

“Paradoxal” new genus and species of the family Nitidulidae (Polyphaga: Coleoptera) from Afro-Madagascan and Australian Regions

“Парадоксальные” новые род и виды семейства Nitidulidae (Polyphaga: Coleoptera) из Афро-Мадагаскарских и Австралийских областей

A.G. KIREJTSHUK

А.Г. КИРЕЙЧУК

A.G. Kirejtshuk, Zoological Institute of the Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia; CNRS UMR 7205, Muséum National d'Histoire Naturelle, CP 50, Entomologie, 45 Rue Buffon, F-75005, Paris, France. E-mail: kirejtshuk@gmail.com, agk@zin.ru

In the paper described are two new species of the genus *Amphicrossus* Erichson, 1843 (*A. microtuberculatus* sp. nov. from Sudan and *A. uhligi* sp. nov. from Zambia: Amphicrossinae), one new species of the genus *Meligethinus* Grouvelle 1906 (*M. zimbabwensis* sp. nov. from Zimbabwe: Meligethinae), one new species from the genus *Neopallodes* Reitter, Reitter, 1884 (*N. madagascarensis* sp. nov. from Madagascar: Nitidulinae, Cyllodini) and one species of the new genus *Gonoglypha* gen. nov. (*G. distinctissima* sp. nov. from Australia (Queensland): Nitidulinae, Cychramptodini). In the paper also some addition to the description of *Meligethinus dolosus* Grouvelle, 1919 from the eastern part of South Africa and some comments on significance of different characters, taxonomy and classifications of some groups of the family Nitidulidae are included.

В статье описаны два новых вида из рода *Amphicrossus* Erichson, 1843 (*A. microtuberculatus* sp. nov. из Судана и *A. uhligi* sp. nov. из Замбии: Amphicrossinae), один новый вид рода *Meligethinus* Grouvelle 1906 (*M. zimbabwensis* sp. nov. из Зимбабве: Meligethinae), один новый вид рода *Neopallodes* Reitter, Reitter, 1884 (*N. madagascarensis* sp. nov. из Мадагаскара: Nitidulinae, Cyllodini) и один новый вид из нового рода *Gonoglypha* gen. nov. (*G. distinctissima* sp. nov. из Австралии (Квинсленда): Nitidulinae, Cychramptodini). В статью так же включены дополнение к описанию *Meligethinus dolosus* Grouvelle, 1919 из восточной части Южной Африки и некоторые комментарии к значению различных признаков, таксономии и классификациям некоторых групп семейства Nitidulidae.

Key words: Africa, Madagascar, Australia, Coleoptera, Nitidulidae, Amphicrossinae, Meligethinae, Nitidulinae, new genus, new species

Ключевые слова: Африка, Мадагаскар, Австралия, Coleoptera, Nitidulidae, Amphicrossinae, Meligethinae, Nitidulinae, новый род, новые виды

INTRODUCTION

The recently elaborated generic system of the family (Kirejtshuk, 2008) was added by some further contributions. There have been published three genera of the subfamily Nitidulinae: *Neohebascus* Cline, 2009

(Ecuador); *Bolivitoxus* Kirejtshuk, 2009 (Bolivia) and *Microsoronia* Kirejtshuk et Kurochkin, 2010 (Baltic amber); one genus of Cillaeinae: *Brittonema* Kirejtshuk, 2011 (Australia); one genus of Epuraeinae: *Baltoraeta* Kurochkin et Kirejtshuk, 2010 (Baltic amber); one genus of Cybocephali-

nae: *Pastillocenicus* Kirejtshuk et Nel, 2008 (Oise amber); besides, three generic names were proposed in Meligethinae: *Sebastiangethes* Audisio, Kirk-Spriggs et Cline, 2008 (South Africa); *Restiopria* Audisio, Jelínek et Cline in Audisio et al., 2011 (South Africa) and *Melipriopsis* Kirejtshuk, 2011 (Baltic amber), in press in addition to the classification published by Audisio et al. (2009) with proposal of 22 new generic names. In this classification of the last subfamily all most taxa treated before as subgenera were elevated to the generic level and some synonyms were reestablished as valid genera. This large revision with many important illustrations includes division "Generic (re) description and diagnosis" for many taxa regarded by the authors as valid. However even these divisions have neither proper diagnosis nor comparison with closest taxa. As a result the concept of the authors of this classification remains unclear and can be scarcely discussed. Each genus included in it is provided with a short division "Phylogenetic position" that contains a description of placement of a certain taxon in the cladogram put in the end of this publication. In the legend to this cladogram the authors wrote that it was based on "72 morphological characters", but no list of these characters and their distribution among the taxa included are supplied. Fortunately, each generic taxon is provided with a list of the species included. In practice nobody can identify many of genera sensu Audisio and Cline (Audisio et al., 2009) without knowledge on the species attribution of specimens under identification. Because of difficulties of use of this classification the author of this paper considers the system of all subfamilies as it was outlined in Kirejtshuk, 2008. At the same time almost all species mentioned by Audisio et al. (2009) are known to the author of this paper and he takes into consideration the concept of the mentioned authors and probable incongruence which can appear if somebody tries to apply only to one of these versions of the classification of Meligethinae.

During last dozens some undescribed genera and many new species, subfamily and generic attribution of which can be defined due to some characters additional to the traditional diagnoses of the taxa including these new "paradoxal" forms have been recovered. Nevertheless, relationship of these new forms to the taxa where they are put could be supposed with a rather high probability thanks to the additional characters considered in the paper. The present paper deals with description of some such species and one genus. The "paradoxal" forms present some difficulties for classification, although they in addition to the fossil record can provide phylogenetic reconstruction with extremely valuable information.

Depositories. BMNH – The Natural History Museum, London (formerly British Museum of Natural History); MNHN – Museum National d'Histoire Naturelle, Paris; QM – Queensland Museum, Brisbane; ZIN – Zoological Institute of the Russian Academy of Sciences, St Petersburg; ZMB – Zoologisches Museum an der Humboldt Universität, Berlin.

RESULTS

Family **NITIDULIDAE** Latreille, 1802

Subfamily **AMPHICROSSINAE**
Kirejtshuk, 1986

Genus ***Amphicrossus*** Erichson, 1843

Type species: *Nitidula ciliata* Olivier, 1811, recent (after designation by C.T. Parsons, 1943).

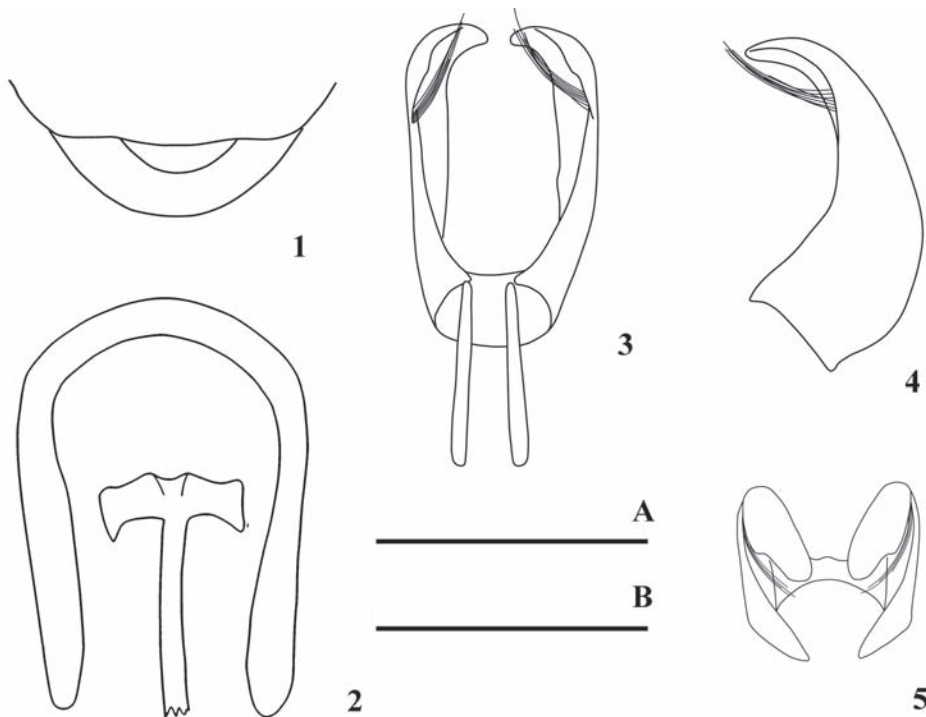
Notes. Two new species described below differ from all congeners in the character of sculpture on dorsal integument and reduction of isolation of the median plate of their mesoventrite (this plate is important diagnostic feature of *Amphicrossus*: Parsons, 1972 etc.). The lack of a clear isolation of the median plate of the mesoventrite coincides with anterolateral continuations very gently sloping in the anterior part and a more gentle curve of the median plane of the mesoventrite in general, while in the

congeners the median plate of the mesoventrite looks like a continuation of plane of the metaventrite, which is sharply declined anteriorly and separated from the anterior parts of mesoventrite by distinct ridges. These features in addition to the not evenly convex elytra and comparatively weak convexity of their dorsum in general make these species very distinct among the members of the subfamily. Nevertheless differences in the structure of male genitalia and genital capsule as well as other peculiarities (see the diagnoses below) are evidence that these new species are scarcely close relatives and the similarity mentioned above did not appear as a sequence of a common ancestry.

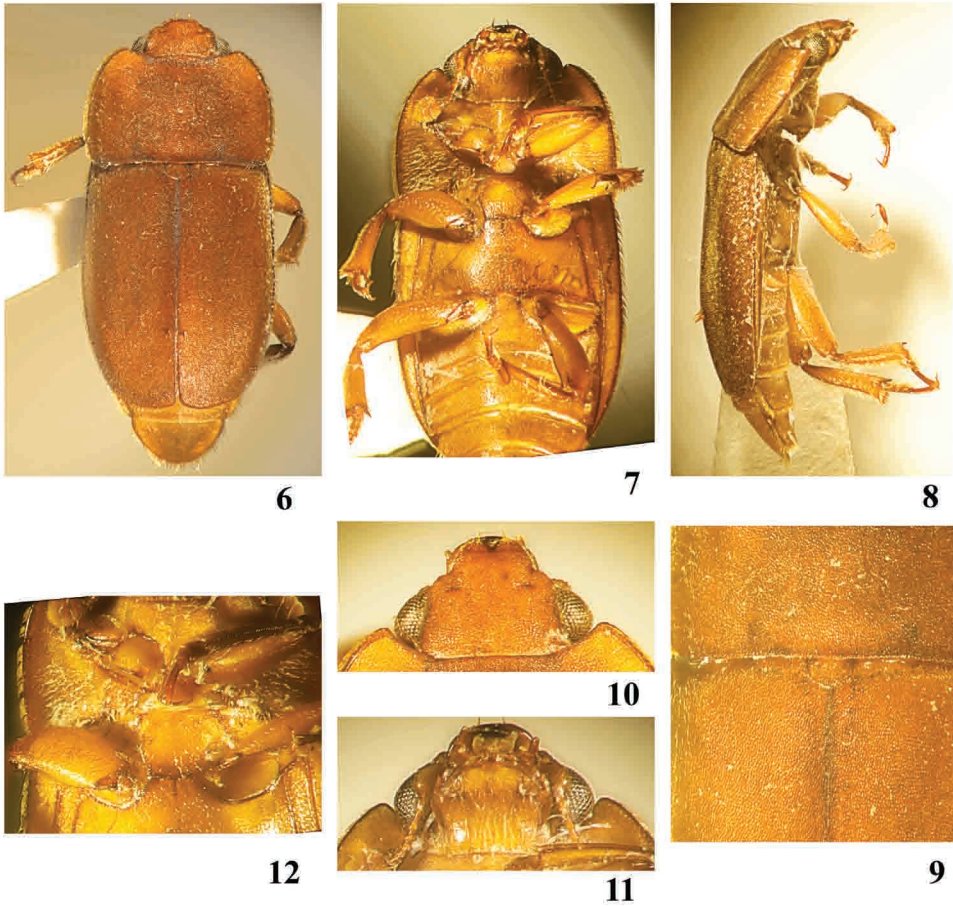
***Amphicrossus microtuberculatus* sp. nov.**
(Figs 1–12)

Material examined. Holotype, male (BMNH) – "Sudan, Nuba Mountains, Talodi, xii-1921, Capt. F. Moysey", "Brit. Mus., 1922–194".

