

REVISION OF THE GENERIC GROUP OF THE TRIGONOPOID PLATYNOTINA (COLEOPTERA: TENEBRIONIDAE: PLATYNOTINI) FROM SOUTH AFRICA. PART III. GENERA *LAWRENCEUS* GEN. NOV AND *PLATYCHARLESUS* GEN. NOV.

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Abstract.— Two new genera and two new species of trigonopoid Platynotina (Coleoptera: Tenebrionidae) are described from Cape Province (South Africa): *Lawrenceus capensis* gen. et sp. nov.; *Platycharlesus* gen. nov. (type species: *Trigonopus morosus* Mulsant et Rey, 1853); and *Platycharlesus dentatus* sp. nov.



Key words.— Coleoptera, Tenebrionidae, trigonopoid Platynotina, South Africa, revision, new genera.

The present paper is the third of a series devoted to the revision of the trigonopoid Platynotina. The first two parts (Iwan 1997, 1998) included revisions of the genera *Amblychirus* Koch, *Melanopterus* Mulsant et Rey, *Selinopodus* Koch, *Trigonopus* Mulsant et Rey, *Eviropodus* Koch, *Schelodontes* Koch, *Zophodes* Fähræus and *Warchalowskiellus* Iwan.

METHODS AND ABBREVIATIONS

Means and ratios are based on all specimens listed under "Material examined" or "Types" (measures of the genitalia – 1 or 2 specimens). Measurements were made as follows: width of lateral pronotal border – in the middle of lateral pronotal margin; length of lacinia – from suture of apical and basal parts to apex; length of body – from anterior margin of labrum to elytral apex; width of body – maximum elytral width. The following abbreviations have been used in the descriptions:

- pl/pb – pronotum length/breadth ratio;
- el/eb – elytra length/breadth ratio;
- el/pl – length ratio elytra/pronotum;
- eb/pb – breadth ratio elytra/pronotum;
- lbp – length of basal part of aedeagal tegmen;
- lap – length of apical part of aedeagal tegmen;
- ll – length of lacinia (from suture of apical and basal parts to apex);
- c1/c2/c3/c4/c4-c3 – length ratios coxites1/coxites2/coxites3/coxites4/coxites4-coxites3;
- bc1/lc1 – coxites1 breadth/length ratio;
- lp/lc1 – length ratio paraproct/coxites1;
- m – male;
- f – female.

