 8. The sutural interval is briefly dusky near the base. The prothoracic hind angles with a single carina close to the outer margin.

macilentus Cand., 1895, *Élat. nouv.* 5: 36.

Type: IRSNB (drawer 183). Lectotype: 1st of 4 "Type"; probably ♀; 10.5 mm; "Tengger", Java. Near *marginatus* but with a single carina on the prothoracic hind angles, whereas in *marginatus* they are strongly bicarinate.

madidus Cand., 1895, *t. c.*: 37.

Type: IRSNB. Lectotype: 1st of 3 "Type"; ♂; 8 mm; "n. sp. *Madidus* Cand. Fidji" (Candèze's writing). The aedeagus of the lectotype was dissected; it is short and stout, with the lateral lobes narrowed toward the apex and truncate at the tip.

marginatus Cand., 1878, *Mus. Gen., Ann.* 12: 120.

Type: GENOA (drawer 15). Lectotype: 2nd of 2 "Typus"; probably ♀; 13 mm; Sarawak, Borneo (Doria). The aedeagus of specimen 1, a cotype, was dissected; it is similar to that of *M. litteratus* (pl. 1, 13); the lateral lobes are slender, of about equal width along their entire length, and are strongly arcuate. The sides of the prothorax narrow forward from the base of the hind angles; the angles are divergent and strongly bicarinate. A deeply incised median groove is on the basal slope of the pronotum, with a small indentation on either side, close to the hind margin.

miser Cand., 1897, *Élat. nouv.* 6: 41.

Type: IRSNB (drawer 184). Lectotype: 5th of 6 "Type"; ♂; 10 mm; Kina Balu, Borneo. The antennae are elongate and in the male exceed the tips of the prothoracic hind angles by about 3 segments. The aedeagus of the lectotype was dissected and mounted with the specimen; it is long and slender, the lateral lobes are expanded at the apex and the subapical angle is acute.

nefastus Cand., 1895, *Élat. nouv.* 5: 37.

Type: IRSNB. Lectotype: 2nd of 2 "Type"; ♀; 11 mm; Tsikorai, Java. It has Candèze's identification label, and Fleutiaux's label: "Type E. Fleutiaux 1927".

opacipennis Cand., 1875, *Soc. ent. Belg., Ann.* 18: 122.

Type: IRSNB. Lectotype: single ♂; 15 mm; "*Opacipennis* Cdz. Philip." (Candèze's label). The aedeagus was dissected; its lateral lobes are slender, their sides subparallel but arcuate along the middle; they are not expanded apically.

parallelus (Cand.), 1895, *Élat. nouv.* 5: 56 (*Ludius*). NEW COMBINATION.

Type: IRSNB (drawer 121). Lectotype: 1st of 3 "Type"; probably ♀; 10.5 mm; Mt. Tengger, Java; Candèze's "n. sp." label attached. Though this species, in common with *Megapenthes*, has the frontal margin of the head visibly separated from the narrow "plaque nasale", Candèze retains it in *Ludius*. The frontal margin of the head is entire and

evenly curved (not pointed as described); the sterno-pleural sutures are closed throughout; the tarsi are simple; the hind coxal plates widened inwardly and angulate on the hind margin.

praeligatus Cand., 1894, Mus. Gen., Ann. ser. 2 **14**: 490.

Type: GENOA (drawer 15). Lectotype: 1st of 2 "Types"; ♂; 9.1 mm; Si-Rambé, Sumatra (Modigliani); Candèze's "n. sp." and identification. The aedeagus was dissected; its lateral lobes are strongly "shouldered", subtriangularly expanded toward the apex, and have the outer margin of the expansion concave in outline. A "Type" of *praeligatus* from Java is in the IRSNB.

punctatus Cand., 1878, Mus. Gen., Ann. **12**: 122.

Type: GENOA (drawer 15). Lectotype: single, probably ♀; 8.1 mm; Ramoi, New Guinea (D'Albertis). Antennal segment 3 is intermediate in length between 2 and 4; 4 is shorter than 2+3. The prothoracic hind angles are stout, finely unicarinate and blunt at the apex. The striae punctures on the elytra are finely aureolate.

remotus Cand., 1892, Leyd. Mus., Notes **14**: 10.

Type: LEIDEN. Lectotype: single ♂; 13.5 mm; Celebes (Hekmeijer). The aedeagus (pl. 1, 14) was mounted with the specimen. Tarsal segment 4 is rather strongly dilated. Candèze says that his remarks concerning the tendency in *M. litteratus* to the wide tarsal dilation characteristic of *Simodactylus*, apply with equal force to *remotus*. It is my opinion that *remotus* and *litteratus* more closely approach *Simodactylus* in respect to tarsal dilation, than do *M. agriotides*, *emarginatus* and *junceus*. *M. remotus* is omitted from the Schenking catalogue.

rugipennis Cand., 1889, Élat. nouv. **4**: 34 (100).

Type: IRSNB. Lectotype: single ♂; 7 mm; Bodjo I. (Weyers); id. by Candèze. The aedeagus, mounted with the specimen, is short and stout; the lateral lobes are "shouldered" on the outer margin, the apical expansion is broadly truncate and slopes laterad at the end.

saleyeri Cand., 1885, Leyd. Mus., Notes **7**: 122; new name for *M. agriotides* Cand., 1883, *op. cit.* **5**: 12, not *M. agriotides* Cand., 1865.

Type: LEIDEN. 1st of 3; ♂; 9.5 mm; Saleyer I.; Candèze's designation. The tips of the elytra are briefly emarginate. The aedeagus is mounted with the type; its lateral lobes are weakly "shouldered", are subparallel on the distal 1/3, and rounded at the apex. Specimens of *saleyeri* from S. Celebes are in Leiden.

secundus Cand., 1889, Élat. nouv. **4**: 34 (100).

Type: IRSNB. Lectotype: 1st of 2 "Type"; probably ♂; 6.5 mm; "n. sp. *Secundus* Borneo Sintang Clem." (Candèze's label). The frontal margin of the head is deflexed and poorly defined on the middle.

seniculus Cand., 1895, Élat. nouv. **5**: 36.

Type: IRSNB. Lectotype: 1st of 6 "Type"; sex undetermined; 10 mm; Tengger E.

Java (Fruhstorfer). The aedeagus of specimen 5 was dissected and mounted with the specimen; the lateral lobes are strongly, subtriangularly widened apically but there is no definite shoulder on the outer margin.

seriatus Cand., 1896, Leyd. Mus., Notes **18**: 142.

Type: LEIDEN. Holotype ♂; 13 mm; Padang, Deli, Sumatra (Büttikofer). The tips of the elytra are diagonally emarginate. Tarsal segment 4 is definitely dilated. The aedeagus, mounted with the type (pl. 1, 15), has long, slender, arcuate lateral lobes, as in the aedeagus of *Simodactylus trivittatus*.

sericeus Cand., 1891, Leyd. Mus., Notes **13**: 245.

Type: LEIDEN. Lectotype: 1st of 3 (numbered); ♀; 13.5 mm; Deli, E. Sumatra (Veth); "n. sp." (Candèze's label). Tarsal segment 4 is weakly dilated. The aedeagus of specimen 3 is mounted with that insect; it is similar to that of *seriatus*.

sondanicus Cand., 1882, Élat. nouv. **3**: 66.

Type: IRSNB. Lectotype: single ♀; 7 mm; Ardjoeno, Java.

spissus (Cand.), 1889, Élat. nouv. **4**: 53 (119) (*Ludius*). NEW COMBINATION.

Type: IRSNB (drawer 122)? Probable type is single ♀ (valves of the ovipositor visible); 8.5 mm; "*Spissus* Cdz. Borneo Cl." (Candèze's label). Its status is clouded by Candèze's statement that his description is of a ♂. The frontal margin of the head is entire; the median carina does not extend to the vertex; the fronto-clypeal area is transverse, moderately prominent, with an inverted Y-shaped carina. The sterno-pleural sutures are closed and straight; the hind coxal plates briefly angulate.

variatus Cand.

See *variegatus*, below.

variegatus (Cand.), 1878, Mus. Gen., Ann. **12**: 138 (*Ludius*); publ. March 27; 1878, Élat. nouv. **2**: 46 (*Ludius*); publ. May 4, reprinted Sept. 7 in Soc. Ent. Belg., Ann. **21** C. R.: cxc. NEW COMBINATION.

brunniventris Cand., 1892, Mus. Gen., Ann. ser. 2, **12**: 804. New synonymy.

variatus Cand., 1896, Leyd. Mus., Notes **18**: 142. New synonymy.

bakeri Fleut., 1934, Soc. ent. Belg., Bull. et Ann. **74**: 368. New synonymy.

usingeri (Van Zwal.), 1948, Bishop Mus., Bull. **172**: 33 (*Melanoxanthus*). New synonymy.

Type: GENOA. Lectotype: ♀; 8 mm; "Isole Aru, Wokan" (Beccari); "Type". Candèze's two descriptions in 1878 of *L. variegatus*, are of the same species, from the same locality, but from different collectors. Rosenberg's Aru Is. material in the IRSNB and LEIDEN probably ranks as cotypes. The insect is a true *Megapenthes*, characterized by the uninterrupted frontal margin of the head, tarsal structure, etc. Type of *brunniventris* GENOA (drawer 15): single ♀; 7 mm; Kapakapa, New Guinea. Holotype *variatus*: LEIDEN, ♂; 7 mm; Bintang I., Riouw Arch. The type of *bakeri* is in PARIS and that of *usingeri* from Guam, in the Experiment Station, Hawaiian Sugar Planters' Association. Close agree-

ment of the types and other material, and close similarity in aedeagal structure (pl. 1, 16), make it clear that but a single species is involved. *M. variegatus* exhibits wide variation in color pattern, from nearly uniform brown with few or no black markings, to completely black except for flavous base, and flavous streaks on disc and sides of the elytra. The most usual elytral pattern is a black sagittate marking on the posterior 1/2, the darker color continuing forward along the suture, and the black contrasting sharply with the brown background. Specimens from the Aru Is., and the Philippines are more shiny than from other areas.

M. variegatus then, is a color-variable species ranging widely from the Solomons, Bismarck Archipelago, New Guinea and the Aru Is., to the Riouw Archipelago on the west, and northward through Talaud, the Palaus, Truk, the Carolines and the Philippines into the Marianas.

virgulatus Cand., 1897, *Élat. nouv.* 6: 40.

Type: IRSNB. Lectotype: 1st of 3 "Type"; probably ♀; 9 mm; Kina Balu, Borneo (Steinheil); id. by Candèze. The frontal margin of the head is rather sharply arcuate, and toward the sides somewhat more reflexed than on the middle. The prothoracic hind angles are unicarinate; tips of the elytra are entire. Also in the IRSNB are 13 "Type" specimens of *virgulatus* aberration *asper* (as "n. sp.") from Kina Balu.

Genus *Melanoxanthus* Eschscholtz, 1833

angularis Cand., 1878, *Mus. Gen., Ann.* 12: 129.

Type: GENOA (drawer 16). Lectotype: single ♀; 3.5 mm; Hatam, New Guinea (Becari); "n. sp." (Candèze's label). The pronotum is without median groove; the hind angles are strongly divergent and unicarinate. Tips of the elytra are entire. A specimen from Queensland is in the IRSNB.

australis Cand., 1859, *Mon. Élat.* 2: 520,

Type: PARIS (box 172). Single, probably ♀; 10 mm; id. Candèze; "type" (Fleutiaux's label). Generally rufous with head antennae and scutellum black. A median blackish stripe on the pronotum, broken behind the middle, back of which is a round median blackish mark. The hind margin of the prothorax, the tips of the hind angles, the anterior margin (narrowly) and suture of the elytra, blackish to dusky. Pro- and metasternum blackish, propleura rufous.

bakeri Fleut., 1914, *Phil. Jour. Sci.* D 9: 443.

Type: PARIS (box 173). Sex undetermined; 8 mm; Mt. Makiling, Luzon. New Philippine locality records from the same collection: Davao, Mindanao; Cuernos Mts., Negros; and Samar.

bicinctus Fleut., 1916, *Phil. Jour. Sci.* D 11: 226.