Diagnosis. This new species differs from all known congeners in the elongate and comparatively rather weakly convex body. Besides, in contrast to almost all congeners it has also the very short and shallow median furrow in the anterior part of mesoventrite between rather small paramedian plates. As the *A. uhligi* sp. nov. it has also the not isolated median plate of mesoventrite, comparatively narrow and curved male metafemur and particularly not punctured but microtuberculate dorsal integument. *A. microtuberculatus* sp. nov. differs from the latter in the more slender body with the less arcuate sides, shallowly excised anterior edge of pronotum, and subflattened dorsum (particularly pronotum), much finer microtuberculation of dorsal integument, outline of anterior edge of labrum, subhemicircular antennal club, presence of clear paramedian brushes at distal third of elytral suture in male, longer male pygidium, shape of



Figs 1–5. *Amphicrossus microtuberculatus* sp. nov. Holotype, male: apex of ultimate abdominal segment, ventral (1); anal sclerite, ventral plate and *spiculum gastrale*, ventral (2); tegmen, ventral (3); idem, lateral (4); idem, posterior (5). Scale bars: 1.4 mm (1), 0.7 mm (2–5).



Figs 6–12. *Amphicrossus microtuberculatus* sp. nov. Holotype, male: body, dorsal (6); idem, ventral (7); idem, lateral (8); sculpture of pronotum and elytra (9); head, dorsal (10); idem, ventral (11); prosternum and mesoventrite, ventral (12). Body length 7.4 mm.



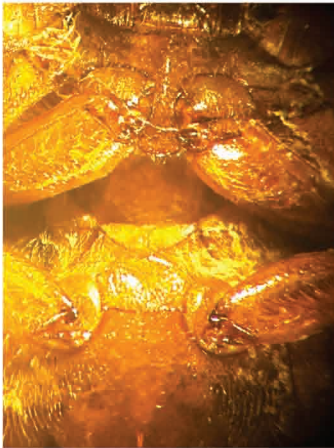
13



14



15



19



17



18



16

Figs 13–19. *Amphicrossus uhligi* sp. nov. Holotype, male: body, dorsal (13); idem, ventral (14); idem, lateral (15); sculpture of pronotum and elytra (16); head, dorsal (17); idem, ventral (18); prosternum and mesoventrite, ventral (19). Body length 8.3 mm.

ultimate labial and maxillary palpomeres, longer median plate and very short paramedian plates, curved metafemora, longer hypopygidium with only a very short and narrow shining median stripe along its posterior edge and narrower movable lobe almost completely concealed under plate of the hypopygidium. By the general body outline, presence of paramedian brushes at elytral suture in male, structure of ultimate visible male abdominal segment, male genital capsule and genitalia this new species is similar and seems to be related to *A. namibiensis* Kirejtshuk, 1987 from Namibia but rather distinct from the latter in the lighter body, clear microtuberculation on the dorsum (instead of usual puncturation on the dorsum in both other species), much shorter dorsal pubescence, shallower excision of anterior edge of pronotum, lack of adsutural lines on elytra and shape of lateral lobes of the tegmen. Analogous similarities and differences can be also observed comparing this new species and *A. pubisetosus* Kirejtshuk, 1987 from Sudan, however, in contrast to the new species, the latter also characterised by very distinct structure of last abdominal segment with widely transverse apex of hypopygidium bearing a far projecting median movable lobe.

Description of male (holotype). Length 7.4, breadth 2.6, height 1.2 mm. Feebly convex dorsally and moderately convex ventrally; dorsum light brownish to reddish; underside, appendages and abdominal tergites nearly straw reddish; dorsum nearly mat and underside with a fat shine; dorsum with rather fine, suberect and slightly conspicuous yellowish hairs more than twice as long as distance between their insertions and, besides, there are sparse and markedly longer hairs diffuse on head and pronotum but arranged in longitudinal rows on elytra; underside with much longer, fine and moderately conspicuous hairs (particularly on prosternum); elytra with paramedian brushes at distal third of suture; sides of pronotum, elytra and abdominal segments as well as apices of pygidium and hypopy-

gidium ciliate by long, dense and comparatively thick hairs about as long as hairs on underside.

Head, pronotum and elytra without puncturation, but with rather small and dense diffuse tubercles (protuberances), diameter of which is markedly less than half of that in eye facets and which are becoming inclined posteriorly on elytra, interspaces between them looking like about as great as tubercles. Pygidium and exposed abdominal tergite with very fine, shallow and dense punctures, interspaces between them greater than a puncture diameter and very densely microreticulated. Underside with medium-sized, shallow, but distinct punctures, interspaces between them 4–5 times as great as a puncture diameter and very smoothly microreticulated.

Head flattened and about as long as the distance between moderately large eyes (consisting of medium-sized facets), transverse diameter of the latter nearly as a third of the distance between eyes, its anterior edge transverse and with rounded lateral angles. Lobes of labrum slightly exposed, subhemicircular and with a comparatively deep excision between. Mandibles slightly exposed from under lobes of labrum. Antennae somewhat shorter than head wide; their club composing about 2/7 of total antennal length, suboval, slightly longer than wide and with ultimate antennomere rather blunt at apex. Pronotum widest before base and regularly very widely rounded anteriorly, with subflattened disk (to subdepressed in the middle) and gently sloping to narrowly bordered (not explanate) sides, anterior edge weakly trapezium-like excised, posterior edge shallowly emarginate, posterior angles widely rounded. Scutellum subpentagonal with rounded apex, almost two thirds as wide as long. Elytra nearly 1 and 1/2 as long as wide combined, with maximum width near midlength, distally gradually narrowing to obliquely truncate apices, which are forming a very shallow sutural angle, steeply sloping to very narrowly subexplanate lateral edges, adsutural

lines not expressed. Pygidium slightly convex, slightly wider than long and widely subtruncate at apex.

Ultimate labial palpomere about twice as long as thick, slightly and gradually thickening apically. Ultimate maxillary palpomere almost four times as long as thick, subcylindrical and slightly narrowing at apex. Mentum subpentangular, somewhat more than twice as wide as long, rectilinear lateral edges only slightly shorter than mentum at midline. Antennal grooves distinct and widely arcuate. Prosternum gently convex along the middle and with flat process moderately widened at subtruncate apex, which is about 5/6 as wide as antennal club. Distance between mesocoxae somewhat more than 2.5 times and that between metacoxae somewhat more than twice as great as that between procoxae. Median plate of mesoventrite somewhat longer than wide along its posterior edge and without anterior ridges; paramedian plates of mesoventrite rather short, about a third as long as median plate and with a slightly traceable short furrow between them. Metaventrite subflattened along the middle, with submesocoxal lines following closely the posterior edge of cavity and slightly deviating only at outer angle of metaventrite. Submetacoxal line following closely posterior edge of cavity. Abdominal ventrite 1 longest, almost as long as ventrites 2 and 3 combined and somewhat longer than hypopygidium, which is subtruncate at apex and bearing a very small smooth stripe along the middle of its posterior edge. Movable lobe of hypopygidium comparatively small and narrow, scarcely exposed from under its apex. Epipleura slightly elevated laterally and about as wide as antennal club at base.

Tibiae of usual structure, about as wide as antennal club at apex, comparatively narrow and rather long; spurs rather strong and stout. Femora of usual shape and comparatively narrow, 1.7–2.2 times as wide as tibiae. Protarsus about half as wide as protibia, meso- and metatarsi somewhat narrower; claws simple and about as long as tibial spurs.

Genital capsule. Anal sclerite with arcuate apex; ventral plate with very short lobes.

Aedeagus. Tegmen heavily sclerotised and rather long; penis membranous and without any clear armature in its inner sac.

Etymology. The epithet of this new species refers to a characteristic sculpture of its dorsal integument.

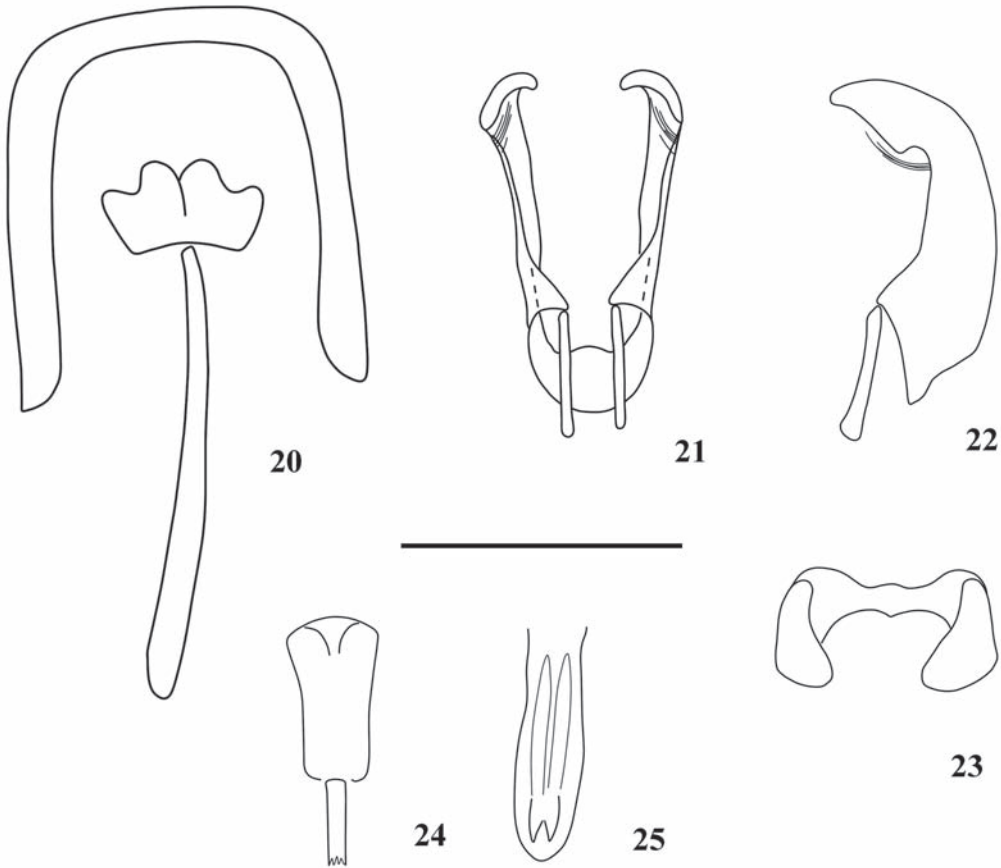
***Amphicrossus uhligi* sp. nov.**

(Figs 13–25)

Material examined. Holotype, male (ZMB) – “Zambia, 26–29.III.1993, 15°02′S/26°00′E, Chunga Camp, Kafue NP, lux, leg. U. Göllner”.