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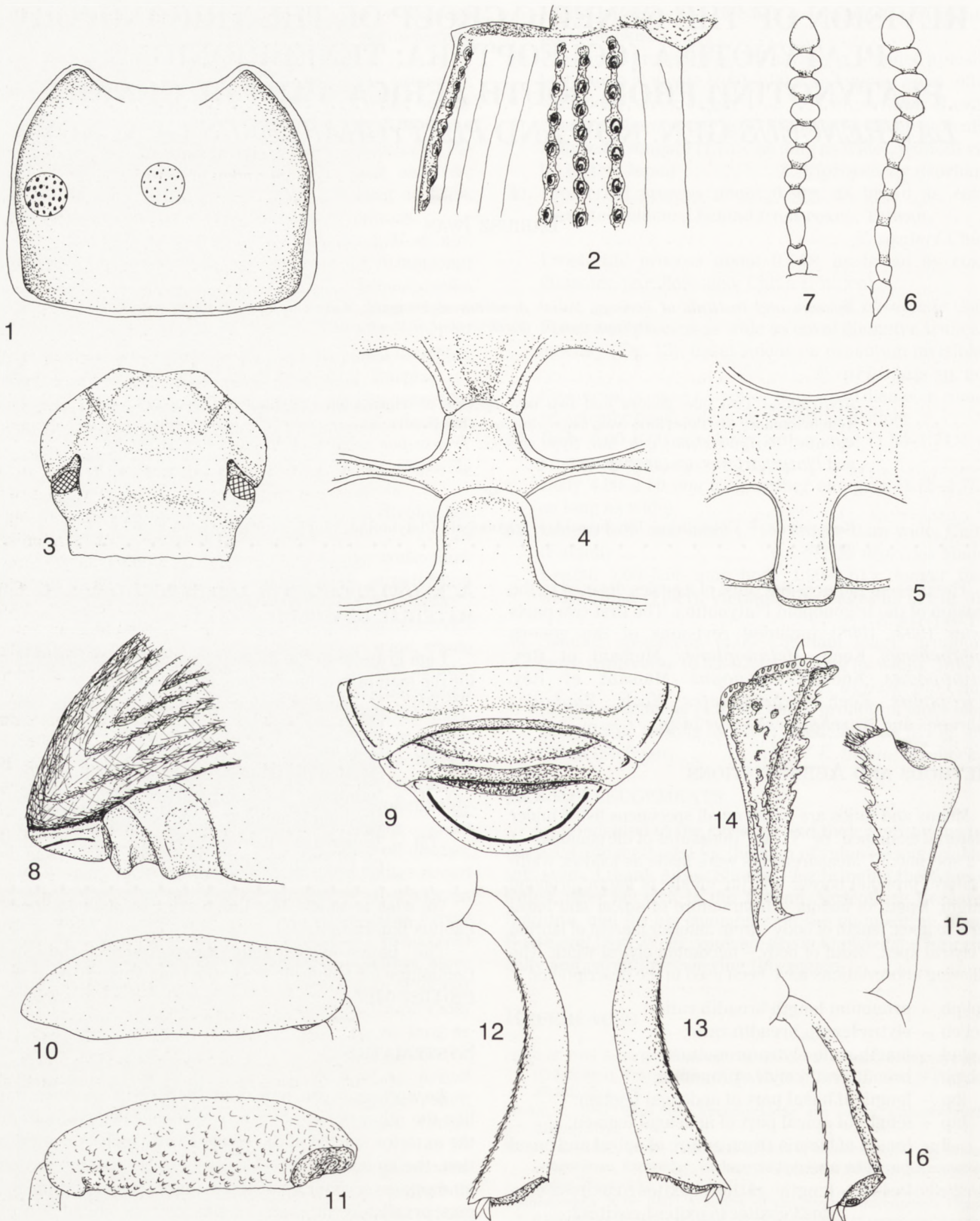
- MNHN – Muséum National d'Histoire Naturelle, Paris, France (C. Girard).
- MZLU – Museum of Zoology, Lund University, Lund, Sweden (R. Danielsson)
- NNIC – Namibian National Insect Collection State Muséum Windhoek, Namibia (E. Marais)
- TM – Transvaal Museum, Pretoria, South Africa (S. Endrödy-Younga).

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SYSTEMATICS

Lawrenceus gen. nov. and *Platycharlesus* gen. nov. like the other genera of the trigonopoid Platynotina have the anterior margin of the clypeus with shallow emargination, the metasternum between the insertions of mid and hind coxae very much shortened (borders of insertion margins practically in contact), the last abdominal ventrite with the border and fore tibia strongly triangularly widened. Both genera are closely related to *Eviropodus*, *Warchalowskiellus*, *Schelodontes* and *Zophodes* in the presence of abruptly convex upper edge of the anterior



Figures 1-16. 1-6, 8-16. *Lawrenceus capensis*, 7. *Schelodontes dormitorius*. (1) pronotum, (2) anterior part of elytron, (3) head, (4) middle part of meso- and metasternum, and process of abdominal ventrite I, (5) prosternum, (6, 7) antenna, (8) lateral view of apical part of abdomen, (9) abdominal ventrites III-V, (10) dorsal and (11) ventral view of male hind femora, (12) dorsal and (13) ventral view of male hind tibia, (14) ventral and (15) dorsal view of male fore tibia, (16) latero-dorsal view of male mid tibia.

margin of elytra (forming a ridge) and narrow fore tarsi in both sexes (except *Eviropodus*). The shape of the anterior elytral margin (V-like) place these genera close to *Warchalowskiellus*, *Schelodontes* and *Zophodes*, and distinguish them from *Eviropodus*.

Lawrenceus gen. nov.

Type species. *Lawrenceus capensis* sp. nov., gender masculine.

Derivatio nominis. In honour of Dr. John F. Lawrence from CSIRO, Canberra, Australia.

Diagnosis. *Lawrenceus*, like *Schelodontes* has an unbordered anterior elytral margin and the male hind femur with the denticle on inner side (in some species of *Schelodontes*); and like *Zophodes* has an unbordered anterior pronotal margin and the hind male tibia arcuately bent inwards.