Type: PARIS (box 174). Sex undetermined; 3.5 mm; Cuernos Mts., Negros. New records from Fleutiaux collection: Basilan and Mindanao, and Humboldt Bay, New Guinea.

bivittatus Cand., 1878, *Mus. Gen., Ann.* 12: 128.

Type: GENOA (drawer 15). Lectotype: single ♀; 4.5 mm; Sarawak; id. by Candèze. Antennae are black except the 3 basal segments which are flavous. Pronotum strongly convex, its basal slope abrupt with a sharply incised median groove.

butuanus Fleut., 1916, Phil. Jour. Sci. D' 11: 226.

Type: PARIS. Besides the type from Butuan, Mindanao, specimens are present from Basilan.

cinctus Fleut., 1916, *t. c.*: 224.

Type: PARIS. Besides the type from Luzon, specimens are present from Basilan and Mindanao.

cinnamomeus Cand., 1893, Leyd. Mus., Notes 15: 126.

Type: LEIDEN. Lectotype: 1st of 2; ♀, 4 mm; Telaga-bodas crater, nr. Garoet, Java (Hubrecht); "n. sp." (Candèze's label). The prothoracic hind angles are acute and divergent, with a single sharp carina nearer the outer than the inner margin. Specimen 2, from Sumatra, is doubtfully conspecific.

comosus Cand., 1889, Élat. nouv. 4: 36.

Type: IRSNB. Lectotype: single, sex undetermined; 5 mm; Sintang, Borneo. The head is medianly carinate; the frontal margin is deflexed on the middle. The prothoracic hind angles are pale in color, flattened, and finely bicarinate.

confusus Cand., 1880, Leyd. Mus., Notes 2: 2.

Type: LEIDEN. Holotype: 1st of 2; probably ♀; 6.5 mm; Silago, Sumatra. Carination of the prothoracic hind angles is unusual: the inner carina joins the side margin at the apex of the angle; the outer one joins the margin well before the tip.

cruciellus Cand., 1894, Mus. Gen., Ann. ser. 2, 14: 492.

Type: GENOA (drawer 15). Lectotype: single ♀; 3 mm; Si Rambé, Sumatra (Modigliani); with Candèze's "n. sp." label. Very close to *cracens* Van Zwal. from the western Carolines. There are color differences between the two, but their elytral patterns agree well. The prothoracic hind angles in *cruciellus* diverge in continuation of the outline of the sides; in *cracens* the hind angles are arcuate on the outer margin and are narrower across the tips than immediately before the apex. The basal slope of the pronotum has a sharply impressed groove in *cruciellus*; in *cracens* it is only weakly grooved.

crucifer Fleut., 1914, Phil. Jour. Sci. D 9: 445.

Type: PARIS (box 174). Besides the type locality, Los Banos, Luzon, and later additions of Mindanao and Palawan, new records from the Fleutiaux collection are Basalan and Singapore.

cylindriformis Cand., 1896, Mus. Gen., Ann. 36: 255.

Type: GENOA (drawer 15). Holotype, sex undetermined; 7 mm; Sereinu; Sipora I., Mentawai Is. (Modigliani). Black or blackish, with sanguineous prothorax; mouthparts, legs and antennal segments 1-2, rufous. The prothoracic hind angles are finely bicarinate; the basal slope of the pronotum has a well incised median groove.

decemmaculatus Cand., 1883, Leyd. Mus., Notes 5: 212.

Type: LEIDEN. Lectotype: single ♂; 3.75 mm; Tandjong Morawa, Serdang, Sumatra (Hagen). On the anterior 1/2 of the elytra 2 transverse pairs of maculae are connected, so that the wingcovers have but 6 spots. The anterior angles of the prothorax are widely rufous; the other markings are yellowish. A "Type" of this species from Borneo is in the IRSNB.

flavidus Cand., 1878, Élat. nouv. 2: 29.

Type: IRSNB. Lectotype: 1st of 2; sex undetermined; 3.5 mm; Bintang, Riouw Arch. Differs from specimen 2, from Sumatra, in that the head is flattened instead of convex.

geminus Cand., 1894, Mus. Gen., Ann. ser. 2, 14: 491.

Type: GENOA (drawer 15). Lectotype: single ♀; 8 mm; Pangherang-Pisang, Sumatra (Modigliani); id. by Candèze. The Preanger, Java specimen mentioned by Candèze is in the IRSNB, labelled "type"; it is the cotype. On the head a blunt median carina extends forward from below the vertex without interruption across the fronto-clypeal area to the upper margin of the clypeus. Also on the head is a blunt subcarina extending upward from the base of each antenna to about the middle of the side, these ridges diverging upward. A deeply impressed median groove is on the basal slope of the pronotum; the hind angles are prominently but briefly unicarinate. Elytra shallowly emarginate at the tip, the 4 angles mucronate and equal.

granum Cand., 1887, Leyd. Mus., Notes 9: 191.

Type: IRSNB. 1st of 7 "Type"; sex undetermined; 4.5 mm; Tandjong Morawa, Serdang, Sumatra (Hagen); Candèze's designation. The other of the 2 original specimens is in LEIDEN.

melanocephalus (Fabricius), 1781, Spec. Ins.: 272 (*Elater*).

Type: BM (Banks Collection.) Sex undetermined; 9.4 mm; no locality label. The original description reads: "Habitat in Coromandel. Mus. Dom. Banks". A small label beside the specimen reads: "Type". A specimen in PARIS, identified by Fleutiaux is from New Zealand.

morio Cand., 1878, Mus. Gen., Ann. 12: 128.

ater Fleut., 1914, Phil. Jour. Sci. D 9: 445. **New synonymy.**

Type: GENOA (drawer 16). Holotype ♂; 5 mm; Kandari, Celebes (Beccari). The prothoracic hind angles are unicarinate; the tips of the elytra are briefly truncate. The aedeagus is partially visible; its lateral lobes are nearly straight on the outer margin. The type of *ater*, from Luzon, is in PARIS.

niger Schwarz, 1901, Deut. Ent. Zeit. 1901: 324.

Type: DEI (not seen). Specimens of *niger* from the type locality, Indrapoera, Sumatra, identified by Schwarz, are in the IRSNB. The species differs from *morio* as follows: (1) the antennal segments are longitudinally carinate on their outer face in *niger*; not carinate in *morio*; (2) antennal segments 4-10 are more strongly serrate in *niger* than in *morio*; and (3) the tips of the elytra in *niger* are rather widely truncate with the outer angles

mucronate; in *morio* the tips are entire.

nigricornis Cand., 1878, Mus. Gen., Ann. **12**: 127.

Type: GENOA (drawer 15) Lectotype: 1st of 2; sex undetermined; 4.5 mm; Sarawak (Doria). The 2nd example is from Mentawai. A robust, black species with rufous head and prothorax; antennal segments 1–3 are sometimes rufous.

nigrosignatus Cand., 1890, Leyd. Mus., Notes **12**: 246.

tricolor Cand., 1893, *op. cit.* **15**: 126. Variant of *nigrosignatus*.

Type: LEIDEN. Holotype of *nigrosignatus*, single ♀, 10 mm; W. Java (Piepers). The lectotype of *tricolor* in LEIDEN: 1st of 3, sex undetermined; 7.5 mm; Simpai. 900 m, Tegal, Java (Lucassen). The only difference between *nigrosignatus* and *tricolor* is in coloration; the elytra are uniformly black in the typical species, but have a luteous antero-lateral vitta in *tricolor*. The sterno-pleural sutures appear to be double. The prothoracic hind angles are briefly unicarinate, the carina nearer the outer than the inner margin. The basal slope of the pronotum is abrupt, with a well incised median groove.

partitus Cand., 1878, Mus. Gen., Ann. **12**: 125.

Type: GENOA (drawer 16). Lectotype: 1st of 3; ♀; 7 mm; Ternate (Beccari). The species lacks the median carina present on the head of *M. brunneus* Cand. from Borneo, and it is more elongate than *brunneus*. Specimens are in GENOA from Katau, New Guinea and from Goodenough I.

picturatus Fauvel, 1904, Rev. d'Ent.: 131.

Type: IRSNB. 1st of 2: undetermined sex; 4.5 mm; Borneo.

proximus Cand., 1878, Mus. Gen., Ann. **12**: 126.

Type: GENOA (drawer 16). Lectotype: single, sex undetermined; 6 mm; Tjibodas, Java (Beccari). The head is medianly carinate; the bicarinate prothoracic hind angles distinguish *proximus* from *brunneus*.

puerulus Cand., 1898, Leyd. Mus., Notes **20**: 64.

Type: LEIDEN. Lectotype: 1st of 2: ♀; 3.25 mm; Lutungan I.; Candèze's identification and "n. sp." label. Dr. J. van der Vecht of Leiden informs me that Lutungan is off the Celebes coast, but that its exact location is not known to him. The 2nd specimen is from Mt. Sapit, 600 m, Lombok I. The hind angles of the prothorax are unicarinate. The ocellate punctation on the pronotum of *puerulus* will distinguish it from *M. comptus* of Samoa, the Solomons, Fiji and Micronesia.

ramusculus Cand., 1898, *t. c.*: 63.

Type: LEIDEN. Lectotype: 1st of 3: ♀; 4 mm; Mt. Sapit, 600 m, Lombok (Fruhstorfer); has Candèze's identification and "n. sp." label. Antennal segments 2 and 3 are small and subequal in length, together not quite as long as 4. The prothoracic hind angles are sharply unicarinate. The propleura are flat in *ramusculus*, whereas in *M. varians* from Ponape and Guam, the propleura are excavate or "guttered" anteriorly.

ruptus Cand., 1892, Leyd. Mus., Notes. 5: 211.

Type: LEIDEN. Lectotype: single, sex undetermined; 6.9 mm; Limbangan, Preanger, Java; "n. sp." (Candèze's label). The flavous stripe on the elytra in *ruptus* occupies interval 4 only; in *M. zebra*, which it resembles, the flavous stripe is wider, occupies 3 intervals and at the apex widens to cover part of interval 9.

sexguttatus Cand., 1892, Mus. Gen., Ann. ser. 2, 12: 799.

Type: GENOA (drawer 16). Lectotype: 5.5 mm; Engano, Bua-Bua (Modigliani). Other specimens in GENOA are from Mentawai, and another in the BM identified by Fleutiaux, is from Borneo. Cotypes are in the IRSNB.

taeniatus Cand., 1878, Mus. Gen., Ann. 12: 129.

Type: GENOA (drawer 16). Lectotype: 4th of 4 "Typus"; ♀; 3 mm; Kandari, Celebes (Beccari). The pronotum is strongly convex with a weak, narrow groove on the basal slope; the hind angles are unicarinate.