Diagnosis. This new species is rather similar to the previous one (see the above diagnosis). The aedeagus of it is more or less similar to that in *A. concolor* Murray, 1867 widely spread in the Afrotropics and *A. fuligorufus* Kirejtshuk, 1995 from Zaire although lateral lobes of tegmen are rather different. *Amphicrossus uhligi* sp. nov. differs from both in its more slender body with less convex dorsum and completely exposed pygidium (not covered with the elytral apices), characteristic sculpture of dorsal integument, structure of mesoventrite and last abdominal segment (particularly in the very short movable lobe at apex of hypopygidium); and also from the first in the somewhat elongate antennal club and shape of prosternal process; and from the second in the subunicolourous body.

Description of male (holotype). Length 8.3, breadth 3.5, height 1.8 mm. Feebly convex dorsally and moderately convex ventrally; dorsum light brownish to reddish; underside, appendages and abdominal tergites nearly straw reddish; dorsum nearly mat and underside slightly shining; dorsum with rather fine, subrecumbent and slightly conspicuous yellowish hairs about twice as long as distance between their insertions and, besides, there are sparse and markedly longer hairs diffuse on head and pronotum but arranged in longitudinal rows on elytra; underside with much longer, fine and moderately conspicuous hairs; elytra without



Figs 20–25. *Amphicrossus uhligi* sp. nov. Holotype, male: anal sclerite, ventral plate and *spiculum gastrale*, ventral (20); tegmen, ventral (21); idem, lateral (22); idem, posterior (23); penis trunk, dorsal (24); armature of inner sac of penis (25). Scale bar: 0.7 mm.

paramedian brushes at distal third of suture; sides of pronotum, elytra and abdominal segments as well as apices of pygidium and hypopygidium ciliate by long, dense and comparatively thick hairs about as long as hairs on underside.

Head and pronotum and elytra without puncturation, but with small and dense diffuse tubercles (protuberances), diameter of which is nearly as great as that in eye facets, interspaces between them looking like about as great as tubercles. However along sides and anterior edge of frons there are visible clear small punctures with finely

and cellularly microreticulated interspaces. Elytra with tubercles shallower and sparser than those on head and pronotum, becoming inclined posteriorly and partly dislodged by very shallow punctures along sides and at apices, interspaces between them somewhat greater than tubercles and with fine cellular microreticulation. Pygidium and exposed abdominal tergite with very fine and distinct punctures, interspaces between them about three times as great as a puncture diameter and very densely microreticulated. Underside with punctures somewhat larger than those on pygidium, interspaces be-

tween them 4–5 times as great as a puncture diameter, smooth to very smoothly micro-reticulated on thoracic sclerites, and finely and cellularly reticulated on abdomen.

Head flattened and about as long as the distance between moderately large eyes (consisting of medium-sized facets), transverse diameter of the latter nearly as a third of the distance between eyes, its anterior edge transverse and with rounded lateral angle. Lobes of labrum with inclined lateral sides and a comparatively narrow excision between. Mandibles slightly exposed from under lobes of labrum. Antennae somewhat shorter than head wide; their club composing about 2/7 of total antennal length, subovoid, about 1 and 1/3 as long as wide and with ultimate antennomere angular at apex. Pronotum widest before base and regularly very widely rounded anteriorly, with slightly convex disk and gently sloping to narrowly bordered (not explanate) sides, anterior edge moderately trapezium-likely excised, posterior edge shallowly emarginate, posterior angles widely rounded. Scutellum subpentagonal with rounded apex, more than twice as wide as long. Elytra nearly 1 and 3/8 as long as wide combined, with maximum width near midlength, distally gradually narrowing to very widely and separately rounded apices, which are forming a moderately deep sutural angle, steeply sloping to very narrowly subexplanate lateral edges, adsutural lines slightly traceable only at distal end. Pygidium slightly convex, markedly wider than long and widely subtruncate at apex. Transverse apex of anal sclerite scarcely exposed from under pygidial apex.

Ultimate labial palpomere about twice as long as thick, subcylindrical. Ultimate maxillary palpomere almost three times as long as thick, subcylindrical and scarcely narrowing only at apex. Mentum subpentangular, somewhat more than twice as wide as long, subrectilinear lateral edges only slightly shorter than mentum at midline. Antennal grooves distinct and widely arcuate. Prosternum gently convex along

the middle and with flat process moderately widened at widely rounded to subtruncate apex, which is about as wide as antennal club. Distance between mesocoxae about three times and that between metacoxae about 1 and 1/2 as great as that between procoxae. Median plate of mesoventrite markedly shorter than wide along its posterior edge and without anterior ridges; paramedian plates of mesoventrite short, about half as long as median plate and with a clear furrow between them. Metaventrite subflattened along the middle, with very submesocoxal line following closely the posterior edge of cavity and slightly deviating only at outer angle of metaventrite. Submetacoxal line following closely the posterior edge of cavity. Abdominal ventrite 1 longest, almost as long as ventrites 2 and 3 combined and nearly twice longer than hypopygidium, which is subtruncate at apex and bearing a moderately small smooth stripe along the middle of its posterior edge. Movable lobe of hypopygidium comparatively small and rather wide, slightly exposed from under its apex. Epipleura slightly elevated laterally and about 1 and 1/3 as wide as antennal club at base.

Tibiae of usual structure, somewhat wider than antennal club at apex, comparatively narrow and rather long; spurs rather strong and stout. Femora of usual shape and comparatively narrow, less than twice as wide as tibiae. Protarsus only slightly narrower than protibia (about as wide as antennal club), meso- and metatarsi somewhat narrower; claws simple and about as long as tibial spurs.

Genital capsule. Anal sclerite with truncate apex; ventral plate with four moderately raised lobes.

Aedeagus. Tegmen heavily sclerotised and rather long; penis membranous and with two slightly sclerotised stripes in armature of its inner sac.

Etymology. The epithet of this new species is devoted to Manfred Uhlig, an old friend of mine who collected many interesting beetles in Africa of the South Hemisphere.

Subfamily MELIGETHINAE

C.G. Thomson, 1859

Genus *Meligethinus* Grouvelle, 1906

Type species: *Meligethinus humeralis* Grouvelle, 1906, recent (by monotypy).

Notes. The new species of this genus having a peculiar shape of the (very wide bi-arcuate) depressions at the base of pygidium shares also some other peculiarities with some representatives of the genera from the Indo-Malayan Region (*Cryptarchopria* Jelínek, 1975; *Cyclogethes* Kirejtshuk, 1979; *Horakia* Jelínek, 2000; *Kabakovia* Kirejtshuk, 1979), particularly similar in the outline of dorsal sclerites, transversely striate elytra, characteristic prosternal process and mesoventrite, (sub) parallelepiped-shaped meso- and metatibiae, acute apex of penis trunk and deeply excised tegmen. Nevertheless it differs from *Cryptarchopria*, *Cyclogethes* and *Kabakovia* as from all other genera of the subfamily in the pygidium with a pair of the above mentioned depressions at base, and also from *Cryptarchopria* in the lack of prosternal median plate and unexpressed sexual dimorphism in antennae; and also from *Kabakovia* in the pair of the simply arcuate depressions at base of hypopygidium (but not bi-arcuate depressions). Besides, in contrast to *Meligethinus*, *Cyclogethes* has the dorsal integument between punctures very smooth and shining; and also *Horakia* has not a pair of arcuate depressions at base of hypopygidium (structure of base of pygidium is unknown in *Horakia*). Some species of the subgenus *Clypeogethes* Sholtz, 1932 of the genus *Meligethes* Stephens, 1832 sensu Kirejtshuk, 1992 (i.e. including some "genera" by Audisio & Cline in Audisio et al., 2009) have the same differences from the species of *Meligethinus zimbabwensis* **sp. nov.** as those of *Cyclogethes*, and species of *Clypeogethes* frequently differ also in the shape of body, armature of protibiae, emarginate or excised anterior edge of frons and other characters. The aedeagus of *Meligethinus zimbabwensis*

sp. nov. is more similar to some species of *Cyclogethes* rather than to species of the rest genera. *Meligethinus zimbabwensis* **sp. nov.** is characterised by many characters similar to those in species of *Meligethinus* widely spread mainly in the Palaeotropics and *Micropria* Grouvelle, 1899 from the Afrotropical Region, but differs from the second in the somewhat larger body, striate elytra, bi-arcuate depressions at the base of pygidium, longer frons and narrower prosternal process. The genus *Meligethinus* is rather diverse, but the new species differs from all congeners in the bi-arcuate depressions at the base of pygidium and from most of them in the striate elytra. Nevertheless, a trend to appearance of a transrugosity is observed in some African species of the genus, although the completely striate integument of elytra was found only in one known species, *Meligethinus dolosus* Grouvelle, 1919 from the eastern part of South Africa or also south of Zimbabwe, which has the simple arcuate depressions at base of its pygidium, as in most congeners. The differences between the latter and new species are defined in the below diagnosis. All the considered genera could be related to the widespread *Meligethinus*, species of which are distributed as in many areas of Africa, Mediterranean, Palearctic (East Chinese) Province and Indo-Malayan Region. The species of *Meligethinus*, *Kabakovia*, and *Cryptarchopria* are associated with palm inflorescences (Audisio, 1993; Kirejtshuk & Kabakov, 1997) and *Horakia* presumably also (Jelínek, 2000), while there is nothing known on host plant of *Micropria* and *Cyclogethes*. In the cladogram of Audisio et al. (2009) *Micropria* and *Cyclogethes* were placed in the clade different from that uniting *Kabakovia*, *Horakia* and *Cryptarchopria* together with *Meligethinus*, however the argumentation for the separation of these clades has not been published. Besides, these cladogram and "phylogenetic" interpretation proposed by Audisio et al. greatly conflict with the fossil record (Kirejtshuk, 2011 in press).