Lawrenceus differs from the remaining genera of the trigonopoid Platynotina in the structure of the antenna (segments 8–11 strongly widened) (cf. figs 6 and 7) and male fore tibia (inner margin with 6–8 sharp denticles).

Description. See description *Lawrenceus capensis* sp. nov.

Lawrenceus capensis sp. nov.

Locus typicus. Vanrhyn's Pass (South Africa, Cape Province).

Derivatio nominis. From terra typica.

Diagnosis. See diagnosis *Lawrenceus* gen. nov.

Description. Length 13.0–15.0 mm. Body elongate, slightly depressed (Fig. 27); colour from dark brown to black, underside lighter; surface shiny with delicate or "evanescent" puncturation.

Head widest anterior to eyes (Fig. 3); its surface delicately and densely punctate, distance between punctures ca. 0.5–1.0 puncture diameter; upperside with concavities, especially distinct at fronto-clypeal suture and along inner margin of eye; frontoclypeal suture extremely weak, practically invisible; eyes weakly narrowed laterally – between tempus and gena 2–3 facets; clypeus shallowly emarginate anteriorly; mid part of mentum narrowed anteriorly, lateral margins (wings) wide. Antenna with segments 8–11 strongly widened, segment 3 ca. 2.7× as long as segment 2 (Fig. 6).

Pronotum 0.7–0.8× as long as broad (Fig. 1); sides almost parallel at basal 3/4; pronotal surface with puncturation as in *Melanopterus*, i.e. coarse, often blurred at margins, on disc fine and evanescent; pronotum evenly convex, lateral margins bordered by shallow, longitudinal concavity (slightly widened at angles); anterior and posterior angles rounded; base straight; border of anterior margin widely interrupted in middle, base and sides entirely bordered; lateral border relatively wide, ca. 0.9× width of antennal segment 3. Prosternum shiny, with delicate and sparse puncturation; prosternal process unbordered at apex and produced towards mesosternum (Fig. 5); pronotal hypomerion smooth. Metasternum very narrow,

metasternal length between meso- and metacoxal cavities ca. 0.15× length of metacoxal cavities (Fig. 4).

Scutellum transverse, located at level of humeral angles, medium-sized – distance between humeral angle and scutellum 3.4–3.5× scutellum width.

Elytra as in figs 2 and 27, el/eb = 1.3–1.5, el/pl = 1.8–1.9, eb/pb = 1.0–1.1; elytral sides almost parallel; elytral base V-shaped; upper edge of anterior elytral margin strongly convex (forming unbordered ridge), lower margin strongly convex (forming sharp, produced outwards; elytra tucked in posteriorly (part of interval IX, and even VIII visible from underside), disc depressed; elytral striae punctate-sulcate, with round and large punctures; intervals well convex, delicately and sparsely punctate; connection of striae in apical part as following: 1-9, 2-7, 3-6, 4-5, 8-free; epipleura delicately punctate, practically smooth, with upper margin completely disappearing in their apical part. Mesosternal process with median concavity, laterally convex. I–IV abdominal ventrites delicately and sparsely punctured; basal margin of IV and V ventrites convex medianly, last one densely punctate with wide border (Figs 8 and 9).

Legs of both sexes have tarsi narrow, and with glabrous gutters ventrally on all segments (Figs 21–26). Male legs, fore tibia considerably widened at apices, with longitudinal concavity ventrally, and lateral fold on outer margin, inner margin with sparse, long setae and 6–8 sharp denticles (Figs 14 and 15); mid tibia with very strongly convex, sharp ridges on their outer margin (Fig. 16); hind tibia arcuately bent inwards, densely setose on inner side, obtuse outside (Figs 12 and 13); hind femora with tubercles and small denticle on inner side (Figs 10 and 11).

Ovipositor as in fig. 20, length ratio paraproct/coxites ca. 0.8, lp/lc1 = 4.5, bc1/lc1 = 3.6, c1/c2/c3/c4/c4-c3 = 1.0/2.7/1.4/1.8/0.4; internal female genitalia as in fig 19, bursa copulatrix with no sclerites, abruptly narrowed towards outlet of spermatheca and accessory gland; spermatheca with very narrow, regular, strongly sclerotized and multiple dichotomous branched ducts. Aedeagus as in figs 17 and 18, lap/lbp = 0.46; laciniae relatively short, its base located below the level of suture uniting apical and basal part; apical part evenly narrowed apically, width of gap between parameres equal to width of paramere at apex.