KEY TO SOME MELANOXANTHUS IN THE GENOA MUSEUM

1. Elytra light brown, with vague, longitudinal darker area..... **brunneus**
Elytra entirely or predominantly black, without clearly defined contrasting color 2
Elytra bicolorous with contrasting areas sharply defined 8
- 2 (1). Elytra black, base yellowish 3
Elytra entirely black, or predominantly black or rufous 4
- 3 (2). Prothoracic hind angles unicarinate..... **partitus**
Hind angles bicarinate **proximus**
- 4 (2). Pronotum entirely or predominantly rufous 5
Pronotum entirely or predominantly black..... 7
- 5 (4). Head and pronotum entirely rufous..... **nigricornis**
Head black, pronotum black at base and with black spots 6
- 6 (5). Elongate, cylindrical; 2 suboval maculae on anterior part of pronotum, briefly contiguous in front; prothoracic hind angles partially black **doriae**
Broader insects, attenuate behind; a brief median blackish vitta on anterior margin of pronotum; hind angles entirely black **ruficollis**
- 7 (4). Stout insects; entirely black (*ater*)..... **morio**
Cylindrical species; hind angles of prothorax yellow **angularis**
- 8 (1). Elytra black with at least 4 yellow spots, none wider than 4 intervals 9
Elytra predominantly rufous, apex black; or black with yellowish or rufous longitudinal vittae or transverse bands 11
- 9 (8). Elytra with 4 flavous spots; prothorax elongate, wider in front than across hind angles; scutellum prominent..... **subcylindricus**
Elytra with more than 4 flavous spots; prothorax narrowed from base to apex; scutellum not prominent 10
- 10 (9). Elytra with 6 flavous spots **sexguttatus**
Elytra with 8 flavous spots **decemguttatus**

- 11 (8). Elytra rufous or flavous from base to beyond middle; apex black 12
 Elytra not uniformly rufous or flavous, the color interrupted by longitudinal
 or transverse black markings..... 13
- 12 (11). Pronotum black; frontal margin of head acuminately produced on middle... **palliatus**
 Pronotum rufous with an anterior macula which is widest on front margin and
 narrows to behind middle; front of head broadly rounded..... **melanocephalus**
- 13 (11). Elytra yellow from base almost to apex, except blackish sutural stripe which
 widens behind **cylindricus**
 Elytra with yellowish or rufous areas interrupted by longitudinal vittae on
 suture and sides, or by transverse markings..... 14
- 14 (13). Pronotum mainly black, hind angles flavous; longitudinal yellowish areas on
 elytra narrowing from the humeri and ending at about apical 1/4..... **taeniatus**
 Pronotum rufous with 1 or more longitudinal vittae..... 15
- 15 (14). Pronotum with single median stripe; reddish yellow transverse bands on ely-
 tra: one at base, the other behind middle, interrupted at suture... **quadrinotatus**
 Pronotum with a median and 2 lateral black stripes; elytra with longitudinal
 lateral banding ending at about middle; suture and apical 1/3 black... **bivittatus**

SUBFAMILY HYPOLITHINAE

Genus *Arrhaphes* Candèze, 1860

gestroi Cand., 1878, Mus. Gen., Ann. 12: 131.

Type: GENOA (drawer 18). Lectotype: 1st of 3 "Typus"; ♂; 4.5 mm; Tjibodas, Java (Beccari). The aedeagus of the type is visible. The median lobe is very wide and longer than the lateral lobes; the latter are slender, slightly widened toward apex, truncate at tip.

Genus *Hemirrhaphes* Candèze, 1878

brevis Cand., 1896, Mus. Gen., Ann. 36: 255.

Type: GENOA (drawer 18). Lectotype: 1st of 3; ♂; 3 mm; Si-Oban, Mentawai (Modigliani). Its aedeagus is visible; the median lobe is broad and longer than the slender lateral lobes. In the lectotype the elytra are black with the apex reddish yellow; in co-type specimens 2 and 3, also ♂♂, the elytra are entirely black.

Genus *Quasimus* Gozis, 1886

misellus (Boheman), 1858, Eug. Resa, Col.: 69 (*Cryptohypnus*).

Type: STOCKHOLM. Lectotype: 1st of 5 (numbered); ♂; 2 mm; Java (Kinberg); the only one of the series with Boheman's identification. The antennae are moniliform. The prosternal sutures lie in a curved depression, widely excavate anteriorly. The elytra are not definitely striate. Tarsi simple; segment 5 joins 4 before end of latter segment.

Genus *Zorochros* Thomson, 1859

bellulus (Cand.), 1894, Mus. Gen., Ann. ser. 2, 14: 494 (*Cryptohypnus*), NEW COMBINATION.

Type: GENOA (drawer 18). Single, sex undetermined; 1.9 mm; Si-Rambé, Sumatra (Modigliani). A cotype is in the IRSNB. An oval brown species; the elytra with 4 yellow spots. *Z. javanus* (Cand.) which is black with brown antenna, is a more elongate species than *bellulus*, with the elytral striae more strongly punctured.

fasciatus (Cand.), 1865, Élat. nouv. 1: 30 (*Cryptohypnus*). NEW COMBINATION.

Type: BM (drawer 78). Lectotype: 1st of 3; doubtfully ♂; 3 mm; Borneo; the only one identified by Candèze. Generally rufous, the pronotum with a darker area and elytra with transverse black band behind middle.

SUBFAMILY MELANOTINAE

Genus *Neodiploconus* Hyslop, 1921

aequalis (Cand.), 1878, Mus. Gen., Ann. 12: 136 (*Melanotus*).

Type: GENOA (drawer 21). Lectotype: single ♂; 10 mm; Andai, New Guinea (Becari). Its aedeagus (pl. 2, 17) is mounted with the specimen; its lateral lobes are extremely narrow at the base of the apical expansion. A cotype ♂, 8 mm, is in the IRSNB.

ambustus (Cand.), 1865, Élat. nouv. 1: 46 (*Diploconus*).

Type: LEIDEN. Lectotype: single ♀; 10.5 mm; "Müller, Sumatra". Candèze credited his material to the Leiden Museum; a cotype is in the BM. Antennal segment 3 is 1/2 as long again as 2; 2+3 about as long as 4. The prothoracic hind angles are sharply bicarinate. A specimen of *ambustus* from Java is in the IRSNB.

barbus (Cand.), 1882, Élat. nouv. 3: 87 (*Diploconus*).

Type: IRSNB. Lectotype: single ♂; 12 mm; Menado, Celebes; identified by Candèze. The aedeagus (pl. 2, 18) is mounted with the specimen; the subapical angle of the lateral lobes is more acutely prolonged than in *ciprinus*. The two can be separated externally as follows: (1) middle of head flat in *barbus*, convex in *ciprinus*; (2) sides of prothorax more nearly straight in *barbus*; and (3) propleura more strongly concave toward sides in *barbus* than in *ciprinus*.

cantharus (Cand.), 1895, Élat. nouv. 5: 48 (*Diploconus*).

Type: IRSNB (drawer 92). Lectotype: 1st of 3 "Type"; ♂; 11.4 mm; Babuyanes I.; "n. sp. *Cantharus* Philippines" (Candèze's label). The aedeagus is mounted with the type (one of the lateral lobes is damaged); the lateral lobes are short, strongly "shouldered", and expanded at the apex. This species is near *N. erythropus* (Cand.) from the Moluccas; they can be separated thus:

cantharus ♂*erythropus* ♂

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Sides of prothorax narrowed in straight line 2. Punctures of elytral striae smaller and less strongly impressed than in <i>erythropus</i> 3. Tips of elytra obliquely truncate; only outer angle definitely mucronate | <p>Sides of prothorax arcuate</p> <p>Tips of elytra emarginate; all 4 angles mucronate.</p> |
|--|---|

cervinus (Cand.), 1878, Soc. ent. Belg., Ann. **18**: 125 (*Diploconus*).

Type: IRSNB (drawer 93). Lectotype: 1st of 5 "Type"; ♂; 13 mm; Mindanao; identified by Candèze. The other 4, all cotypes, are from Babuyanes, Leyte and east Mindanao. The aedeagus of the lectotype is mounted with that specimen; the lateral lobes are expanded toward the apex, and the subapical angle is acute. Other than the concave front of the head and the rather weak bicarination of the prothoracic hind angles, there is little to distinguish this species.

elateropsis (Cand.), 1898, Leyd. Mus., Notes **18**: 142 (*Diploconus*).

Type: LEIDEN. Holotype ♂; 9 mm; Natuna I. (van Hasselt); with Candèze's "n. sp." label. A rather heavily punctate species. The anterior margin and hind angles of the prothorax are blackish; the hind angles are bicarinate. The median pronotal groove coincides with a black vitta.

enganensis (Cand.), 1892, Mus. Gen., Ann. ser. 2, **12**: 799 (*Diploconus*).

Type: GENOA (drawer 21). Lectotype: 1st of 2 "Typus"; ♀; 12 mm; Bua-bua, Engano I. (Modigliani). Neither the Genoa specimens nor the 3 "Types" in the IRSNB attain the described length (13–14 mm). Tips of the elytra are shallowly and rather widely emarginate, with the sutural angle slightly more prominent than the outer.

erythropus (Cand.), 1865, Élat. nouv. **1**: 46 (*Diploconus*).

Type: LEIDEN. Lectotype: 1st of 3; ♀; 13 mm; Ternate. This designation was recorded earlier (1957, Ins. Micronesia **16** (1): 64).

hasselti (Cand.), 1883, Leyd. Mus., notes **5**: 205 (*Diploconus*).

Type: LEIDEN. Lectotype: single, sex undetermined; 12 mm; Lebong, Sumatra (van Hasselt). Antennal segment 3 is slightly longer than 2; 2+3 about as long as 4. A strong median groove extends from just behind the anterior margin of the pronotum to the hind margin, and is very deep on the basal slope.

hebetatus (Cand.), 1897, Élat. nouv. **6**: 62 (*Diploconus*).

Type: IRSNB. 1st of 3 "Type"; ♀; 14.5 mm; Kina Balu, Borneo; Candèze's designation. Compared with *N. plagiatus* of Java and Borneo, *hebetatus* is (1) duller; (2) more coarsely and closely punctate; (3) has longer antennae (♀♀ compared); and (4) antennal segments 4–10 are not carinate on their outer face; in *plagiatus* those segments are acutely carinate.

homostictus (Cand.), 1860, Mon. Élat. **3**: 295 (*Diploconus*).

Type: BM. Probably ♀; 11 mm; Sarawak, Borneo (ex Deyrolle coll.); has the Museum's type label. Note by C. J. Gahan: "This specimen though not labelled in Candèze's writing was taken from the same box as his types of *peregrinus* and *exquisitus* C. J. G."

ineptus (Cand.), 1878, *Élat. nouv.* 2: 39 (*Diploconus*).

Type: IRSNB. Single "Type" ♀; 7.5 mm; Macassar, Celebes; Candèze's identification and "n. sp." label. The description calls for a length of 6 mm. A slender, brown species, having the hind margin of the prothorax, and the base of the elytra, rufous. The inner, weaker of the 2 carinae on the prothoracic hind angles joins the outer one well before the apex.

lateralis (Schwarz), 1902, *Stett. Ent. Ztg.* 63: 273 (*Diploconus*).

Type: DEI. ♂; 12 mm; Celebes; sent to me for examination by Dr. Sachtleben. The aedeagus is similar to that of *nigripennis*, shown on pl. 2, 19; the outer margin of the lateral lobes is broadly arcuate below the shoulder; the apical expansion is subtriangular with the subapical angle acute. A dark rufous insect with sides of the elytra somewhat darker.

melanopterus (Cand.), 1865, *Élat. nouv.* 1: 46 (*Diploconus*).

Type: LEIDEN. Holotype, probably ♀; slightly over 11 mm; "Müller, Sumatra". The type lacks the head; insects have consumed the body contents and nearly half of the prothorax. The prothoracic hind angles are divergent, continuing the outline of the sides; they are bicarinate.

nigripennis (Cand.), 1882, *Élat. nouv.* 3: 86 (*Diploconus*).

Type: IRSNB. Lectotype: 2nd of 2; ♂; 12.5 mm; Kepahiang, Sumatra; "Type". Specimen 1 does not agree with the description of this species, and appears to be *nigriceps* (Schwarz). The aedeagus of the lectotype (pl. 2, 19) is mounted with the specimen. This species has comparatively wide elytra, accentuated by the strongly narrowed prothorax. From *N. erythronotus*, which also has the pronotum sanguineous and without median marking, *nigripennis* can be separated thus: (1) antennal segments 4-10 are broadly triangular and medianly carinate in *nigripennis*; in *erythronotus* the segments are more elongate and without carina; (2) in *nigripennis* the underside of the body is black with propleura sanguineous; in *erythronotus* the underside is entirely rufous but for the blackish mucro.

partitus (Cand.), 1894, *Mus. Gen., Ann. ser. 2*, 14: 494 (*Diploconus*).

Type: GENOA (drawer 21). Lectotype: 1st of 8; ♂; 10 mm; Si-Rambé, Sumatra (Modigliani); "*Diploconus partitus* n. sp." (Candèze's writing). Recognizable by the bicolored elytra: red on basal 1/2 like head and prothorax, black on the apical 1/2. Definition between the colors is sharp; in *ustulatus*, also a bicolored insect, the rufous and black areas merge gradually, while in *tricolor* the end of the elytra is dusky instead of definite black.

pellucidus (Cand.), 1894, *t. c.*: 494 (*Diploconus*).