***Meligethinus zimbabwensis* sp. nov.**
(Figs 26–32, 37–40)

Material examined. *Holotype*, male (ZMB) – “Zimbabwe: Victoria falls, Zambesi Nat. Park, Camp, 11–13.XII.1993, 700 m, ü.N., 17°53′S/25°49′S, J. Deckert, lux”; 1 *paratype*, female (ZIN) – “Zimbabwe: 12.xii.1993, 17°53′S/25°49′S, Victoria Falls, Zambesi-NP-Camp, lux, M. Uhlig”.

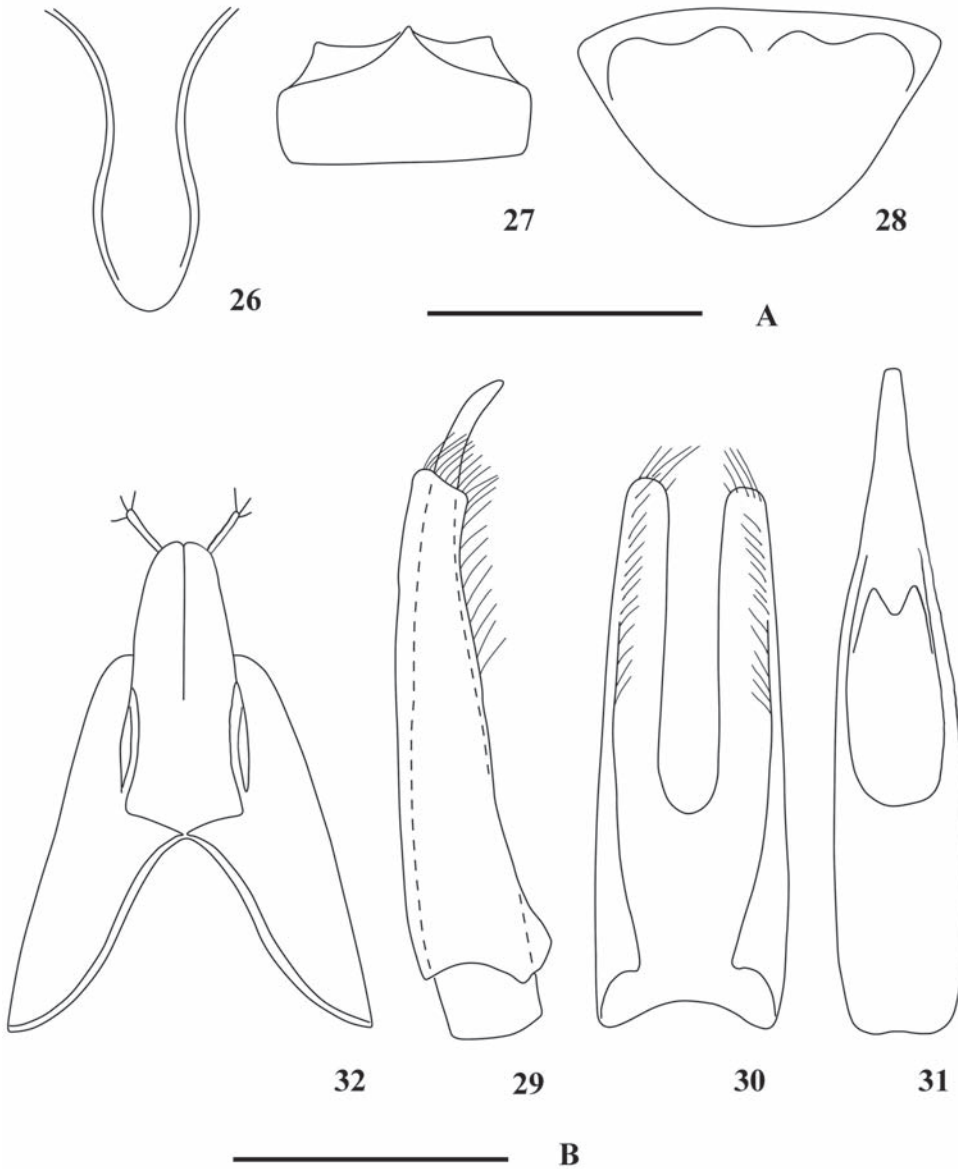
Diagnosis. This new species differs from another congener with the transversely striate elytra (*M. dolosus*) in the dark elytra with somewhat sparser striae, somewhat longer head with somewhat larger eyes, shorter antennae with longer antennomere 4, shorter antennal club, longer lateral edge of mentum, longer ultimate maxillary palpomere, markedly weaker postocular depressions, shape of prosternal process, contour of submesocoxal line, narrower tibiae, deeply excised apex of male hypopygidium, structure of the male genitalia and also slightly more conspicuous pubescence and slightly finer puncturation (particularly on the prosternum, metaventricle and abdominal ventrite 1), which do not show distinct transverse rows.

Description of male (holotype). Length 2.7, breadth 1.4, height 0.7 mm. Moderately convex dorsally and moderately convex ventrally; light brownish to reddish; scutellum and elytra dark brown to blackish with an adsutural oval light spot at the apex of each elytron; appendages light reddish (straw), but antennal club dark; integument with a fat shine and covered with extremely fine greyish hairs 3–4 times as long as distance between their insertions and on elytra their insertions located behind transverse striae.

Head and pronotum with rather small and distinct punctures much smaller than eye facets in diameter, interspaces between them on head about half as great as a puncture diameter and on pronotum somewhat greater, smoothly alutaceous; on head and pronotum there are scarcely observed clear transverse rows of punctures. Elytra with

regular, somewhat obliquely transverse striae and extremely small punctures disposed behind them, interspaces between striae about two diameters of eye facets and finely alutaceous, striae becoming gradually denser towards apices. Pygidium and abdominal ventrites with small, shallow, but distinct punctures, interspaces between them greater than a puncture diameter and very smoothly microreticulated. Prosternum, metaventricle and abdominal ventrite 1 with extremely fine puncturation and more or less smooth.

Head subflattened and about as long as the distance between moderately large eyes (consisting of rather fine facets), transverse diameter of the latter somewhat less than half of distance between eyes, its anterior edge finely bordered, transverse and with rounded lateral angles. Lobes of labrum and mandibles slightly exposed from under lobes of labrum. Antennae somewhat shorter than 3/4 of head width, antennomere 3 markedly shorter than antennomere 4, the latter about as long as antennomere 1–3 combined; their club composing about 1/4 of total antennal length, subovoid, about 1 and 1/3 as long as wide and with ultimate antennomere transversely truncate. Pronotum widest at base and regularly rounded anteriorly, with evenly vaulted disk and gently sloping to narrowly subexplanate sides, anterior edge moderately trapezium-likely excised, posterior edge truncate with a shallow sinuation at each posterior angle, which is slightly projecting posteriorly. Scutellum subtriangular with rounded apex, almost twice as wide as long. Elytra about 1 and 1/5 as long as wide combined, with maximum width in anterior third, distally gradually narrowing to obliquely truncate apices, which are forming a very shallow sutural angle, steeply sloping to very narrowly subexplanate lateral edges, adsutural lines distinct at distal 2/5. Pygidium slightly convex, widely rounded at apex. Arcuate apex of anal sclerite scarcely exposed from under pygidial apex.



Figs 26–32. *Meligethinus zimbabweensis* sp. nov. Holotype, male: prosternal process, ventral (26); mentum, ventral (27); pygidium, dorsal (28); tegmen and penis trunk, lateral (29); tegmen, ventral (30); penis trunk, dorsal (31); paratype, female: ovipositor, ventral (32). Scale bars: 1.0 mm (26), 0.5 mm (27–32).

Ultimate labial palpomere almost four times as long as thick. Mentum subpentagonal, more than twice as wide as long, lateral edges about 2/3 as long as mentum at midline. Antennal grooves distinct along

inner edge wide, somewhat S-shaped, post-ocular depression moderately deep. Prosternum gently convex along the middle and with process slightly widened at subangular apex, its maximum width somewhat

less than width of antennal club. Distance between mesocoxae about 1.5 times that between metacoxae about 2.5 times as great as that between procoxae. Metaventrite subflattened and with a weak and narrow median depression, with very distinct submesocoxal line following close the posterior edge of cavity, subrectilinearly deviating only at outer angle of metaventrite and reaching the middle of inner edge of metepisternum. Submetacoxal line following closely posterior edge of cavity. Abdominal ventrite 1 almost as long as ventrites 2–4 combined and nearly twice longer than hypopygidium, which is deeply excised at apex. Epipleura gradually narrowing distally, subhorizontal and almost 1.5 times as wide as antennal club at base.

Tibiae about as wide as antennal club and moderately long; protibia finely crenulate along outer edge, meso- and metatibiae with a row of small very short and dense hairs along outer edge, spurs comparatively small and stout. Femora of usual outline and rather wide, 2.5–3.0 times as wide as prosternal process. Tarsi rather long (about $2/3$ as long as tibiae), tarsomeres 1–3 moderately lobed, claw simple and narrow; protarsus about $2/3$ as wide as protibia, meso- and metatarsi somewhat narrower.

Aedeagus. Tegmen and penis trunk well sclerotised and very long.

Female. Length 2.6 mm. Externally differs from the male only in the lack of the median depression on metaventrite, a small median excision at the apex of pygidium and widely rounded apex of hypopygidium. Ovipositor moderately sclerotised.

Etymology. The epithet of this new species is formed from the name of country of its origin.

Meligethinus dolosus Grouvelle, 1919
(Figs 33–36, 41–43)

Material examined. Paralectotype, male (MNHN) – “Kentani, H.P. Abornelly”, “*dolosus* Grouv.” (lectotype was designated in the collection of South African Museum by Cooper, 1980); 1 male (ZMB) – “SÜDAFRIKA:

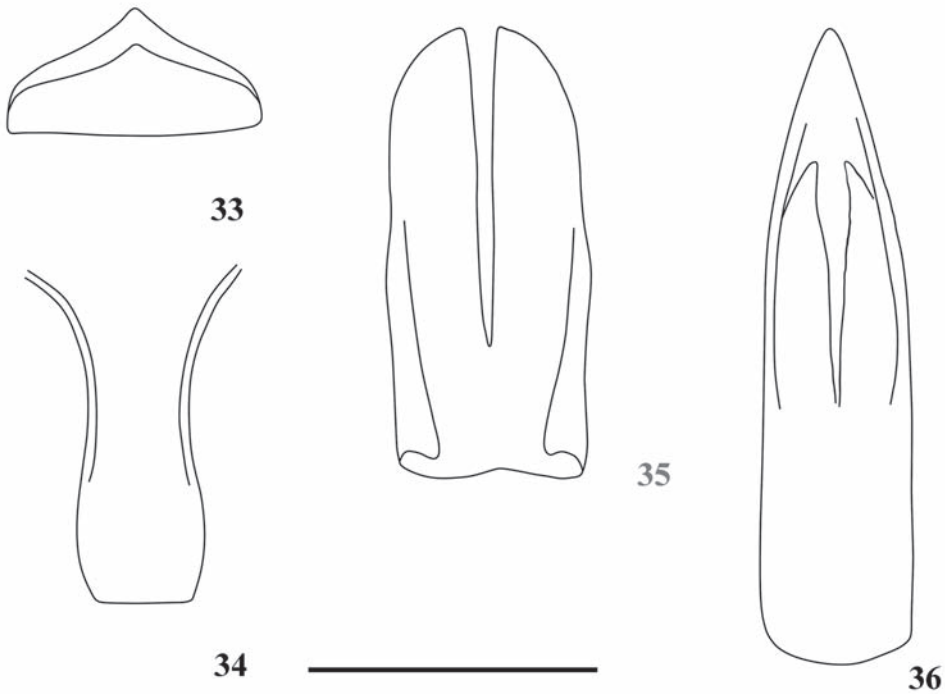
5.XII.1995, KwaZulu-Natal, Hluhluwe Game Res., 28°2′S/32°05′S, F. Koch”.