Types. Holotype (male) TM: "S. Afr., S. W. Cape, Vanrhyn's Pass, 31.23 S – 19.02 E; 4. 11. 1983; E-Y: 2048, from road gutter, leg. Endrödy-Younga". Paratypes: S. Afr., S. W. Cape, Vanrhyn's Pass, 31.23 S – 19.02 E; 4. 11. 1983; E-Y: 2048, from road gutter, leg. Endrödy-Younga (TM) 4 m, 2 f.

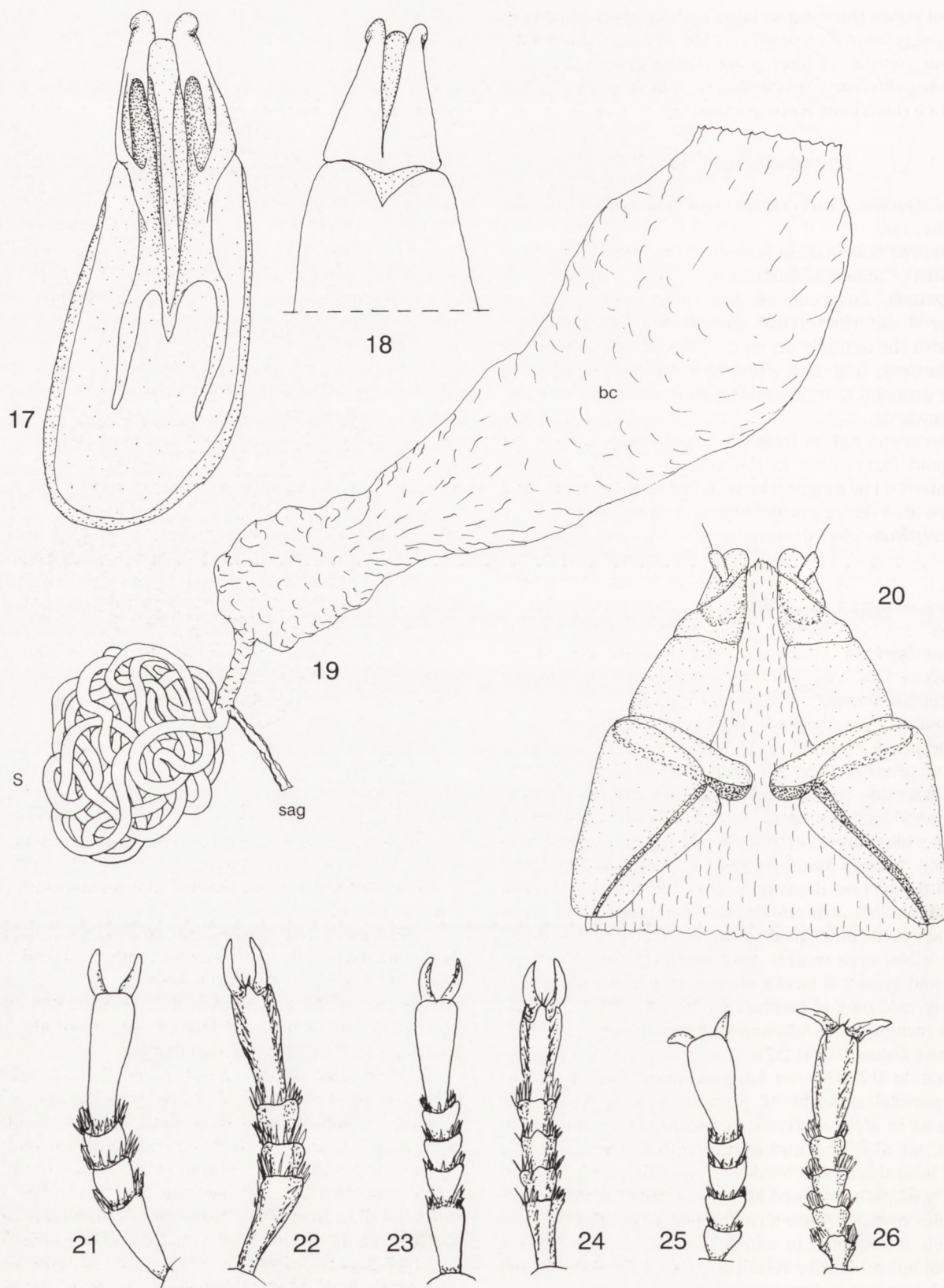
Distribution. South Africa (Cape Province: Vanrhyn's Pass) (Fig. 49).