Type: GENOA (drawer 21). Lectotype: single ♀; 15 mm Si-Rambé, Sumatra (Modig-

liani); "n. sp." and identification by Candèze. A brownish ferruginous or maroon insect, with prothorax yellowish except for dark maroon on front and hind margins and on carinae of hind angles. A cotype, probably ♀, in the IRSNB also has Candèze's "n. sp." label.

peregrinus (Cand.), 1860, Mon. Élat. 3: 293 (*Diploconus*).

Type: BM. ♂; 18 mm; Sarawak (Wallace); Candèze's designation. The aedeagus (pl. 2, 20) is mounted with the specimen. It is unusual for the widely arcuate expansion of the median lobe. The tips of the elytra in *peregrinus* are shallowly, subcircularly emarginate, all the angles of equal prominence and all mucronate.

pilosus (Cand.), 1878, Élat. nouv. 2: 39 (*Diploconus*).

Type: IRSNB. Lectotype: 2nd of 2 "Type"; probably a ♀; 7 mm; Celebes. The 1st specimen bears Candèze's identification and "n. sp." label, but lacks head and thorax. A hairy species with the pronotal punctation unusually fine and sparse on the disc; the prothoracic hind angles are bicarinate, instead of unicarinate as described, the inner carina fine and difficult to see.

politus (Cand.), 1875, Soc. Ent. Belg., Ann. 18: 126 (*Diploconus*).

Type: IRSNB. Lectotype: single ♂; 9.5 mm; "*Politus* Cdz. Alabat (philip)" in Candèze's writing. The hind angles of the prothorax are bicarinate. The genitalia are partially extruded. The ends of the lateral lobes are acutely subtriangular, and the median lobe is parallel-sided on the apical 1/2 (all that is visible).

rufus (Cand.), 1860, Mon. Élat. 3: 295 (*Diploconus*).

Type: BM (drawer 89)? What is perhaps the type is labelled "J / Wallace / Janson Coll. 1903-130"; if the "J" of the topmost label indicates Java, it is the only one of the 13 specimens from the type locality. The only specimen identified by Candèze is from Batchian; others are from "Morty", Dorey, Kaioa, "Jilo" and Menado. A single ♀ from Batchian is in the IRSNB.

tricolor (Cand.), 1897, Élat. nouv. 6: 61 (*Diploconus*).

Type: IRSNB. ♀; 13.5 mm; Sumatra (Staudinger) Generally flavous brown, with a blackish median vitta on pronotum; scutellum blackish; elytra black but for the basal 1/2 which is flavous except on the suture. Head widely excavate in front. The prothoracic hind angles are long, bicarinate, and diverge strongly from the outline of the sides.

umbilicatus (Cand.), 1875, Soc. ent. Belg., Ann. 18: 125 (*Diploconus*).

Type: IRSNB. Lectotype: 1st of 7 "Type"; ♂; 11 mm; Panaon I., Philippine Is. The prothoracic hind angles are bicarinate. The aedeagus is mounted with the specimen (the tip of the median lobe is broken); the lateral lobes are strongly "shouldered", and the outer angle of the apical expansion is about 45°. Specimens from Mindanao are in the IRSNB.

ustulatus (Cand.), 1882, Leyd. Mus., Notes 5: 13 (*Diploconus*).

Type: LEIDEN. ♀; 10 mm; Soekadana, Lampong, Sumatra (van Hasselt); Can-

dèze's designation. This species can be separated from *rufus* as follows: (1) the inner of the 2 carinae on the prothoracic hind angles is weak in *ustulatus*, strong in *rufus*; and (2) the disc of the pronotum is faintly grooved in *ustulatus*, distinctly grooved in *rufus*.

KEY TO SOME NEODIPLOCONUS IN THE GENOA MUSEUM

1. Prothorax sanguineous, contrasting in color with elytra which are wholly or partly black or blackish 2
- Prothorax not sanguineous, not contrasting with elytra in color..... 7
- 2 (1). Elytra bicolorous 3
- Elytra unicolorous (sometimes briefly rufous at base) 4
- 3 (2). Elevated median part of fronto-clypeal area strongly narrowed above..... **partitus**
- Elevated median part of fronto-clypeal area hourglass-shaped **ustulatus**
- 4 (2). Elytra definitely emarginate at tip..... **pellucidus**
- Tips of elytra entire, or, at most, subtruncate 5
- 5 (4). Head black **modigliani**
- Head reddish (frontal margin sometimes blackish) 6
- 6 (5). Prothorax conical in outline; elytra black **nigripennis**
- Prothorax somewhat arcuate on sides; elytra blackish brown **erythronotus**
- 7 (1). Prothoracic hind angles unicarinate **homostictus**
- Hind angles bicarinate..... 8
- 8 (7). Brownish species..... 9
- Black or dark fuscous insects 11
- 9 (8). Prothorax notably narrower than elytra..... **parvicollis**
- Prothorax and elytra of equal width..... 10
- 10 (9). Prothorax strongly narrowed anteriorly; head evenly convex; fronto-clypeal area not medianly carinate..... **rufus**
- Prothorax not strongly narrowed; lower part of head concave; fronto-clypeal area medianly carinate **enganensis**
- 11 (8). Tips of elytra entire, conjointly rounded..... 12
- Tips of elytra sometimes briefly, but always definitely, emarginate 13
- 12 (11). Head not porrect; small insects (10 mm)..... **aequalis**
- Head porrect; larger insects (15 mm) **spiloderus**
- 13 (11). Head porrect, fronto-clypeal area medianly carinate; prothorax notably elongate, the sides nearly straight..... **ambustus**
- Head not porrect, fronto-clypeal area without median carina; prothorax moderately elongate, arcuately narrowed on sides **erythropus**

KEY TO SOME INDO-MALAYAN NEODIPLOCONUS

1. Elytra bicolorous: basal 1/2 rufous, apical 1/2 black or blackish..... 2
- Elytra unicolorous 3
- 2 (1). Head black, its punctation contiguous, umbilicate; antennal segments 2 & 3 subequal; pronotum with deeply incised median groove (Sumatra)..... **tricolor**
- Head rufous, punctation well separated, not umbilicate; antennal segment 3

- longer than 2; pronotal groove less deeply incised (Sumatra)..... **partitus**
 Head rufous or blackish, punctation umbilicate, well separated; antennal segment 3 longer than 2; median groove on basal slope only (Sumatra)... **ustulatus**
- 3 (1). Fronto-clypeal area prominent, sharply carinate in form of inverted Y..... 4
 Median part of fronto-clypeal area prominent, its sides defined by upwardly convergent margins which are carinate or vaguely so..... 5
 Fronto-clypeal area weakly prominent, if at all, its sides not defined..... 6
- 4 (3). Prothoracic hind angles definitely bicarinate; tips of elytra briefly truncate, their angles not mucronate (Engano)..... **enganensis**
 Hind angles unicarinate (described as bicarinate, the outer carina short and merged almost at start with lateral carina of prothorax); tips of elytra emarginate, the outer angles weakly mucronate (Java). **prominens**
- 5 (3). Basal slope of pronotum precipitous; pronotal punctation coarse, dense; anterior margin of prosternal lobe arcuate (♂) or bluntly mammillate (♀); punctures of elytral striae aureolate; 19 mm or more (Borneo) **peregrinus**
 Basal slope of pronotum gently declivous; pronotal punctation fine, rather sparse; prosternal lobe arcuate in both sexes; striae punctures not aureolate; 15 mm long, or less (Java; Borneo)..... **frontalis**
- 6 (3). Pronotal punctation coarse; tips of elytra entire..... 7
 Pronotal punctation fine; tips of elytra emarginate, the angles mucronate (Malaya; Philippines) **consanguineus**
- 7 (6). Prothorax strongly conical in outline; wider than long (measured to and across tips of hind angles; ♀) (Java) **nigricornis**
 Prothorax not conical; longer than wide (♀); (Borneo) **hebetatus**

Genus *Melanotus* Eschscholtz, 1829

albertisi Cand., 1878, Mus. Gen., Ann. 12: 135.

Type: GENOA (drawer 22). Lectotype: 4th of 4 "Typus"; ♀; 12 mm; Ramoi, New Guinea (Beccari). Cotypes are from Hatam, Andai and Dorei, New Guinea. The aedeagus of *albertisi* is remarkable for a prominent tooth on the outer margin of the lateral lobes, between the shoulder and the subapical angle; a similar structure occurs in *M. guambatae* from the Solomons. Both aedeagi were illustrated (1948, Haw. Ent. Soc., Proc. 13: 276, figs. 5-6).

bipunctatus Cand., 1865, Élat. nouv. 1: 49.

Type: BM (drawer 93). ♂; 15.9 mm; "*Melanotus bipunctatus* Cdz. Java. Bouv." (Candèze's writing). The aedeagus is mounted with the specimen. The lateral lobes have no shoulder, the outer margin narrowing evenly from base to apical expansion; the expansion is subtriangular, elongate and has numerous long hairs. A generally fuscous-black insect, with humeri of elytra, scutellum (faintly) and legs, rufous. A pair of inconspicuous shallow depressions occurs near the anterior margin of the pronotum.

brevicornis Cand., 1880, Mus. Gen., Ann. 15: 195.

Type: GENOA (drawer 22). Lectotype: Single, probably ♀; 9 mm; Mt. Singalan,

Sumatra (Beccari). Antennal segments 2 and 3 are nearly equal in length, and together are longer than 4. The prothoracic hind angles are acutely unicarinate close to the outer margin. There are no specimens of *brevicornis* in the IRSNB.

carinatus Cand., 1865, *Élat. nouv.* 1: 49.

Type: BM. Lectotype: 2nd of 2; ♂; 9 mm; "*Melanotus carinatus* Cdz. Sumatra Sn. 116" (Candèze's label). The aedeagus of the lectotype is mounted with the specimen (pl. 2, 21); it is remarkable for its elongate, widely expanded median lobe, and the short divergent ends of the lateral lobes.

cribrum Cand., 1880, *Mus. Gen., Ann.* 15: 196.

Type: GENOA (drawer 22). Lectotype: single ♂; 12 mm; Ajer-Mantcior, Sumatra (Beccari). The aedeagus is mounted with the specimen. Its median lobe is parallel-sided and elongate, extending beyond the tip of the lateral lobes nearly as far as the length of the side lobes themselves; the lateral lobes are subtriangularly expanded at the apex. The pronotum is heavily cribrate-punctate; there is no median groove, but the basal slope has a wide, subtriangular impression.

diploconoides Cand., 1895, *Leyd. Mus., Notes* 16: 198.

Type: LEIDEN. Lectotype: single ♂; 16 mm; Loeboe Raja, western Sumatra (van Hasselt). Dissection shows it to be a ♂; the aedeagus (pl 2, 22) is mounted with the specimen. ♂ from Si-Rambé in the IRSNB, is identified as *diploconoides* by Candèze, but differences in the aedeagus show that it is not conspecific with the type.

dipunctatus Cand., 1897, *Élat. nouv.* 6: 63.

Type: IRSNB. Lectotype: 1st of 4 "Type"; ♀; 11.5 mm; Tsikorai, Preanger, Java; has Candèze's identification and "n. sp.". The aedeagus of specimen 3 is mounted with that insect; the lateral lobes have prominent shoulders, distad of which the lobes are slender with the outer margins subparallel.

fuscus (Erichson), 1841, *Zeitschr. Ent.* 3: 106 (*Cratonychus*). New author designation; not Fabricius.