Diagnosis. See the diagnosis of the previous species.

Addition to description of male. Length 2.4–2.8, breadth 1.3–1.2, height 0.6 mm. Moderately convex dorsally and moderately convex ventrally; subunicolour yellowish to reddish; appendages straw yellowish to light reddish; integument with a fat shine and covered with extremely fine greyish hairs 1.5–2.0 times as long as distance between their insertions and on elytra their insertions located behind transverse striae.

Head and pronotum with moderately small and distinct punctures, somewhat smaller than eye facets in diameter, interspaces between them on head about half as great as a puncture diameter and on pronotum somewhat greater, smoothly alutaceous; on head and particularly on pronotum there are observed slight and irregular transverse rows of punctures. Elytra with regular somewhat obliquely transverse striae and extremely small punctures disposed behind them, interspaces between striae about 1.5 diameters of eye facets and finely alutaceous, striae becoming gradually denser towards apices. Pygidium and abdominal ventrites with small, shallow, but distinct punctures, interspaces between them greater than a puncture diameter and very smoothly microreticulated. Prosternum, metaventrite and abdominal ventrite 1 with fine puncturation and smoothly alutaceous.

Head subflattened and about $4/5$ as long as the distance between moderately large eyes (consisting of rather fine facets). Antennae about as long as head wide, antennomere 3 markedly longer than antennomere 4, the latter about as long as antennomere 1–3 combined; their club composing about $2/7$ of total antennal length, suboval, about 1 and $1/5$ as long as wide and with ultimate antennomere transversely truncate. Elytra about 1 and $1/3$ as long as wide combined, adsutural lines distinct at distal $1/3$. Ultimate labial palpomere almost twice as long as thick. Mentum subpentangular, more



Figs 33–36. *Meligethinus dolosus*. Specimen from ZMB, male: mentum, ventral (33); prosternal process, ventral (34); tegmen, ventral (35); penis trunk, dorsal (36). Scale bar: 0.5 mm.

than twice as wide as long, lateral edge about half as long as mentum at midline. Prosternum gently convex along the middle and with process rather widened at subtruncate apex, its maximum width somewhat more than width of antennal club. Distance between mesocoxae about twice that between metacoxae about four times as great as that between procoxae. Metaventrte with a wide median depression and distinct submesocoxal line following close the posterior edge of cavity, arcuately deviating only at outer angle of metaventrte and reaching the middle of inner edge of metepisternum. Submetacoxal line following closely posterior edge of cavity. Hypopygidium bisinuate at apex. Tibiae clearly wider than antennal club and moderately long. Femora of usual outline and rather wide, about 2.5 times as wide as prosternal process. Tarsi moderately long (about $3/4$ as long as tibiae), male protarsus about $2/3$ as wide as protibia.

Aedeagus. Tegmen and penis trunk well sclerotised and very long.

Subfamily **NITIDULINAE** Latreille, 1802

Tribe **CYLLODINI** Everts, 1898

Genus *Neopallodes* Reitter, 1884

Type species: *Pallodes hilleri* Reitter, 1877, recent (after designation by Kirejtshuk, 1994)

Neopallodes madagascarensis sp. nov.

(Figs 44–59)

Material. Holotype, female (MNHN) – “Paris Museum, Madagascar, Goudot, 1834”, “*Pallodes* sp. nr.” (handwritten by A. Grouvelle).

Diagnosis. This new species is very distinct among all congeners due to its widely rounded posterior angles of pronotum, comparatively long antennae with club including six antennomeres (while the rest conge-

ners have only 3–4 segments) and composing about 2/3 of total antennal length, and also due to the extremely short valvifer of the ovipositor. Besides, the body size of this new species is smallest among the congeners known from Madagascar (Kirejtshuk, 2008) – the rest members of the genus are at least as long as 3.0 mm. The most Madagascar species of the genus *Neopallodes* have the trapezoid scutellum with transverse apex, and only *N. incertus* (Grouvelle, 1906); *N. niger* (Grouvelle, 1906); *N. nitidulus* (Grouvelle, 1906) and *N. variabilis* (Grouvelle, 1896) (although the last species is known only from Nossi-Bé) have the subtriangular scutellum. Nevertheless, *Neopallodes madagascarensis* sp. nov., in addition to the differences mentioned above, differs from them in the darker subunicolourous body, and also differs from the first in the presence of small punctures between longitudinal rows of punctures on elytra and in the middle of metaventricle as well as in the longer metatarsus; from the second in the outline of labral lobes and narrow femora; from the third in the dorsal puncturation, which is not reduced; from the fourth in the very sharp prosternal carina along the middle, longer ultimate labial palpomere and presence of puncturation on thoracic sterna.

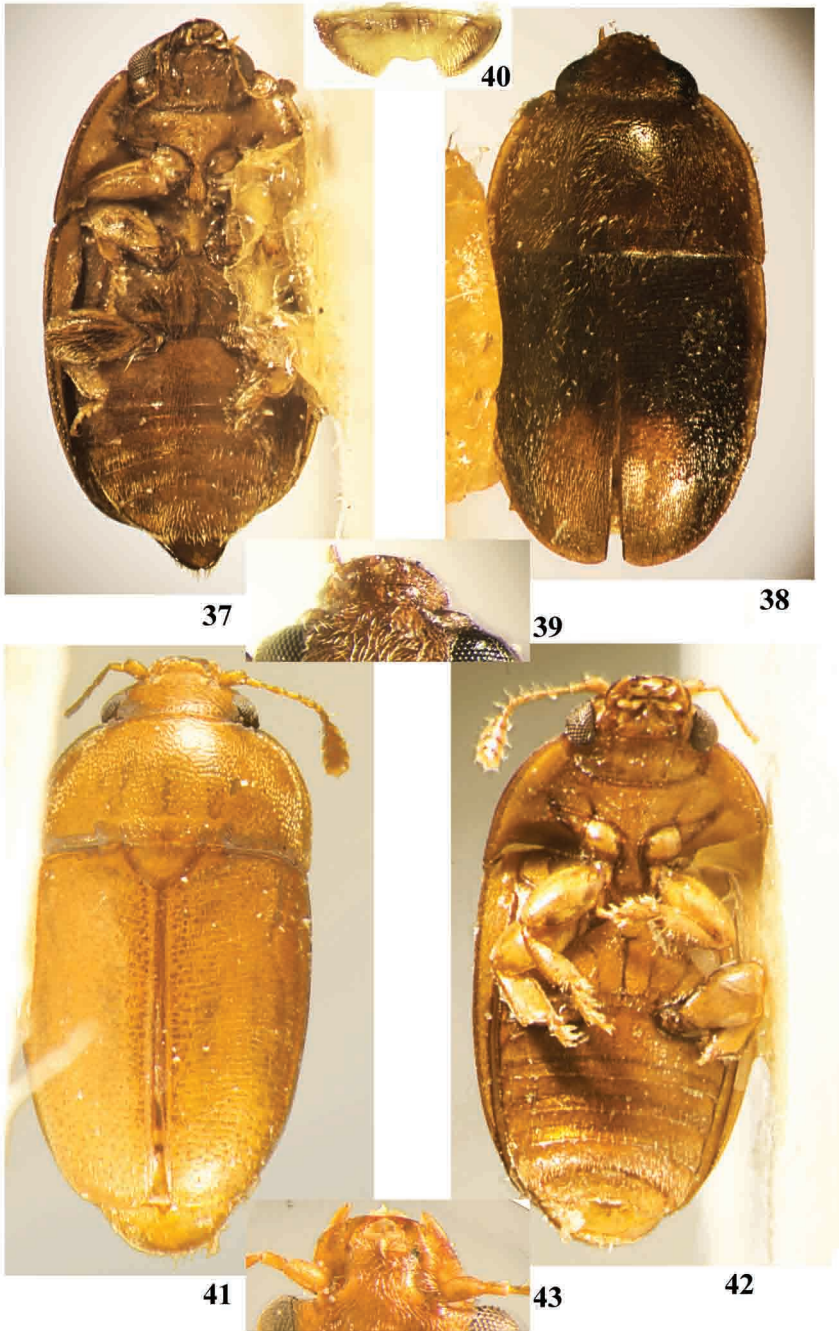
Description of holotype (female). Length 2.8, breadth 1.8, height 1.2 mm. Body rather convex dorsally and moderately ventrally; unicolourous dark chestnut brown with slightly lighter appendages; rather shining; dorsum glabrous; underside with very sparse, very long and nearly inconspicuous hairs.

Head and pronotal surface with very small, very sparse and moderately shallow punctures, much smaller than eye facets, although some punctures larger than the rest (nearly reaching eye facets in diameter), interspaces between them very finely alutaceous. Elytral surface with regular simple longitudinal rows of distinct punctures (slightly smaller than eye facets in diameter), between them very small punctures are dispersed, intervals between rows finely alutaceous to almost smooth. Thoracic ster-