Platycharlesus gen. nov.

Type species. *Trigonopus morosus* Mulsant et Rey, 1853, gender masculine.

Derivatio nominis. In honour of Dr. Charles Mahaim, the best friend of my family.

Diagnosis. *Platycharlesus*, like *Schelodontes* has an interrupted border of the pronotal base and the male hind



Figures 17–26. *Lawrenceus capensis*. (17) ventral and (18) dorsal view of aedeagus, (19) internal female genitalia (bc – bursa copulatrix, s – spermatheca, sag – spermathecal accessory gland), (20) ovipositor; (21) dorsal and (22) ventral view of male hind tarsus, (23) dorsal and (24) ventral view of male mid tarsus, (25) dorsal and (26) ventral view of male fore tarsus.

femora with denticle on inner side (in some species), but differs from it in the structure of the pronotal disc and fore tibia.

Platycharlesus is closely related to *Zophodes* in the structure of the fore tibia (widened in middle, with very large and sharp apical denticle that strongly protrudes outwards) and widened mid part of the mentum (in *morosus*).

Rounded, not protruding outwards elytral humeri distinguishes *Platycharlesus* from the remaining genera (except two species of the genus *Schelodontes* – *apicalis* and *gemmeulus*).

Description. The smallest beetles among the trigonopoid Platynotina, body length 7.0–11.0 mm; colour dark brown to black, distinctly shiny; underside lighter. Punctuation very delicate, but well visible. Body very strongly convex, elytra tucked in posteriorly (part of interval IX, and even VIII visible from underside); elytra wider than pronotum (especially in females).

Head widest anterior to eyes. Mid part of mentum strongly convex medianly, with lateral margins (wings) well visible. Eyes narrowed laterally, 2–3 facets between gena and temple. Antenna similar to that in the *Trigonopus*. Frontoclypeal suture poorly marked, clearly visibly only laterally.

Pronotum rather strongly, evenly convex, without narrow longitudinal concavity along lateral borders; sides rounded; pronotal base arcuately bent posteriad; basal border widely interrupted; anterior and posterior angles rounded. Mid part of prosternum strongly convex; process produced towards mesosternum, with border interrupted at apex.

Scutellum located considerably below the line connecting humeral angles.

Upper edge of anterior margin of elytra, from humeral angle almost to scutellum strongly convex as a sharp ridge, smooth; lower edge practically not convex; humeral angles rounded and not protruding outwards; intervals practically not convex, flat; punctuation on disc delicate, practically invisible, in apical part dense, punctures medium-sized; elytral striae punctate-sulcate, with very small punctures, connection of striae in apical part as following: 1-9, 2-7, 3-6, 4-5, 8-free; epipleura delicately punctate, practically smooth. Mesosternum with a very shallow, wide median groove, which does not reach posterior margin; sides of mesosternal process almost flat, slightly convex. Last abdominal ventrite bordered.

Legs of both sexes with all tarsi narrow (with glabrous gutters ventrally on all segments); fore tibia widened in middle, with very large and sharp apical denticle that strongly protrudes outwards; mid and hind tibiae with very strongly convex, sharp ridges on their outer margin.

General structure of aedeagus and female reproductive system as in the remaining trigonopoid Platynotina.

Platycharlesus morosus (Mulsant et Rey, 1853) comb. nov.

Trigonopus morosus Mulsant et Rey, 1853: 54.

Trigonopus morosus Mulsant et Rey: Gemminger et Harold 1870: 1911; Gebien 1910: 272; 1938: 292.

Schelodontes morosus Mulsant et Rey: Koch 1956: 82.