Type: Zoological Mus. Humboldt Univ., Berlin. Lectotype: ♂; 13 mm; Bengal. The lectotype was so designated by Dr. K. Delkeskamp (his letter of April 8, 1959). It and a ♀, 13.5 mm; were sent to me for examination. Each bears the number 17042, and with them is a larger label in Erichson's hand reading: "Fuscus Fab. *E. hirticornis* Ht. Bengale Hind". Both agree well with Erichson's description of *C. fuscus* and with Herbst's definition of *Elater hirticornis*, also from Bengal (1806, *Natursyst. Ins. Kaf.* 10: 47). The specimen of *Elater fuscus* from Amboina in the Kiel Museum collection in the Copenhagen Museum is presumably Fabricius' type; that insect is an *Adelocera*. Hence it appears that Dejean (*Catalogus*, eds. 2 & 3) erred when he placed this Fabricius species in *Cratonychus*. Similarly, Erichson's description of the Indian *C. fuscus* was an original description of a species distinct from *Elater fuscus*, and is not a redescription of Fabricius' Moluccan species. *E. hirticornis*, the type of which I have not seen, is accepted as a synonym of *C. fuscus* as defined by Erichson. The catalogue status of the two should be reversed, with *Melanotus fuscus* (Erichson) 1841, becoming a synonym of *M. hirticornis* (Herbst) 1806.

hericeus Cand., 1892, Mus. Gen., Ann. ser. 2, 12: 800.

Type: GENOA (drawer 22). Lectotype: 1st of 3; ♂; 10 mm; Kifa-juc, Engano I. (Modigliani). The aedeagus of a cotype in the IRSNB is shown (pl. 2, 23); a ♀ cotype, 11 mm, is in GENOA. This species can be separated from *carinatus* and *hapatesus* as follows:

1. Pubescence long, yellowish **hericeus**
 Pubescence short, whitish, sparser than in *hericeus* 2
2. Head produced beyond clypeus, but less strongly prorect than in *hapatesus*; fronto-clypeal area not carinate medianly; sides of prothorax strongly arcuate, including hind angles; strial punctures of elytra round, deep **carinatus**
 Head more strongly prorect than in *carinatus*; fronto-clypeal area prominent, widely, vertically subcarinate; prothorax less strongly arcuate on sides; strial punctures lightly impressed, more elongate than in *carinatus* **hapatesus**

immissus Cand., 1897, Élat. nouv. 6: 64.

Type: IRSNB. Lectotype: 1st of 4 "Type" ♂; 15 mm; Preanger, Java; identified by Candèze. The antennae do not quite reach the tip of the prothoracic hind angles; segments 2+3 about as long as 4. The hind angles of the prothorax are strongly unicarinate, the carina extending forward to about the middle, or beyond. The aedeagus of the lectotype (pl. 2, 24) is mounted with that specimen. Its median lobe is short and bluntly round at the tip; the expanded apical part of the lateral lobes is short and wide.

interjectus Cand., 1897, *t. c.*: 65.

Type: IRSNB. Single ♀; 10 mm; Balabak; Candèze's identification and "n. sp.". In this species the whitish pubescence is conspicuous. The prothorax is arcuately narrowed forward from the base of the hind angles; the angles are blunt, diverge slightly from the outline of the sides, and have a single carina close to the outer margin.

mendiculus Cand., 1897, *t. c.*: 64.

Type: IRSNB. Lectotype: 1st of 6 "Type"; ♂; 11.5 mm; Kina Balu, Borneo; has Candèze's identification and "n. sp." label. The mixture of long and short pubescence is more apparent on the pronotum than on the elytra. The aedeagus of a cotype (specimen 5) is mounted with that insect (pl. 2, 25).

phlogosus Cand., 1860, Mon. Élat. 3: 325.

Type: IRSNB. Single ♂; 13.5 mm; Philippines (ex coll. Mniszech); Candèze's designation. The prothoracic hind angles are strongly bicarinate. The aedeagus (pl. 2, 26) is mounted with the type.

pulvereus Cand., 1897, Élat. nouv. 6: 64.

Type: IRSNB. Lectotype: 2nd of 3 "Type"; ♀; 16 mm; Tsikorai, Preanger, Java. Of the 3, this specimen is closest to the described length. The sides of the prosternal cavity are somewhat prominent; the prothoracic hind angles have a single short carina.

recessus Cand., 1897, *t. c.*: 65.

Type: IRSNB. Lectotype: 3rd of 3 "Type"; ♂; 10 mm; Kina Balu. The 1st specimen has Candèze's identification and "n. sp." label, but lacks head and thorax. The aedeagus of the lectotype is mounted with it; the median lobe is strongly narrowed near the tip; the shoulder of the lateral lobes is poorly developed, and these lobes are subtriangularly expanded at the apex.

ruficaudis Cand., 1878, *Mus. Gen.*, Ann. 12: 135.

Type: GENOA (drawer 22). Lectotype: 1st of 3; ♀; 11 mm; Kandari, Celebes (Becari). Blackish castaneous, with the apical 1/3 of the elytra conspicuously rufous. The aedeagus of a ♂ in the IRSNB was mounted with the specimen (pl. 2, 27); the apical expansion of the lateral lobes is unusually long. All the GENOA specimens are ♀.

scribanus Cand., 1895, *Élat. nouv.* 5: 48.

Type: IRSNB. Lectotype: 1st of 3 "Type"; ♂; 8 mm; Mindoro; the only one with Candèze's identification and "n. sp." label. The apical expansion of the lateral lobes of the aedeagus is long, widely arcuate on its outer margin, and with a strongly produced subapical angle.

ursulus Cand., 1894, *Mus. Gen.*, Ann. ser. 2, 14: 497.

Type: GENOA (drawer 22). Lectotype: 1st of 4, all ♂♂; 10 mm; Si-Rambé, Sumatra (Modigliani); "n. sp." and Candèze's identification. The aedeagus of the lectotype is mounted with it; it is similar to that of *carinatus*, with the median lobe elongate and very wide; the tips of the lateral lobes however, are truncate, while in *carinatus* they end in an acute point. On external characters the 2 can be separated as follows: (1) in *ursulus* the sides of the prothorax toward the base are narrowed in nearly a straight line; in *carinatus* they are arcuate, including the hind angles; (2) pronotal punctation is much sparser on the basal slope than anteriorly in *carinatus*; in *ursulus* it is denser throughout, with little difference before or behind; and (3) the carina on the prothoracic hind angles extends well forward of the middle of the pronotum in *ursulus*; whereas in *carinatus* it is about 1/3 the length of the pronotum.

KEY TO SOME MELANOTUS IN THE GENOA MUSEUM

1. Head not porrect..... 2
 Head porrect (sometimes only moderately)..... 4
2. Blackish insects with dense, gray pilosity **ursulus**
 Reddish or ferruginous insects; pubescence shorter, less dense..... 3
3. Basal sulci of pronotum very short **porcellus**
 Basal sulci long **brevicornis**
4. Pronotal punctation very coarse **cribrum**
 Pronotal punctation moderately coarse or even fine..... 5
5. Elytra subcylindrical; pubescence short, reclinate **ebeninus**
 Elytra narrowed backward from base; pubescence long, semi-erect..... **hericeus**

Genus *Melanotus* subgenus *Spheniscosomus* Schwarz, 1892

atractodes Cand., 1880, Mus. Gen., Ann. **15**: 196.

Type: GENOA (drawer 22). Lectotype: single, sex undetermined; 16 mm; Mt. Singalan, Sumatra (Beccarri). The genitalia are missing and only 2 basal segments remain on each antenna. No specimens of *atractodes* were found in the IRSNB.

flavipennis Cand., 1894, Mus. Gen., Ann. ser. 2, **14**: 496 (*Spheniscosomus*).

Type: GENOA (drawer 22). Lectotype: 2nd of 4 (numbered) ♀♀; 14 mm; Si-Rambè Sumatra (Modigliani). Specimen 1 appears to be teneral; it lacks the typical infuscation along the elytral suture. This species can be separated from others of the subgenus as follows: From *atractodes*: the prothorax and elytra in *flavipennis* are of contrasting colors; its propleura are narrowly concave along the outer margin, while in *atractodes* they are flat; the pronotal sulci are of normal width in *flavipennis*, very wide in *atractodes*. From *al bivellus*: in *flavipennis* the front of the head is more deeply concave, the antennae are longer and the prothoracic hind angles more slender. In *cuneolus* the front of the head is more deeply excavate than in *flavipennis*. In *permacer* the prothoracic hind angles are bicarinate; unicarinate in *flavipennis*.

permacer (Cand.), 1900, Élat. nouv. **7**: 18 (94) (*Spheniscosomus*).

Type: IRSNB (drawer 94). Lectotype: single ♀; 11 mm; Pagggar Alam, Palembang, Sumatra (Bouchard). This insect is remarkable for a carina on the posterior 2/3 of the prosternum, parallel to the suture, and for a small tubercle on the declivous sides of the mucral cavity.

Genus *Metriaulacus* Schwarz, 1901

gobius (Cand.), 1860, Mon. Élat. **3**: 329 (*Melanotus*).

veles (Cand.), 1860, *t. c.*: 328 (*Melanotus*).

Types: BM. of *gobius*: ♀; 16 mm; Java; of *veles*: ♂; 14 mm; Java (Horsfield) ex Museum of the East India Co. *M. gobius* is more slender than *veles*; its fronto-clypeal area is not carinate, and the prothoracic hind angles are bicarinate. In *veles* the fronto-clypeal area is vertically carinate, and the hind angles are unicarinate.

SUBFAMILY PYROPHORINAE

Genus *Photophorus* Candèze, 1863

bakewelli Cand., 1863, Mon. Élat. **4**: 74.

Type: BM (drawer 106). Lectotype: 1st of 2; ♂; 25 mm; New Hebrides; Candèze's identification. It more closely agrees with the description than does the other specimen, which is somewhat darker, 28 mm, and probably ♀.

jansoni Cand., 1863, *t. c.*: 73.

Type: BM (drawer 106). Holotype, probably ♀; 32 mm; Fiji. The only specimen in

the BM to qualify as holotype on the basis of collecting data.

Genus **Hifo** Candèze, 1882

pacificus Cand., 1882, *Élat. nouv.* 3: 94.

Type: IRSNB. 1st of 2 "Ex-Typis"; probably ♀; 20 mm; Tonga-tabu; Candèze's designation. Specimen 2, from Eua I. in the Tonga group is ♂; its aedeagus is shown in pl. 2, 28. In this species the prothoracic hind angles are weakly unicarinate; the lamella on tarsal segment 4 is very short, and is truncate, not bilobed.

SUBFAMILY CTENICERINAE

Genus **Ctenicera** Latreille, 1829

compsorhabda (Cand.), 1863, *Mon. Élat.* 4: 175 (*Corymbites*).

Type: BM (drawer 107). Single, probably ♀; 7 mm; Moreton Bay, Queensland; Candèze's identification label. This species is generally black, with appendages and prothoracic hind angles, flavous; the hind angles are definitely unicarinate. In *C. xanthoptera* the head and thorax (except for hind angles and hind margin which are flavous) are black; the elytra and the appendages are flavous. The hind angles of the prothorax are not carinate or feebly so.

xanthoptera (Cand.), 1863, *t. c.*: 175 (*Corymbites*).

Type: BM (drawer 107). Lectotype: 2nd of 2; ♂; 7 mm; Melbourne. Both have Candèze's identification label, but the 1st lacks the head and thorax.

Genus **Neopristilophus** du Buysson, 1906

cirratipilis (Cand.), 1865, *Élat. nouv.* 1: 54 (*Corymbites*).

Type: IRSNB (drawer 114). 1st of 7; ♀; 15 mm, Malacca, ex Castelnau coll; Candèze's designation. A species which is known from Sumatra and Borneo as well as from the Asian mainland.

luzonicus (Cand.), 1865, *t. c.*: 53 (*Corymbites*).

Type: BM (drawer 11a). Lectotype: 1st of 3; probably ♀; 18 mm; "*Corymbites luzonicus* Cdz. Manille. Thor" (Candèze's label). This and the preceding species compare as follows:

<i>cirratipilis</i> Type ♀	<i>luzonicus</i> ♀ (IRSNB)
<i>Antennae</i>	
1. Shorter than in <i>luzonicus</i>	Reaching nearly to base of prothoracic hind angles
2. Seg. 4 shorter than 2+3	Seg. 4 about as long as 2+3
3. Seg. 4 not produced	Seg. 4 produced on outer apical angle
<i>Prothorax</i>	
4. Sides more arcuate than in <i>luzonicus</i>	

5. Hind angles less divergent
6. Posterior part of pronotum with median groove No groove on pronotum.

Genus *Elatichrosis* Hyslop, 1921

barbata (Cand.), 1865, Élat. nouv. 1: 54 (*Chrosis*).