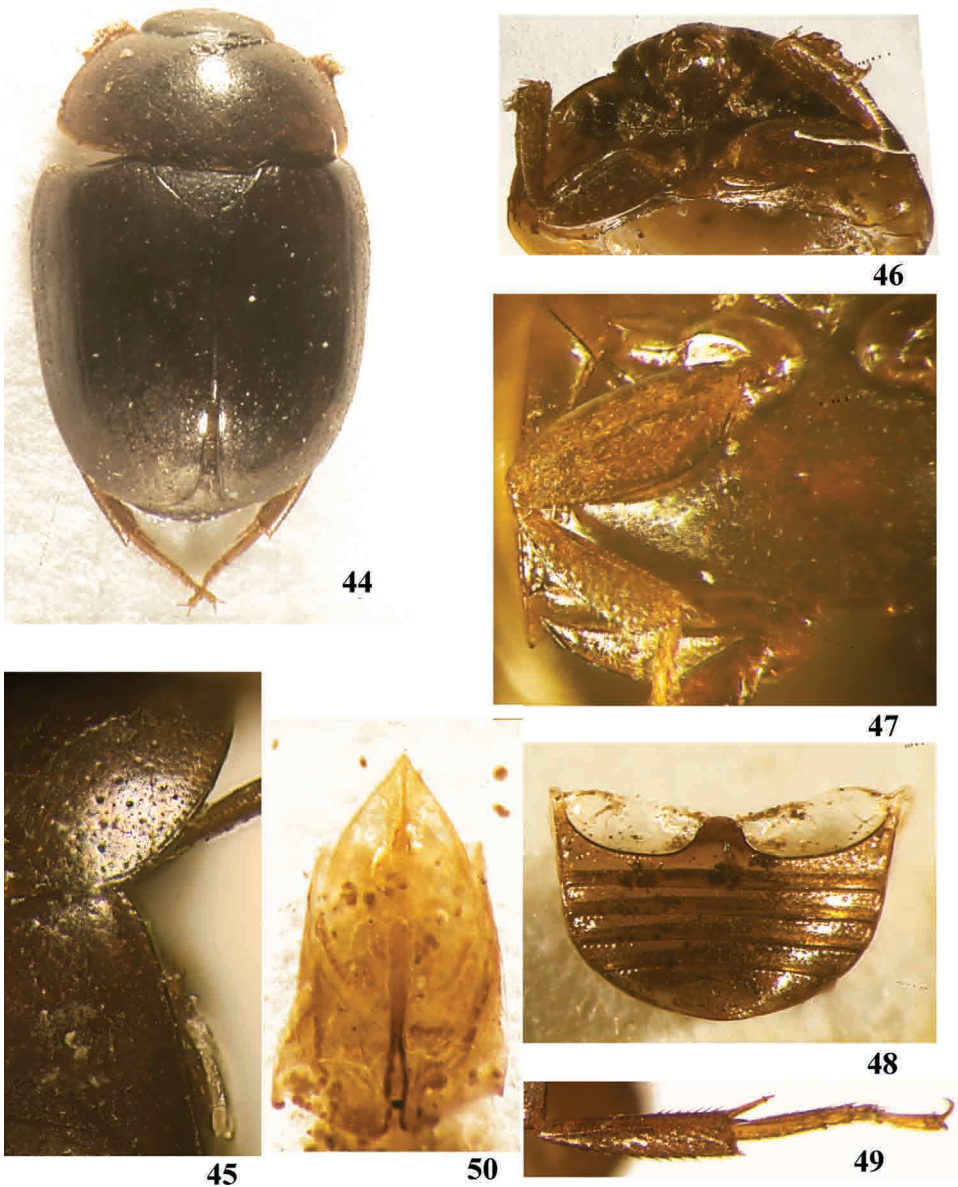
na with very fine and very sparse punctures, with interspaces between them completely smooth. Pygidium and abdominal ventrites with very small and very sparse punctures, finely alutaceous.

Head subflattened, without a trace of frontoclypeal suture, somewhat longer than distance between eyes. Labrum as a transverse stripe about four times as wide as long, with rounded lateral angles and a narrow median fissure. Antennae about 1.5 times as long as head wide; their 6-segmented club composing 2/3 of total antennal length. Pronotum gently and arcuately narrowed to apex, its anterior angles weakly projecting and posterior ones widely rounded, base viewed as a median projection somewhat covering scutellar base. Scutellum subtriangular with widely rounded apex. Elytra widely rounded at sides, obliquely and widely rounded apices, forming as clear sutural angle; adsutural lines very short at only apices. Pygidium very convex and rounded at apex.

Ultimate labial palpomere slightly narrowing apically, about three times as long as thick. Antennal grooves sharply outlined and gently convergent posteriorly. Mentum trapezoid, widely rounded at sides and anterior edge, widest at base, 1 and 1/3 as wide as long. Prosternum with distinct carina reaching anterior edge of prosternum, its process strongly widened before subtruncate to widely rounded apex. Distance between mesocoxae about twice and that between metacoxae about 2.5 times as great as that between procoxae. Mesoventricle "roof"-like, with an elevated smooth stripe rather than carina in posterior half. Metaventricle gently and evenly convex, its posterior edge shallowly emarginate. Submesocoxal line follow the posterior edge of mesocoxal cavity; intercoxal line arcuate and away from anterior edge of metaventricle on distance comparable with distance between mesocoxae. Abdominal ventrite 1 about as long as hypopygidium and nearly twice as long as each of ventrites 2–4. Hypopygidium widely rounded at apex. Epi-



Figs 37–43. *Meligethinus zimbawensis* sp. nov., holotype, male: body, ventral (37); paratype: idem, dorsal (38); anterior part of frons, dorsal (39); holotype: hypopygidium (40). Body length holotype 2.7 and paratype – 2.6 mm. *Meligethinus dolosus*, paralectotype (MNHN), male: body, dorsal (41); paratype: idem, ventral (42); anterior part of frons, dorsal (43). Body length 2.8 mm.



Figs 44–50. *Neopallodes madagascarensis* sp. nov., holotype, female: body, dorsal (44); side of pronotum and elytron, dorsolateral (45); prosternum and head, ventral (46); metaventrite and intermediate leg, ventral (47); abdomen, ventral (48); posterior leg, ventral (49); ovipositor, ventral (50). Body length 2.8 mm; ovipositor length 0.6 mm.

pleura slightly narrower than antennal club at base, strongly sloping downwards.

Protibia straight and without prominent subapical tooth (about half as wide as antennal club), mesotibia somewhat wider and subtriangular, metatibia nearly as wide as protibia, straight, with subtruncate apex. Femora of usual shape, pro- and metafemora about 2.5 times, mesofemur about twice as wide as corresponding tibiae. Metatarsus about as long as metatibia.

Ovipositor moderately sclerotised.

Tribe CYCHRAMPTODINI

Kirejtshuk et Lawrence, 1992

Genus *Gonoglypha* gen. nov.

Type species: *Gonoglypha distinctissima* sp. nov.

Diagnosis. Body comparatively medium-sized (4.8 mm), subellipsoid, strongly convex dorsally and slightly convex ventrally. Dorsum rather finely and very sparsely punctured, alutaceous or finely microreticulated; elytral puncturation not arranged in longitudinal rows; underside finely and sparsely punctured, smoothed between punctures; body very shortly pubescent and with ciliate pronotal and elytral sides. Head slightly convex to subflattened and with medium-sized eyes, slightly narrowed at base, slightly projecting anteriorly, lateral lobes of frons widely covering antennal insertions; anterior edge of frons looking like smooth shining stripe deeply excised in the middle; antennal grooves deep and sharply outlined, their inner ridge extended laterally and partly cover flagellomeres; mentum transverse, widely rounded at sides and excised at anterior edge; pregenal process at hypostomal sinus moderately wide. Labrum not exposed. Ultimate labial and ultimate maxillary palpomeres rather long and subcylindrical. Antennae 11-segmented, bearing 3-segmented compact and oval club, without any evident trace of sexual dimorphism. Pronotum subtrapezoid from above and with subhemicylindrical surface, slightly narrowing anteriorly, steeply sloping

laterally and narrowly subexplanate at lateral edges, its anterior angles rounded and slightly projecting, posterior angles widely rounded; its anterior edge gently convex to shallowly bi-emarginate; posterior edge somewhat convex; anterior and lateral edges extremely narrowly bordered and anterior one looking like a rather thin fold covering elytral base. Elytra incomplete, with arcuately subtruncate apices remaining the most part of pygidium uncovered, with narrowly explanate and bordered sides. Pygidium slightly convex and widely rounded to subtruncate at apex. Prosternum strongly carinate along the middle and this carina continuing on very narrow process, which is not curved along procoxae and slightly widened at subacute apex; prohypomera strongly sloped laterally. All pairs of coxae narrowly separated. Mesoventrite subflattened in posterior half. Metaventrite somewhat elevated along the middle and with large semicircular depressions before metacoxae, with a distinct median suture (discrimen) along the whole length and angularly excised posterior edge between metacoxae. Intercostal line between mesocoxae unraised. Epipleura subhorizontal. Hypopygidium very widely rounded at apex. Legs rather short and wide. Tibiae very flat and rather wide, with rather stout spurs but without teeth and setae along outer edge. Trochanters very transverse. Femora very wide and subflattened. Tarsi comparatively short, with widely lobed tarsomeres 1–3 and simple claws. Tegmen as slightly curved plate without apical excision; penis trunk rather short and truncate at apex.

Comparison. The combination of the characters of this new genus makes it extremely isolated among the members of the subfamily Nitidulinae. Particularly, absence of exposed labrum reminds such peculiarity in the subfamily Cryptarchinae Thomson, 1859. At the same time the narrow carinate prosternal process, flattened (not carinate or medially swollen) mesoventrite, structure labium and underside of head, medially elevated metaventrite with lateral depressions

for movement of metafemora, and especially the structure of legs (very transverse trochanters and strongly flattened tibiae without any armature along their outer edge), widely rounded posterior angles of pronotum in this new genus are more similar to members of the endemic Australian tribe Cychramptodini of the subfamily Nitidulinae and taken together have no parallels in other groups of sap beetles, although some of these features can be separately observed in other groups of the family. The members of this tribe are similar to members of the *Cyllodes* complex (Cyllodini) in that both groups have the prohypomera and elytral epipleura strongly and sharply declined and ventrally produced (except for the new genus with subhorizontal epipleura), so that the legs may be completely concealed beneath the body; also these two groups have reduced dorsal vestiture, distinct or indistinct rows of elytral punctures, enlarged antenna1 club, and a tendency for the coxae to be approximate. The strongly declined and almost opisthognathous head of some Cychramptodini resembles the condition in the *Cyllodes* complex (e.g. *Viettherchnus* Kirejtshuk, 1985 from the Indo-Malayan Region) and in the cryptarchine genus *Arhinella* Kirejtshuk, 1981 from Equatorial Africa (Kirejtshuk & Lawrence, 1992). The structure of aedeagus of *Gonoglypha distinctissima* **gen. et sp. nov.**, particularly the short penis trunk and setae along the truncate apex of tegmen, support this concept. However, the presence of pubescence on dorsal integument ciliate pronotal and elytral sides, subhorizontal elytral epipleura and lack of intercoxal line between mesocoxae (characteristic of both nitiduline tribes considered) in the new genus present essential problems for this interpretation.

This new genus differs from all three genera of Cychramptodini in the head with lateral lobes of frons very far laterally extended over antennal insertions, a deep median excision of its anterior edge, presence of dorsal pubescence, very deep antennal grooves partly covered with laterally

extended inner ridges, comparatively long prosternal process and subhorizontal epipleura. Besides, *Gonoglypha* **gen. nov.** differs from *Cylindroramus* Kirejtshuk et Lawrence, 1992 in the more robust (not narrowly cylindrical) body with prohypomera not strongly vertical and not strongly elevated posteromesal portion of metaventricle; from *Miskoramus* Kirejtshuk et Lawrence, 1992 in the more slender and subellipsoid body, subcylindrical elytra without adsutural lines and narrow prosternal process; from *Cychramptodes* Reitter, 1874 in the 11-segmented antennae, subellipsoid body, subcylindrical elytra with diffuse puncturation and without adsutural lines, not strongly elevated posteromesal portion of metaventricle and narrower femora.