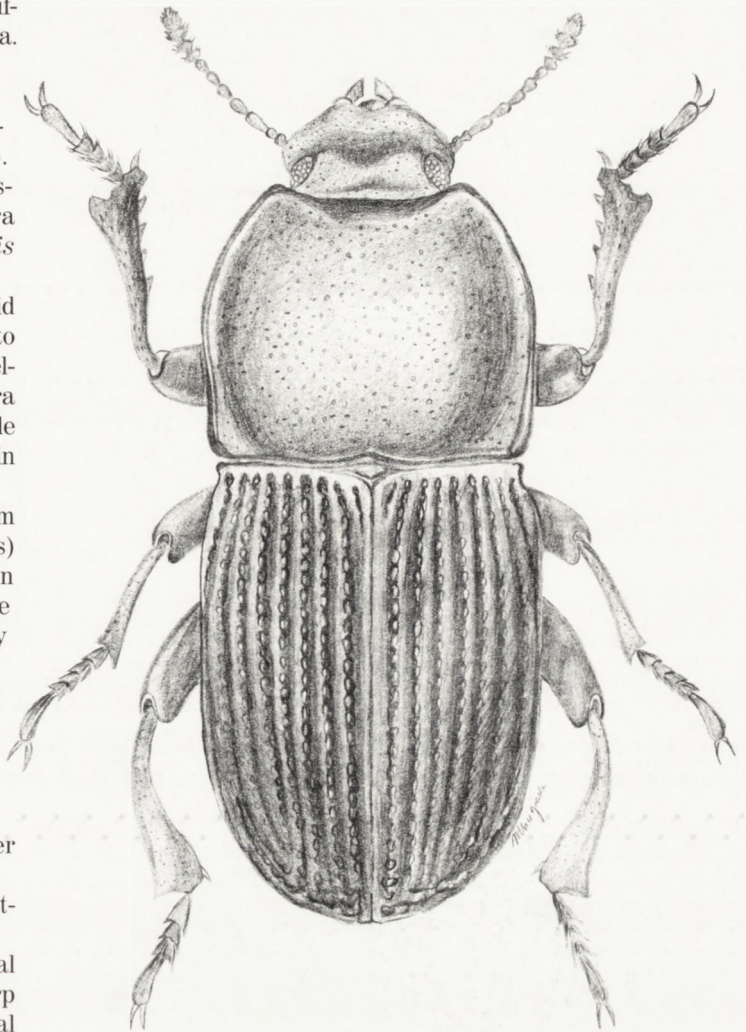


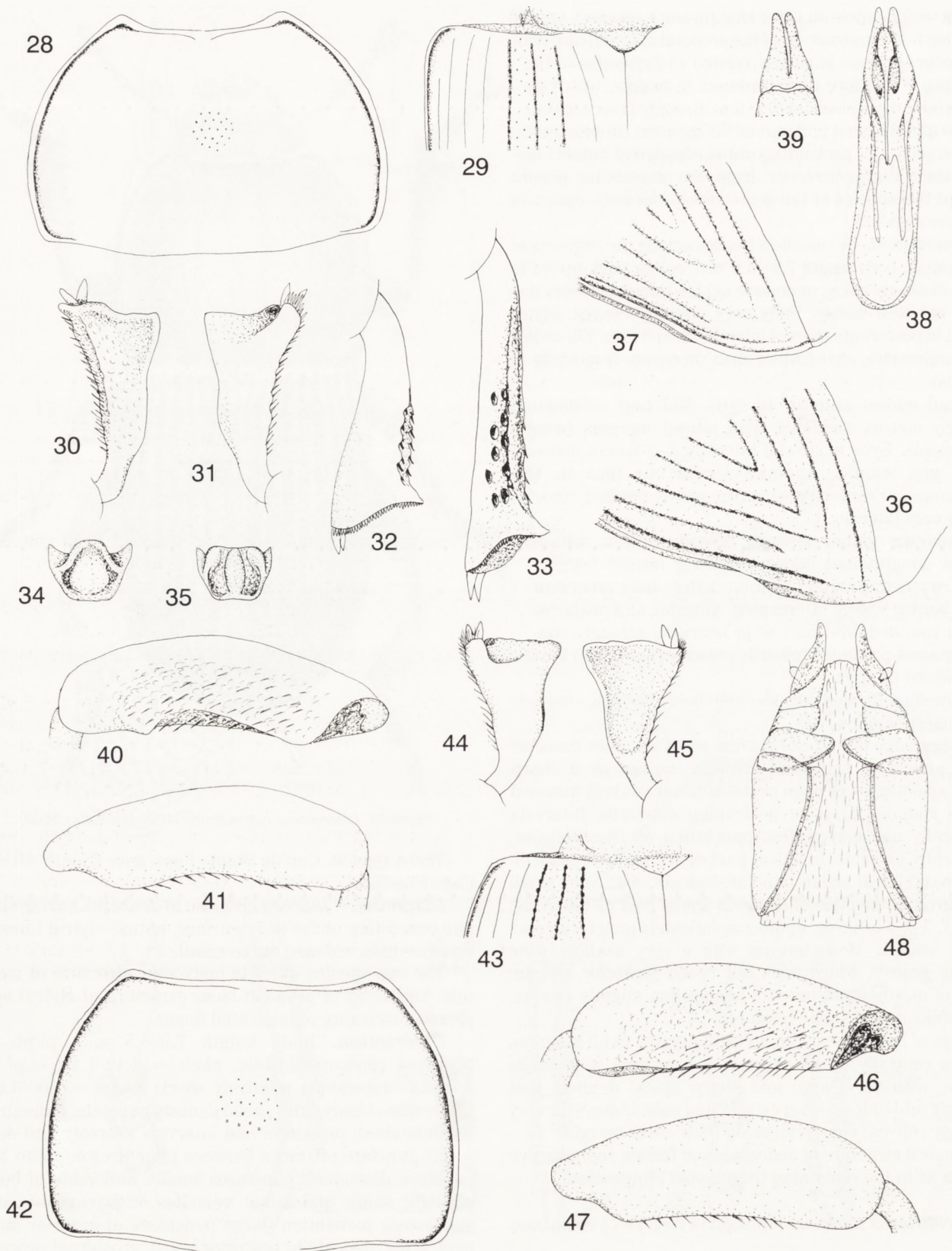
Figure 27. *Lawrenceus capensis* (by M. Szczepańska). Male.