Type: BM (drawer 112). Holotype, sex undetermined; 18.5 mm; Candèze's writing: "Australia ???" *Chrosis barbata* Cdz. Grandin". Candèze noted that his single example came from Grandin, but that the locality of origin was not known to him. All specimens of *barbata* seen by me, except the holotype of uncertain origin, are from New Zealand.

Genus *Aphileus* Candèze, 1857

ferox Blackburn, 1895, Soc. So. Austral., Trans. 19: 50.

Type: BM. Holotype ♀; 36 mm; N. Australia; Blackburn's identification and the Museum's type label. It compares with *A. lucanoides* as follows:

<i> ferox</i> ♀ Type	<i> lucanoides</i> ♀
<i>Head</i>	
1. Front more deeply excavate than in <i> lucanoides</i>	
2. Antennae strongly serrate; segs. 5-10 relatively short and wide	Antennae less strongly serrate; segs. 5-10 relatively longer
<i>Prothorax</i>	
3. Punctuation on prosternum moderate, not rugose	Prosternal punctuation coarse, rugose
4. Lateral margin prominent on anterior 1/3	Lateral margin not prominent
5. Well marked median groove on disc and basal slope of pronotum	Pronotum not grooved
6. Tips of hind angles rather acute, not truncate	Tips of hind angles truncate.

Genus *Chrostus* Candèze, 1878

quadrifoveolatus Cand., 1878, Élat. nouv. 2: 42.

Type: IRSNB (drawer 114)? 2nd of 3 "Type"; ♂; 22 mm; Sydney; Candèze's designation. The specimen fails to agree with the description both as to size (16 mm) and type locality (Paroo River, Queensland).

SUBFAMILY CREPIDOMENINAE

Genus *Crepidomenus* Erichson, 1842

adelaidae Cand., 1863, Mon. Élat. 4: 199.

Type: BM (drawer 114). Lectotype: 1st of 3; ♂; 10.5 mm; Adelaide; identified by Candèze. The aedeagus was dissected and mounted with the lectotype; the lateral lobes are arcuate on their outer margin, and the apical expansion is elongate. The frontal margin of the head, though weak along the middle, is complete. The prothoracic hind angles are briefly, acutely unicarinate.

australis (Boisduval), 1835, Voy. Astrolabe, Col.: 108 (*Elater*).

Type: BM (drawer 114). Lectotype: ♂; 13 mm: "*Elater* [crossed out] *Ludius australis* D'Urville. h. in Nova Hollandia, D. Leffon" (printed by Dejean). The aedeagus is mounted with the specimen. Like those of *luteipes*, *metallescens* and *vulneratus* the aedeagus of *australis* is slender, the lateral lobes are acutely narrowed toward the tip and are not expanded apically as in *adelaidae* and *queenslandicus*. The outer margins of the side lobes in *australis* narrow gradually from base to apex and hence have no shoulder; in the others named above, a shoulder is at least suggested. Wide differences in aedeagal structure such as occur in some other genera (*e. g.* *Megapenthes* and *Melanotus*) are not found in *Crepidomenus*.

hirtus Cand., 1863, Mon. Élat. 4: 195.

Type: BM (drawer 114). 1st of 2; probably ♂; 5.5 mm; Adelaide; Candèze's designation.

luteipes Boheman, 1858, Eug. Resa, Col.: 70.

Type: STOCKHOLM (drawer 32-15). Lectotype: 1st of 5 (the only one with Boheman's identification label); 11 mm; "Sidney" (Kinberg). Specimens 2 and 3 are cotypes. The aedeagus of the 3rd is mounted with the specimen; it is slender, with the lateral lobes narrowed and acute, and shorter than the median lobe.

metallescens Cand., 1863, Mon. Élat. 4: 197.

Type: BM (drawer 114). Lectotype: 1st of 2; ♂; 14 mm; "Sidney". Its aedeagus (mounted with the specimen) is similar to that of *luteipes*, but the shoulder on the lateral lobes is more strongly developed in *metallescens*. The frontal margin of the head is interrupted along the middle, where it is on the plane of the fronto-clypeal area. The prothoracic hind angles are briefly, strongly unicarinate.

victoriae Cand. 1863, *t. c.*: 197.

Type: BM (drawer 114). Lectotype: 2nd of 3; ♀; 11 mm; Victoria. Specimen 1, which Janson labelled as the type lacks the abdomen. A "Type" ♀ in the IRSNB is from Tasmania.

vulneratus Cand., 1897, Élat. nouv. 6: 68.

Type: IRSNB. ♂; 12 mm; Adelaide; "Type 3773 A7" (Blackburn's label). The aedeagus has been mounted with the specimen.

Genus *Paracrepidomenus* Schwarz, 1906

filiformis (Cand.), 1863, Mon. Élat. 4: 199 (*Crepidomenus*).

Type: BM. Lectotype: 1st of 2; ♂; 15 mm; Victoria; identified by Candèze. The frontal margin of the head is incomplete along the middle; the prothoracic hind angles are slender and weakly unicarinate.

SUBFAMILY SENODONIINAE

Genus *Sossor* Candèze, 1883

This genus was formerly included in the Dicrepidiinae because of inaccurate description of the tarsal structure. Fleutiaux assigned it correctly to the Senodoniinae (1936, Soc. ent. France, Ann. **105**: 285).

hageni Cand., 1883, Leyd. Mus., Notes **5**: 209.

Type: LEIDEN. Holotype ♂; 16 mm; Tandjong Morowa, Serdang, Sumatra (Hagen); Candèze's type label is attached. The aedeagus is partially visible, its lateral lobes expanded toward the tip. A piceous species with elytra iridescent green; the pubescence is short and coarse, and, on the elytra, semi-erect. Three segments are lobed (2, 3, 4) on all legs (not segment 2 & 3 only, as described). The lobe on 2 is short; that on 3 is longer and wider than on 2; and the lobe on 4 is long, slender for about 1/2 its length, then widened distally to about the width of the lobe on 3. The frontal margin of the deeply impressed head is porrect, and strongly deflexed to meet the subelliptical, horizontal fronto-clypeal area, the sides of which are raised, with the space between concave. A deep, oblique fovea lies below the base of each antenna, suggestive of the frontal foveae in *Protelater* Sharp. A 2nd specimen of *hageni* is known: a ♀ in the Amsterdam Zool. Mus.; 17 m; "Ned. Indie, Leg. A. Koller, coll. F. C. Drescher".

Genus *Penia* Hope, 1831

dubia Cand., 1891, Leyd. Mus., Notes **13**: 246.

Type: LEIDEN. 1st of 4; ♂; 9 mm; between Buitenzorg and Preanger, Java (Pasteur). All 4 are ♂♂; the aedeagus of specimen 2 is partially extruded. The lateral lobes are long and more or less parallel-sided until they expand near the apex; the subapical angle is short. The prothoracic hind angles are bicarinate; the inner carina is weaker than the outer, but plainly evident.

fulva Cand., 1865, Élat. nouv. **1**: 55.

Type: Lost. The type is presumed to have been destroyed with the rest of the von Bruck collection in Bonn in 1945. There is no example of the species in the BM. In the IRSNB are 7 "Type" specimens labelled by Candèze: "*Fulva* Cand. var. *discoidea* Java, Mt. Preanger".

soricina Cand. 1863, Mon. Élat. **4**: 230.

Type: BM. Holotype ♀; 9 mm; Sarawak (Wallace); Candèze's type label. New records for the species, from BM material, are Sumatra and Perak.

stictica Cand., 1880, Leyd. Mus., Notes **2**: 3.

Type: LEIDEN. Lectotype: 1st of 2; sex undetermined; 11.5 mm; Indrapoera Peak, Sumatra; Candèze's identification and "n. sp." label. A cotype is in the IRSNB.

KEY TO PACIFIC SPECIES OF PENIA

1. Antennae described as black (no examples seen); (Java; Sumatra)..... **fulva**
Antennae not black; concolorous with body..... 2
2. Antennae (♀) not exceeding tips of prothoracic hind angles (Borneo)..... **soricina**
Antennae (♀) extending beyond tips of hind angles 3
3. Apex of mucro, in profile, more or less acute, presenting an angle of less than 90°
(Java; Sumatra) **fruhstorferi**
Apex of mucro, in profile, bluntly rounded on angle of 90° or more..... 4
4. Strial punctation on apical 1/2 of elytra irregularly coalescent, producing elongate
impressions (Sumatra) **stictica**
Strial punctations not coalescent (Java; Sumatra) **dubia**

P. pendelburyi Fleut. and *P. recticollis* Fleut., both from Borneo, were not seen by me. As described they can be separated from *soricina* by their somewhat larger size, and by the absence of carina on the prothoracic hind angles; in *soricina* the hind angles are strongly unicarinate. The longer antennae and oval shape of the elytra will separate *recticollis* from *pendelburyi*.

Genus *Neotrichophorus* Jacobson, 1913

aemulus (Cand.), 1891, Leyd. Mus., Notes 13: 246 (*Ludius*).

Type: LEIDEN. Single, probably ♀; 12 mm; between Buitenzorg and Preanger, W. Java (Pasteur); Candèze's designation. The hind angles of the prothorax are strongly unicarinate, the carina bisecting the angle or nearly so.

germanus (Cand.), 1894, Mus. Gen., Ann. ser. 2, 14: 498. (*Ludius*).

Type: GENOA (drawer 28). Lectotype: 1st of 8; ♂; 9 mm; Si-Rambé, Sumatra (Modigliani). The aedeagus of the lectotype is mounted with it; it is similar to that of *N. hirticornis* (pl. 2, 29).

hirsutus (Cand.), 1875, Soc. ent. Belg., Ann. 18: 126 (*Ludius*).

Type: IRSNB (drawer 122). Lectotype: 1st of 2; ♂; 10 mm; Philippines; has Candèze's identification. Its aedeagus is almost completely extruded; it is similar to that of *hirticornis*. The 2nd specimen, from Balabak, is not *hirsutus*.

hirticornis (Cand.), 1895, Élat. nouv. 5: 57 (*Ludius*).

Type: IRSNB. Lectotype: 4th of 13 "Type"; ♂; "Mt. Tengger, 1250 metr" (the only specimen from type locality). The aedeagus of the lectotype (pl. 2, 29) is similar to those of *germanus* and *hirsutus*.

illotypes (Cand.), 1863, Mon. Élat. 4: 302 (*Ludius*).

Type: BM: ♀; 12 mm; Java; Candèze's identification; the only specimen ex Janson coll. In the aedeagus of *illotipes* the rather widely expanded apical part of the lateral lobes is arcuately rounded on the outer margin.

KEY TO SOME INDO-MALAYAN NEOTRICHOPHORUS

1. 3 longitudinal bands (best seen from rear) of fulvous hairs on elytra, one on suture, the others lateral (Mindanao) **phillipsi**
No bands of vestiture on elytra..... 2
- 2 (1). Tips of elytra acuminate (Sumatra; Philippines)..... **germanus**
Tips of elytra briefly but definitely emarginate 3
Elytra entire, or weakly truncate 4
- 3 (2). Prothorax more or less transverse, not longer than wide; elytra narrower at humeri than prothorax across hind angles; elytra flavous, suture black (Borneo)..... **suturalis**
Prothorax notably longer than wide; elytra at humeri as wide as prothorax at hind angles; unicolorous, brown (Java) **aemulus**
- 4 (2). Pubescence on pronotum erect, coarse 5
Pubescence on pronotum recumbent, usually fine 7
- 5 (4). Pubescence whitish; elytra depressed on disc, sides strongly narrowed backward from humeri, apex weakly truncate and blunt, sutural angle mucronate (Java; Sumatra)..... **illotipes**
Pubescence fulvous; elytra convex, sides subparallel or slightly narrowed, tips rounded 6
- 6 (5). Black to piceous insects; pronotum strongly convex, hind angles bisected by carina (Java)..... **hirtellus**
Castaneous to paler brown species; pronotum moderately convex; carina of hind angles nearer outer edge than middle of angle (Java; Sumatra)... **hirticornis**
- 7 (4). Lower 1/2 of head medianly carinate (Borneo) **spissus**
Head not medianly carinate (Philippines)..... **hirsutus**

Genus *Elater* Linnaeus, 1758

lucidus (Cand.), 1865, *Élat. nouv.* 1: 55 (*Ludius*).