The new genus shares many similarities in the body shape and some organs with the cyllodine genera *Amborotubus* Leschen et Carlton, 2004 from Bolivia and *Cerylloides* Kirejtshuk, 2006 from New Zealand. Nevertheless it differs from both in the carinate prosternum with continuation of the median carina to apex of the prosternal process, flattened (not carinate) mesoventrite and somewhat medially elevated metaventricle with lateral depressions for movement of metafemora (important differences between Cyllodini and Cychramptodini), as well as in the much more convex body, characteristic structure of epicranium and its appendages (outline of frons, eyes, very deep antennal grooves, labial palpi and not exposed labrum), presence of dorsal pubescence, ciliate pronotal and elytral sides and subhorizontal (not elevated laterally) epipleura, although metaventricle of *Amborotubus* and *Cerylloides* have some small depressions at posterior angles of metaventricle. *Gonoglypha* **gen. nov.** also differs from *Amborotubus* in the trapezoid tibiae, lobed tarsi and lack of adsutural lines on elytra; from *Cerylloides* in the subhypognathous position of head, very wide femora, very wide and very flat tibiae without setae along their outer edge, diffuse puncturation on elytra and very peculiar structure of aedeagus.

Etymology. The name of the new genus is formed from the Greek "gonos" (offspring) – "glypha" (engraving); gender feminine.

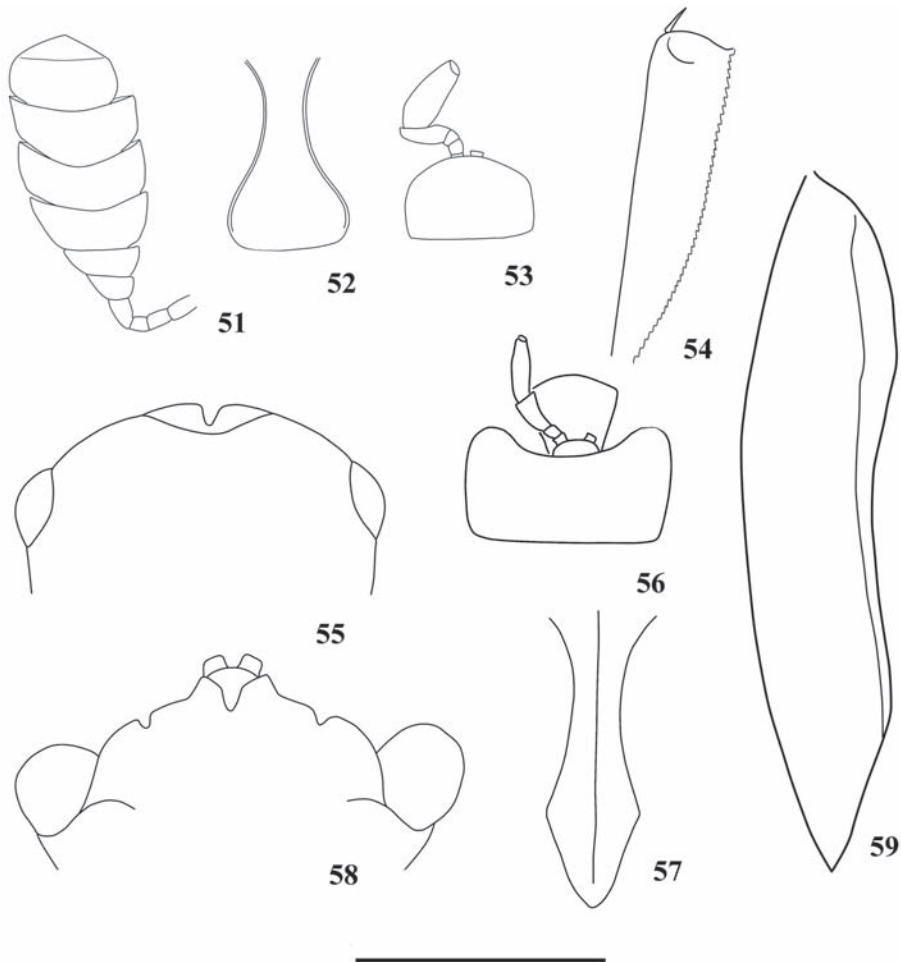
***Gonoglypha distinctissima* sp. nov.**

(Figs 55–57, 60–66)

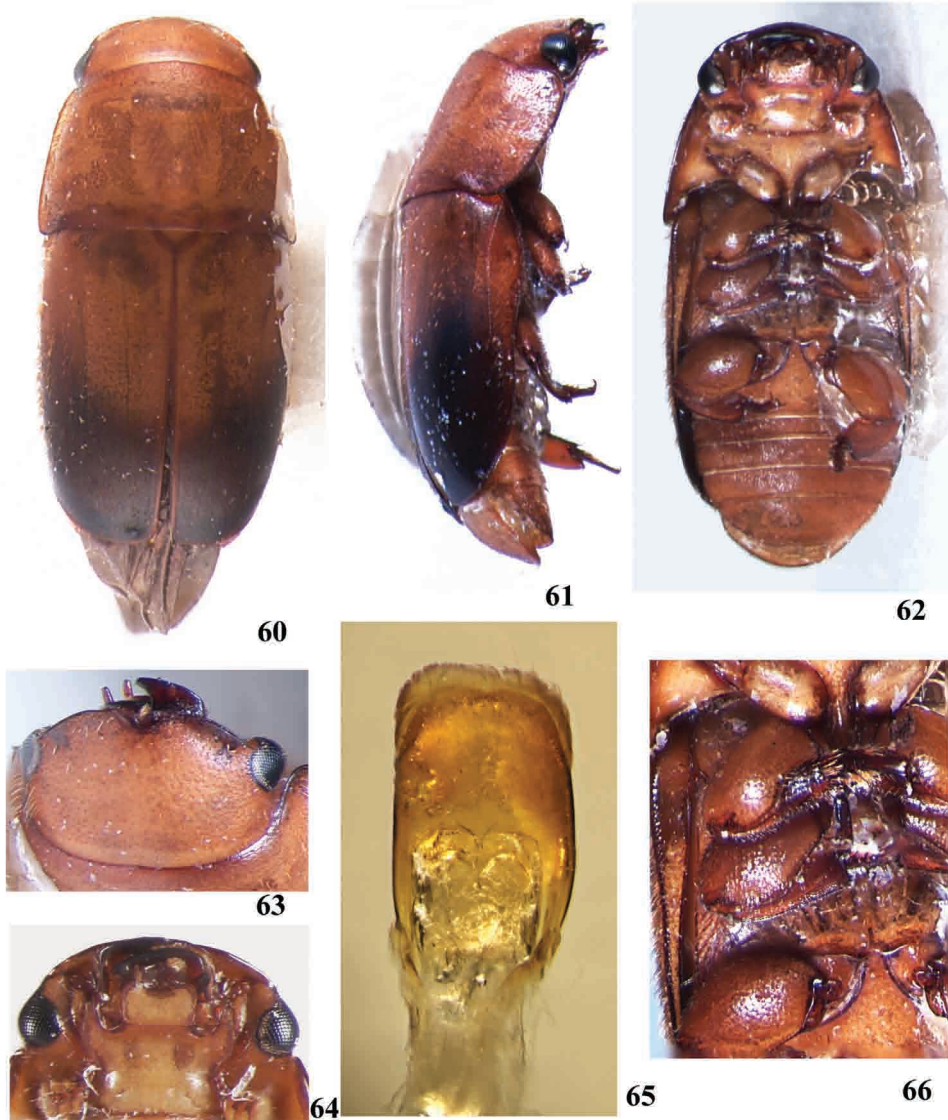
Material. Holotype, male (QM) – "Mossman Bluff Track, 5–10 km W. Mossman, N. Qld, 20 Dec 1989 – 15 Jan 1990, Monteith, Thompson & Anzsles, site 9, 1260 m, fit. intercept".

Description of holotype (male). Length 4.8, breadth 2.0, height 1.2 mm. Body rather

convex dorsally and moderately ventrally; subunicolourous light reddish with darkened (almost dark brown) apical parts of elytra; integument with a slight fat lustre; dorsum with very fine and nearly inconspicuous long semi-erect hairs, about 3–5 times as long as distance between their insertions, although pygidium with very fine, dense and very short hairs; pronotal and elytral sides ciliate with somewhat thicker and denser hairs; underside markedly longer suberect hairs, which are rather thin



Figs 51–59. *Neopallodes madagascarensis* sp. nov., holotype, female: right antenna, ventral (51); prosternal process, ventral (52); mentum and labium, ventral (53); protibia, ventral (54); *Gonoglypha distinctissima* gen. et sp. nov., holotype, male: head, dorsal (55); mentum and labium, ventral (56); prosternal process, ventral (57); *Amborotubus clarkei*, holotype, female (Arthropod Museum, Louisiana State University, Baton Rouge): head, dorsal (58); right elytron, lateral (59). Scale bar: 0.9 mm (51–55, 58, 59), 0.4 mm (56, 57).



Figs 60–66. *Gonoglypha distinctissima* gen. et sp. nov. Holotype, male: body, dorsal (60); idem, lateral (61); idem, ventral (62); head, dorsal (63); idem, ventral (64); tegmen and penis trunk, ventral (65); thorax, ventral (66). Body length 4.8 mm; tegmen and penis trunk length 0.4 mm.

and slightly conspicuous in the middle of thoracic sclerites, but thicker and more conspicuous on metepisterna and abdominal ventrites.

Head and pronotal surface with very small, rather sparse and moderately shallow punctures, much smaller than eye facets, interspaces between them 2–5 times as great as eye facets in diameter (denser on head and sparser on pronotum), very finely and densely cellularly microreticulated to alutaceous. Elytral surface with larger distinct punctures (however smaller than eye facets in diameter), interspaces between them with more relief microreticulation. Pygidium with sculpture and punctures as large as those on pygidium, but intervals between them much smaller (about twice as great as a puncture diameter). Prosternum with obsolete puncturation and nearly completely smooth. Pterothoracic sterna and abdominal ventrites with puncturation as that on pygidium, but interspaces between punctures more or less smoothed.

Head somewhat transverse, gently and evenly convex, with medium-sized eyes (composed by rather fine facets), lateral lobes of frons forming arcuate convex curve; anterior median excision making visible mandibular prosteca with setae. Labrum not exposed. Mandibles slightly exposed from under frons and sharply curved along outer edge. Antennae about as long as head wide; scape comparatively narrow, about three times as long as thick and slightly curved; 3-segmented club subcircular and composing a fourth of total antennal length, antennomeres 9–11 comparable in length. Pronotum slightly transverse. Elytra widely rounded at sides, their arcuate apices forming a very short and stump sutural angle, adsutural lines not expressed. Pygidium slightly transverse. Anal sclerite does not exposed from under pygidial apex.