Terra typica. Cap de Bonne Espérance [South Africa, Cape Province].

Diagnosis. *P. morosus* is close to *dentatus* having similar punctuation of the body surface, obtuse elytral humeri and fore tibia widened in the middle.

The two species differ in body size, structure of mentum, bordering of pronotal base, structure of elytral epipleuron, structure of male hind femur.

Description. Body length 7.0–8.5 mm, pl/pb = 0.60–0.64 (pronotum wide), el/eb = 1.12–1.17, el/pl = 1.78–2.07 (pronotum relatively short), eb/pb = 1.00–1.08. Upperside of body shiny; head densely punctate, punctures medium-sized; pronotum and intervals sparsely and delicately punctate (distance between punctures equal to 3–4 puncture diameters, punctures small); underside of body strongly shiny, abdominal ventrites with rugosity and evanescent punctuation (large punctures at anterior margins, small, delicate at posterior ones); prosternal process delicately punctate, sides rugose; punctuation of pronotal episternum dense and rugose; femora and tibiae sparsely punctate, punctuation evanescent.



Figures 28–48. *Platycharlesus* spp. 28–34, 37–41, 48. *P. dentatus*, 35–36, 42–47. *P. morosus*. (28, 42) pronotum, (29, 43) anterior part of elytron, (30, 45) ventral and (31, 44) dorsal view of male fore tibia, latero-dorsal view of male (32) mid and (33) hind tibia, (34, 35) mentum, (36, 37) apical part of elytron, (38) dorsal and (39) ventral view of aedeagus, (40, 46) ventral and (41, 47) dorsal view of male hind femora, (48) ovipositor.

Antennal segment 3 ca. 1.8× as long as segment 2; mid part of mentum widened (fig. 35).

Pronotum as in fig. 42; lateral border of moderately wide, ca. 0.60× as wide as antennal segment; bordering of base with narrow interruption medianly.

Scutellum transverse, medium-sized – distance between humeral angle and scutellum 2.6–2.8× scutellum width.

Elytra as in fig. 43; upper margin of elytral epipleura disappears in its apical part.

Male legs, fore tibia as in figs 44 and 45; outer margin of male hind femur simple (Figs 46 and 47).

Aedeagus: $lap/lbp/ll = 1.0/2.3/0.5$; ovipositor: $lp/lc1 = 4.2$, $bc1/lc1 = 2.1$, $c1/c2/c3/c4/c4-c3 = 1.0/1.3/1.0/2.1/1.0$; plate $c4$ much elongate, protruding above the upper margin of $c3$.