Type: BM (drawer 121 a). Lectotype: single, sex undetermined; 12 mm; Java; id. by Candèze. Antennal segments 2 and 3 of equal length, together shorter than 4. Prothorax conical, hind angles not diverging from outline of sides; basal slope widely grooved (incised anteriorly). Tips of elytra weakly mucronate on suture.

rubiginosus (Cand.), 1889, *Leyd. Mus., Notes* 11: 96 (*Ludius*).

Type: LEIDEN. Lectotype: single ♀; 30 mm; Tandjong Morawa, Serdang, Sumatra (Hagen); Candèze's identification and "n. sp." label. The prothorax is arcuately narrowed from base of hind angles. Disc of pronotum somewhat depressed with suggestion of median groove at top of basal slope. Elytra at tip individually spinose.

Genus *Aphanobius* Eschscholtz, 1829

discoidalis Cand., 1880, Mus. Gen., Ann. 15: 197.

Type: GENOA (drawer 29). Lectotype: single, probably ♀; 12 mm; Mt. Singalan, Sumatra (Beccari). This species can be separated from the Sumatran *A. permacer* Cand. (holotype in GENOA-drawer 29) as follows: (1) *discoidalis* is brownish with black discoidal mark on pronotum; *permacer* is uniformly fawn-colored, and is more slender; (2) in *discoidalis* antennal segments 2 and 3 are of about equal length, and together shorter than 4; in *permacer* 3 is intermediate in length between 2 and 4, and 2+3 are as long as 4; and (3) in *discoidalis* all 4 angles of the apical emargination of the elytra are mucronate; in *permacer* the outer angle is subspinose.

Genus *Ludigenus* Candèze, 1863

primaevus Cand., 1863, Mon. Élat. 4: 326.

Type: BM (drawer 124). Holotype ♀; 27 mm (at most); "Indie"; Candèze's designation. The genitalia are missing; described as ♀. Candèze separates this species from *politus* by the strongly divergent prothoracic hind angles of the former. Furthermore, the propleura are generally flat in *primaevus*, whereas in *politus* the propleura, at least in front, are definitely concave toward the sides, with the lateral margin more or less deflexed. The aedeagi of a *primaevus* from the Nicobars, and of a *politus* from Borneo are shown on pl. 2, 30 & 31.

Genus *Compshelus* Candèze, 1878

flavus Cand., 1878, Élat. nouv. 2: 48.

Type: IRSNB. Single ♂; 8.5 mm; Fiji; Candèze's label: "NG *Compshelus* Cdz./n. sp. *Flavus* Cdz. Viti". But for the incomplete frontal margin of the head, this insect could be mistaken for a *Simodactylus*. No specimen of *flavus* has been reported since the type was captured, in spite of intensive collecting in Fiji. Possibly the type specimen is from an island of the group where later collectors have not been, or on which the environment has been so altered since as to lead to extinction of the species. Suspicion remains, however, that the type locality is in error.

SUBFAMILY AGRIOTINAE

Genus *Agonischius* Candèze, 1863

aeneolus Cand., 1863, Mon. Élat. 4: 417.

Type: BM (drawer 130). Lectotype: single ♀, 11 mm; Java; id. by Candèze. The bicarination of the prothoracic hind angles is very weak. Numerous "Type" specimens are in the IRSNB.

annamensis Cand., 1863, *t. c.*: 413.

Type: BM. 1st specimen; sex undetermined; about 10 mm; "Camboja, Shantban" (present-day Chanthaburi in SE Thailand); Candèze's designation. The type locality, "Cochinchine, Pash-bon" has not been identified on available maps. Specimens of *annamensis* from Kina Balu, Borneo are in the BM.

anticus Cand., 1896, Mus. Gen., Ann. 36: 256.

Type: GENOA (drawer 30). Lectotype: 1st of 3; ♀, 6.5 mm; Si-Oban, Mentawai (Modigliani); Candèze's identification label. None of the GENOA specimens attains the described length of 8 mm. A black to mahogany-colored insect, with sanguineous prothorax; the pronotum has a shield-shaped black mark extending from the front margin to behind the middle. A variety from Sumatra, identified by Candèze, is in the Leiden Museum. The species is omitted from the Schenkling catalogue.

armus Cand., 1896, *t. c.*: 256.

Type: GENOA (drawer 30). Lectotype: 1st of 2 (only one id. by Candèze); ♀; about 9 mm; Sereinu, Sipora I., Mentawai Is. (Modigliani). The prothoracic hind angles are not carinate; tips of the elytra are entire. Specimen 2, ♂, about 7 mm, has the aedeagus partially visible. The median lobe is sharply narrowed before the apex; the lateral lobes are expanded apically with the subapical angle acutely produced.

bimaculatus Cand., 1880, Leyd. Mus., Notes 2: 4.

Type: LEIDEN. Lectotype: ♂ (only spec. with Candèze's label); 8.5 mm; Rawas distr., Sumatra; id. and "n. sp." (Candèze). The hind angles of the prothorax are long and divergent; the inner of the two carinae is obsolete. The aedeagi of *bimaculatus* and *lateralis* are almost indistinguishable. In both, the sides of the lateral lobes are parallel to the apex, their tips truncate; the median lobe is perhaps more slender in *bimaculatus* than in *lateralis*. In *fasciatus*, with which Candèze groups these two species, the lateral lobes are constricted on the outer side near the apex, the truncate ends of the lobes slope inward instead of laterad as in *bimaculatus* and *lateralis*, and the median lobe is stouter and less suddenly narrowed apically than in the other two.

brevis Cand., 1887, Leyd. Mus., Notes 9: 289.

Type: PARIS (box 310). 1st of 11; "Type"; sex undetermined; 5 mm; Normantown, Queensland (Ch. French); "Collection Nervoort van de Poll. Typis de Candèze" (Fleutiaux's label). Specimens from "Carpintaria" are in the IRSNB.

castelnaui Cand., 1863, Mon. Élat. 4: 417.

Type: BM (drawer 129 a). Lectotype: 1st of 2; sex undetermined; 11 mm; Siam; id. by Candèze. Schwarz has recorded this species from Sumatra.

conspurcatus Cand., 1883, Leyd. Mus., Notes 5: 213.

Type: LEIDEN. Lectotype: 1st of 4; ♀; 9.5 mm; Serdang, Tandjong Morawa, Sumatra (Hagen.); id. by Candèze (only one so labelled). The slender, divergent hind angles of the prothorax are obsoletely bicarinate, the carinae of equal length. The aedeagus of specimen 3 is mounted with that insect; its lateral lobes are more or less parallel-sided, the tips broadly rounded.

elegans Cand., 1883, *t. c.*: 213.

Type: LEIDEN. Lectotype: 1st of 4; ♀; 7 mm; Tandjong Morawa, Serdang, Sumatra (Hagen); id. by Candèze (only one so labelled). The aedeagus of the only ♂ present, has the expanded apical part of the lateral lobes elongate, with the subapical angle acute.

mjobergi Elston, 1930, *Ark. Zool.* **22** (1): 20.

Type: STOCKHOLM. Holotype ♂; 8 mm; Herberton, Queensland. Thought by Elston to be probably a ♀, the aedeagus is partially visible in the type; the subapical angle of the terminal expansion of the lateral lobes is acute and strongly produced.

pectoralis Cand., 1863, *Mon. Élat.* **4**: 411.

Type: BM (drawer 129 a). Lectotype: ♀; 9.5 mm; Borneo; id. Candèze. The ovipositor is partially visible. The prothoracic hind angles are weakly, briefly unicarinate.

sanguinipennis Cand., 1863, *t. c.*: 411.

Type: BM (drawer 129 a)? ♀; 8 mm; Borneo; only specimen in long series id. by Candèze. The rest from Sarawak, Sumatra and Johore; type locality Java. The prothoracic hind angles are without definite carina.

stolatus Cand., 1894, *Mus. Gen., Ann. ser. 2*, **14**: 499.

Type: GENOA (drawer 30). Lectotype: 1st of 2 (♂♂); 4.75 mm; Pangherang-Pisang, Sumatra (Modigliani); id. Candèze. The hind angles of the prothorax are bicarinate, the inner carina weak. The aedeagus is partially visible; the tips of the lateral lobes are obliquely truncate, sloping laterad.

submetallicus Cand., 1893, *Leyd. Mus., Notes* **15**: 127.

Type: LEIDEN. Single ♀; 10 mm; Simpar, Tegal, Java (Lucassen); Candèze's designation. The prothoracic hind angles are obsoletely bicarinate, the carinae of about equal length.

taeniatus Can., 1891, *Leyd. Mus., Notes* **13**: 246.

Type: LEIDEN. Lectotype: single ♂; 10 mm; between Buitenzorg and Preanger, Java. Candèze attached his written type label to 2 specimens of *taeniatus*: this one in LEIDEN, and the 1st of 2 in the IRSNB. The latter (same data as the Leiden specimen) has in Candèze's hand: "*Agonischius taeniatus* type Notes 1891". His types are usually in the museum which sent him the original material for description; hence in this case the LEIDEN specimen has been selected as the lectotype. The aedeagus of the lectotype is extruded; the lateral lobes narrow near the apex, their tips truncate and produced laterad into an inconspicuous angle.

Genus *Dicteniophorus* Candèze, 1863

badiipennis Cand., 1863, *Mon. Élat.* **4**: 443.

Type: BM. Holotype ♂; 16 mm; "Nova Hollandia" (ex coll. Laferté); designated type by Candèze. Only the basal segment remains on each antenna. The single "Type" in the IRSNB is labelled "Australie".

melanoderus Cand., 1863, *t. c.*: 444.

Type: BM. Lectotype: 1st of 3 (♂♂); 9 mm; "N. Holl. Melbourne"; id. by Candèze. Antennal segment 3 is subtriangular and similar in size to 4-10, but is not pectinately produced as they are. The apical expansion of the lateral lobes of the aedeagus is transverse; its subapical angle is not acute.

SUBFAMILY ADRASTINAE

Genus **Ctenoplus** Candèze, 1863

sanguinolentus (Cand.), 1880, *Leyd. Mus., Notes 2: 5 (Silesis)*.

Type: LEIDEN. Lectotype: 1st of 2; possible ♂; 8 mm; Rawas distr., Sumatra; id. by Candèze and with his "n. sp." label. Reddish brown with head, anterior margin of prothorax and apical 1/3 of elytra, black to dusky. The tips of the elytra are shallowly, semicircularly emarginate. The lobe on tarsal segment 4 is small.

SUBFAMILY HEMIOPINAE

Genus **Macromalocera** Hope, 1834

ceramboides Hope, 1834, *Ent. Soc. London, Trans. 1: 14*

coenosa Hope, 1834, *t. c.*: 14.

The descriptions record the types as in the Hope Museum, and the two are included in a manuscript catalogue of types present in Oxford University Museum. However, I could not find them there in 1958, and their whereabouts are unknown to me.

sinuaticollis Blackburn, 1890, *Linn. Soc. N. S. Wales, Proc. ser. 2, 5: 563*.

Type: BM. ♂; 17 mm; "Australia"; Museum type label; "3445/Type" (Blackburn's printing). There is a pair of round impressions on the pronotum before the middle, one on either side of the median line. The prothoracic hind angles are briefly, finely unicarinate; the carina close to the outer margin.

Genus **Hemiops** Laporte de Castelnau, 1833

semperi Cand., 1878, *Élat. nouv. 2: 53*.

Type: IRSNB. Lectotype: 5th of 6 "Type"; ♂; 13 mm; "Camaguin de Lucon". The aedeagus (pl. 2, 32) is mounted with the lectotype. Specimen 1 has Candèze's id. and "n. sp." label but has 2 localities: Sumbawa (Colff's) and Luzon (the latter Candèze's).