Mentum about 1.5 times as wide as long and with deeply and arcuately excised anterior edge. Labial palpi with scarcely bend palpomeres and with ultimate one about three times as long as thick. Ultimate max-

illary palpomere about four times as long as thick. Ventral tentorial fossae and gular sutures rather distinct. Inner ridge of antennal grooves extended laterally nearly regularly arcuate; antennal grooves completely received flagella. Prosternal process somewhat extended behind the posterior edges of procoxae, procoxal cavities looking like incompletely closed posteriorly. Distance between mesocoxae about 1.5 times and that between metacoxae about as great as that between procoxae. Metaventricle about as long as prosternum and mesoventricle combined. Submeso- and submetacoxal lines follow the posterior edge of cavities.

Abdominal ventrite 1 nearly twice as long as hypopygidium and slightly shorter than ventrites 2–4 combined. Epipleura at base slightly narrower than antennal club.

Protibia somewhat wider than antennal club, subtriangular and with far projecting outer apical angle; meso- and metatibiae slightly wider and subtrapezoid, about 2.5 times as long as wide, with slightly projecting outer apical angle. Profemur nearly twice as long as wide, mesofemur about 1.5 times as long as wide and metafemur about 1 and 1/3 as long as wide; posterior edge of profemur rather deeply emarginate and that of meso- and metafemora nearly straight. Tarsi very wide, stout and slightly lobed; setae of underside in tarsomeres 1–3 very reduced; ultimate tarsomere subflattened, with excavated underside and simple narrow claws.

Aedeagus. Tegmen moderately sclerotised, about twice as long as wide and slightly emarginated at apex; penis trunk slightly sclerotised and with median excision at apex.

Etymology. The epithet of this new species means "most distinct".

DISCUSSION

The new taxa here described demonstrate a rather great potential in variability of some characters which are traditionally used as diagnostic for known taxa of differ-

ent taxonomic levels. Particularly, the diagnostics of such large and diverse groups, as the genera *Amphicrosus*, *Meligethinus* and *Neopallodes* here considered, gives an expressive presentation of the problem. The situation in larger taxa, as *Epuraea* Erichson, 1843; *Carpophilus* Stephens, 1829; *Pria* Stephens, 1829; *Meligethes* Stephens, 1829; *Mystrops* Erichson, 1943; *Camptodes* Erichson, 1943; *Cryptarcha* Shuckard, 1839; *Cybocephalus* Erichson, 1844 and so on, many members of which still remain undescribed, is much more complicated. When anybody includes in systematic study fossil sap beetles he encounter even with greater difficulties in diagnostics and interpretation. Therefore the progress in understanding of natural system and phylogeny of any group is somehow in significant dependence on breadth of researcher views and standard of available knowledge.

The new species of the genus *Amphicrosus* showed that this widely spread group instead of its probable antiquity still maintains a comparative small level of differentiation and many peculiarities of its species can be explained by homoplastic transformations. Perhaps this situation could be partly explained by some conservatism of the mode of life in species of this genus (most of them are associated with inhabitation in tree sap and other liquid products of plant origin under fermentation, although some species are known as inquiline in nests of ants).

The new species of *Meligethinus* demonstrates a mosaic of characters in the subfamily Meligethinae which are traditionally used as diagnostic for some genera. Endrödy-Younga (1978) undertook a first attempt of systematic revision and "phylogenetic" reconstruction with cladistic methodology, results of which were essentially disproved by the subsequent materials on the subfamily. Later some such attempts were made and they were mostly refuted after obtaining new data on the groups considered or due to an increasing a scope for consideration. The last large

attempt is the generalisation was made by Audisio et al. (2009), in which the authors proposed many new taxa on the base of the cladogram first published in the mentioned paper. In contrast to the previous attempts, this publication is not provided with either any explanation of the authors' discrimination of the taxa, matrix or any list of characters used for construction of this cladogram. In general these authors seemed to use the grouping and characters traditionally regarded as diagnostic for discrimination of the "species-groups", which were treated as preliminarily related by many researchers. However, these groups of the genus *Meligethes* were rather frequently re-arranged, because there was not enough proper evidence if these preliminarily groupings fit true relationship.

The situation was somewhat improved when the systematic studies on fauna of the Palaetropics became more intensive and particularly when the comparison of sequences of DNA of different species began to fulfill. Nevertheless, these achievements represent only a beginning for such large group as the subfamily Meligethinae, because many important species of it are still undescribed and only for few species the molecular comparison was done. Therefore the authors of the mentioned classification of the subfamily could not supply their construction with a proper substantiation. The listed composition of many "genera" in it makes possible to suppose that the authors meant to propose each "genus", however to discuss this construction needs to obtain some more strict argumentation. Some of the new "genera" proposed by the mentioned authors appear to be rather heterogeneous (e.g. *Afrogethes* Audisio et Cline in Audisio et al., 2009 or *Indogethes* Audisio et Cline in Audisio et al., 2009) and others are certainly synonyms (e.g. *Lucanopria* Audisio et Cline in Audisio et al., 2009 is a very probable synonym of *Microporum* C. Waterhouse, 1876). Finally, it would be very advisable to carry out more detailed studies of the recent fauna of the Indo-Malayan and

Afrotropical Regions and particularly bring the comparison of recent species into correlation with the real fossil record. The considered classification of the subfamily Meligethinae (Audisio et al., 2009) has not only scientific (methodological and conceptual) difficulties but also practical ones because in many cases users before identification of generic attribution of any specimen are obliged to find its species attribution. Thus, it is not reasonable to introduce this classification and the proposed names in taxonomical practice and it would be better for now to consider it as a preliminary proposal till a publication of any substantiation of it or at least a list of diagnostic characters of the "genera" to get possibly for evaluation of them for scientific use.

The new genus and new species of Cyllochini and Cychramptodini show a very complicated situation with these tribes. Some closer relationship of the *Gonoglypha* gen. nov. from Australia to the rest members of the endemic Australian tribe seems to be more or less realistic. Nevertheless, some parallels in characters in this new genus and some groups of Cyllochini need to be studied in a more detail and explained in future. Probably the genus *Gonoglypha* gen. nov. contains a mixture of apotypic and plesiotypic characters, which will be important for a further phylogenetic analysis. Many new genera and species of these tribes still remain undescribed, particularly obtained from the Neotropical and Indo-Malayan Regions, including some forms from New Guinea with pubescent dorsum. On the other hand, the representatives of Cychramptodini and *Amborotubus* could reach some similarity in structure as a sequence of similarity in their predaceous and inquilinous mode of life.

ACKNOWLEDGEMENTS

Many scientific organizations supported the study (a grant from the Russian Foundation of Basic Research 07-04-00540-a etc., some grants from the Royal Society, Deutsche Forschungsgemeinschaft, Muséum National d'Histoire Na-

turelle in Paris and Smithsonian Institution). I have had also a support during some years from the Programme of the Presidium of the Russian Academy of Sciences "Origin of Biosphere and Evolution of Geo-Biological Systems" and for the work with the collection of ZIN – from the Russian Ministry of Education and Science. Particularly, I greatly appreciate the help of A. Nel, T. Deuve, O. Montreuil, A. Mantilleri and other colleagues in MNHN, and also M.V.L. Barclay and H. Mendel (BMNH), F. Hieke and M. Uhlig (ZMB) for materials recent and fossil beetles, and also for other various assistance during last years. The preparation of drawings was made with assistance my daughter, Polina A. Kirejtshuk. My sincere thanks also go to C.E. Carlton (Louisiana State University) for the possibility to study the holotype of *Amborotubus clarkei* Leschen et Carlton, 2004. I am also very grateful to S. Hisamatsu (Ehime University, Matsuyama) for his valuable remarks on an earlier version of the manuscript. I also feel a pleasant duty to recognise a very creative editing and a patience to the author's opinions of the editor of this issue N.G. Bogutskaya.

REFERENCES

- Audisio P.** 1993. Coleoptera Nitidulidae – Kateretidae. *Fauna d'Italia*, **32**. Bologna: Calderini Edizione, i–xvi + 1–971 p.
- Audisio P., Cline A.R., De Biase A., Antonini G., Mancini E., Trizzino M., Constantini L., Strika S., Lamanna F. & Cerretti P.** 2009. Preliminary re-examination of genus-level taxonomy of the pollen beetlesubfamily Meligethinae (Coleoptera: Nitidulidae). *Acta Entomologica Musei Nationalis Pragae*, **49**(2): 341–504.
- Cooper M.C.** 1980. Species of the genus *Meligethinus* Grouvelle (Coleoptera: Nitidulidae). *Entomologica Scandinavica*, **11**: 32–36.
- Endrödy-Younga S.** 1978. Systematic revision and phylogeny of some Meligethinae genera from the Ethiopian Region (Coleoptera: Nitidulidae). *Entomologia Germanica*, **4**(3–4): 295–316.
- Jelínek J.** 2000. New genus and species of Oriental Meligethinae with new observations on the genera *Cryptarchopria* and *Kabakovia* (Coleoptera: Nitidulidae). *European Journal of Entomology*, **97**: 413–418.
- Kirejtshuk A.G.** 1994. Revision of the genus *Neopallodes* Reitter 1884 (Coleoptera Niti-

- dulidae) from the Palearctic and Indo-Malayan regions. *Tropical Zoology*, **7**(2): 225–253.
- Kirejtshuk A.G.** 2006. Two new genera and three new species of the tribes Nitidulini and Cyllodini (Coleoptera: Nitidulidae) from Australia and New Zealand, with taxonomic notes. *Proceedings of the Russian Entomological Society*, St Petersburg, **77**: 166–177.
- Kirejtshuk A.G.** 2008. A current generic classification of sap beetles (Coleoptera, Nitidulidae). *Zoosystematica Rossica*, **17**: 107–122.
- Kirejtshuk A.G.** 2011 (in press). The oldest representatives of the subfamilies Meligethinae (Coleoptera, Nitidulidae) and Bronthinae (Coleoptera, Silvanidae) from Baltic amber and some evolutionary notes. *Polish Journal of Entomology (Polske Pismo entomologiczne)*, **80**(4).
- Kirejtshuk A.G. & Kabakov O.N.** 1997. Zamechaniya o zhukakh-blestyankakh (Coleoptera, Nitidulidae), sobrannykh O.N. Kabakovym vo V'etname i Laose. [Notes on sap beetles (Coleoptera, Nitidulidae) collected by O.N. Kabakov from Vietnam and Laos]. *Izvestiya Kharkovskogo Entomologicheskogo Obshchestva*, **5**: 13–23. (In Russian).
- Kirejtshuk A.G. & Lawrence J.F.** 1992. Cychramptodini, a new tribe of the Nitidulidae (Coleoptera) from Australia. *Journal of the Australian entomological Society*, **31**: 29–46.
- Parsons C.T.** 1943. A revision of Nearctic Nitidulidae (Coleoptera). *Bulletin of the Museum of Comparative Zoology*, **92**: 121–208.
- Parsons C.T.** 1972. On the mesosternum in some Nitidulidae (Coleoptera), with a key to the New World *Amphicrossus*. *The Coleopterists Bulletin*, **26**(3): 103–115.

Received September 15, 2011 / Accepted November 14, 2011