Type. Holotype (female), MNHN: “*morosus* Type Mulsant; Cap; *Trigonopus morosus* Muls. Cap. b. sp. T Du 66; *Trigonopus morosus* Muls. op Ent. 4 p. 133, 17 Cap. b. Sp.; Museum Paris Coll. De Marseul 1890” (examined).

Material examined. De Hoop (Wdhk.sekt.) SE 3420 Ad Bredasdorp Cape R.S.A. 16. Mar. 1973.; H. 12417, 12317; Namibian National Insect Collection State Museum P.O.Box 1203 Windhoek, Namibia, (NNIC) 5 m, 3 f; S. Afr. Cape Prov., De Hoop Vlei, 20 miles E Bredasdorp, 21.51, No 107; Swedish South Africa Expedition, 1950–1951, Brinck-Rudebeck; *Schelodontes apicalis*? C. Koch det., (MZLU) 1 m.

Distribution. South Africa (Cape Province: Bredasdorp) (Fig. 49).

Platycharlesus dentatus sp. nov.

Locus typicus. Robertson (South Africa, Cape Province).

Derivatio nominis. Latin adjective, *dentatus*: with denticle.

Diagnosis. See diagnosis *P. morosus*.

Description. Body length 10.0–11.0 mm, $pl/pb = 0.58–0.63$, $el/eb = 1.13–1.26$, $el/pl = 1.94–2.05$, $eb/pb = 1.00–1.03$. Upperside of body slightly shiny; head and pronotum sparsely and delicately punctate (distance between punctures equal to 3–4 puncture diameters, punctures small); punctuation of intervals practically invisible; underside of body shiny, abdominal ventrites with rugosity and evanescent punctuation (large punctures at anterior margins, small, delicate at posterior ones); prosternal process delicately punctate, sides rugose; punctuation of pronotal episternum moderately rugose; femora and tibiae sparsely punctate.

Antennal segment 3 ca. 1.6× as long as segment 2; mid part of mentum narrowed anteriorly (Fig. 34).

Pronotum as in fig. 28; lateral border relatively wide, ca. 0.90× as wide as antennal segment 3; bordering of base widely interrupted medianly.

Scutellum transverse, medium-sized – distance between humeral angle and scutellum 2.0–2.1× scutellum width.



Figure 49. Distribution of *Lawrenceus capensis* (solid/open circle), *Platycharlesus morosus* (open circle) and *P. dentatus* (solid circle).

Elytra as in fig. 29; upper margin of elytral epipleura convex in its apical part (Fig. 37).

Male legs, fore tibia as in figs 30 and 31; mid and hind tibia as in figs 32 and 33; outer margin of male hind femur with denticle (Figs 40 and 41).

Aedeagus as in figs 38 and 39: $lap/lbp/ll = 1.0/2.7/0.5$; ovipositor as in fig. 48: $lp/lc1 = 3.4$, $bc1/lc1 = 1.9$, $c1/c2/c3/c4/c4-c3 = 1.0/0.6/0.6/1.5/0.7$, plate $c4$ much elongate, protruding above the upper margin of $c3$.

Type. Holotype (male), TM: “S. Afr., S. W. Cape, Robertson, 10 km S, 33.53S – 19.57 E; 5.12.1978; E-Y: 1522, groundtraps, 90 days, leg. Endrödy-Younga; groundtraps with ferm. banana bait”. Paratypes: S. Afr., S. W. Cape, Robertson, 10 km S, 33.53S – 19.57 E; 5.12.1978; E-Y: 1522, groundtraps, 90 days, leg. Endrödy-Younga; groundtraps with ferm. banana bait, (TM) 1 m; *Trigonopus* Cap.; *tenebrosus* Muls., 123.8 Cap b sp; Museum Paris, coll De Marseul 1890, (MNHN) 1 f; *Trigonopus* Cap.; *exaratus* Dej Muls 34.6 Cap b sp., *laticollis* Bug; Museum Paris, coll De Marseul 1890, (MNHN) 1 m; *Trigonopus* Cap.; Caffrerie, Castelnau; Museum Paris, coll De Marseul 1890, (MNHN) 1 f; Caffrerie; coll. R. Oberthhr ex coll Deyrolle, (MNHN) 1 f.

Distribution. South Africa (Cape Province: Robertson) (Fig. 49).

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