Genus *Parhemiops* Candèze, 1878

angusta Cand., 1880, Leyd. Mus., Notes 2: 5 (*Angustus*).

Type: LEIDEN. Lectotype: 1st of 3 ♂; (only 1 from type loc.); 7 mm; Ajer Poesoek, Sumatra; Candèze's id. and "n. sp." label. A cotype, sex undetermined; about 8 mm; Boekit Kandang, Sumatra is in the IRSNB.

cylindrica Fleut., 1932, Soc. ent. France, Bull. 37: 149.

Type: PARIS (box 331). Holotype ♀; 21 mm; Pengalengan, Java. The specimen is badly riddled by museum pests and only 3 segments on 1 antenna remain. A note by Fleutiaux beside the holotype reads: "Lincydus=Parhemiops".

EXPLANATION OF PLATES

PLATE 1

Aedeagi of male Elateridae
(Magnification is not uniform)

- Fig 1. *Propsephus euaensis* (Schwarz). Type in DEI; Eua I., Tonga Is.; synonym of *P. hawaiiensis* (Cand.).
- " 2. *P. tongaensis* (Cand.) Lectotype in IRSNB; Tonga Tabu I., Tonga Is.
- " 3. *Simodactylus trivittatus* Schwarz. "Historisches Exemplar" in DEI, New Guinea (type locality Shortland I.).
- " 4. *Conoderus arouensis* (Cand.) Lectotype in GENOA; Wokan I., Aru Is.
- " 5. *C. compactus* (Cand.) Lectotype in IRSNB; Rockhampton, Queensland.
- " 6. *C. juvenis* (Blackburn) Type in BM; Northern Territory, Australia.
- " 7. *C. rufifrons* (Cand.) Specimen in IRSNB; Port Denison, Queensland.
- " 8. *C. torresi* (Cand.) Lectotype in GENOA; Somerset, Queensland.
- " 9. *C. (Heteroderes) pusillus* (Cand.) Type in BM; Dorey, New Guinea. (Aedeagus on slide mount).
- " 10. *Megapenthes anceps* Cand. Lectotype in LEIDEN; Tandjong Morawa, Serdang, Sumatra.
- " 11. *M. coalescens* Cand. Lectotype in IRSNB; Sintang, Borneo.
- " 12. *M. diploconoides* Cand. Lectotype in IRSNB; Philippines.
- " 13. *M. litteratus* Cand. Lectotype in LEIDEN; East Java.
- " 14. *M. remotus* Cand. Lectotype in LEIDEN; Celebes.
- " 15. *M. seriatus* Cand. Holotype in LEIDEN; Padang, Deli, Sumatra.
- " 16. *M. variegatus* (Cand.) Specimen in LEIDEN; Aru Is.

PLATE 2

Aedeagi of male Elateridae
(Magnification is not uniform)

- Fig. 17. *Neodiploconus aequalis* (Cand.) Lectotype in GENOA; Andai, New Guinea.
- " 18. *N. barbatus* (Cand.) Lectotype in IRSNB; Menado, Celebes.
- " 19. *N. nigripennis* (Cand.) Lectotype in IRSNB; Kepahiang, Sumatra.
- " 20. *N. peregrinus* (Cand.) Type in BM; Sarawak, Borneo.
- " 21. *Melanotus carinatus* Cand. Lectotype in BM; Sumatra.

- " 22. *M. diploconoides* Cand. Lectotype in LEIDEN; Loeboe Raja, western Sumatra.
 " 23. *M. hericeus* Cand. Cotype in IRSNB; Kifa-juc, Engano Is.
 " 24. *M. immissus* Cand. Lectotype in IRSNB; Preanger, Java.
 " 25. *M. mendiculus* Cand. Cotype in IRSNB; Kina Balu, Borneo.
 " 26. *M. phlogosus* Cand. Type in IRSNB; Philippines.
 " 27. *M. ruficaudis* Cand. Specimen in IRSNB; Celebes.
 " 28. *Hifo pacificus* Cand. Specimen in IRSNB; Eua I., Tonga Is. (type locality Tonga Tabu I.).
 " 29. *Neotrichophorus hirticornis* (Cand.) Lectotype in IRSNB; "Mt. Tengger", Java.
 " 30. *Ludigenus primaevus* Cand. Specimen in BM; Nicobar Is. (type locality "East Indies").
 " 31. *L. politus* Cand. Specimen in BM; Borneo.
 " 32. *Hemiops semperi* Cand. Lectotype in IRSNB; Luzon, Philippines.

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(Continued from page 346)

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(Continued on page 429)

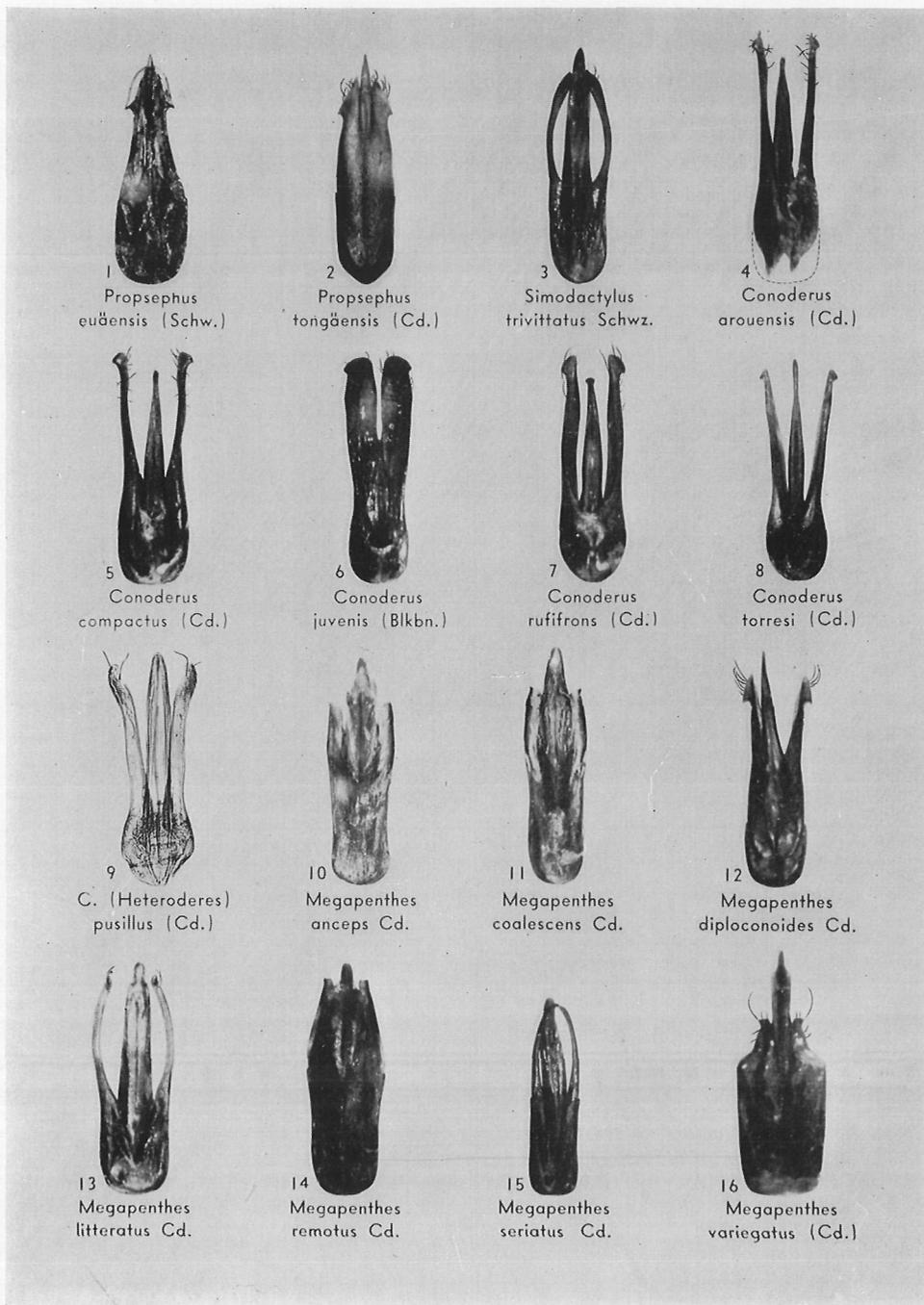


Plate 1

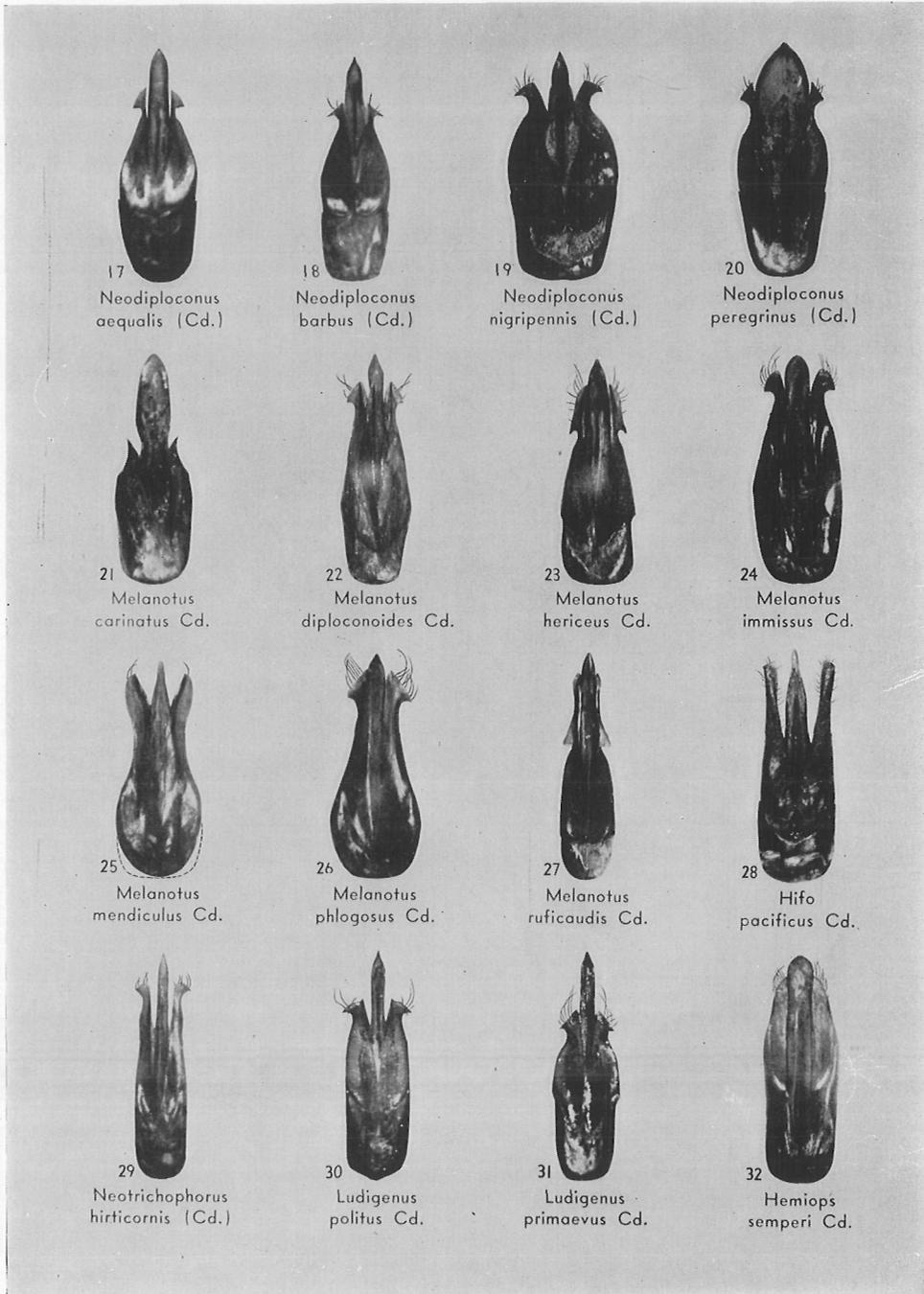


Plate 2