

Studies concerning the taxonomy of *Diapericera* Lacordaire, 1848 with a description of two new species (Coleoptera, Chrysomelidae)

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**Studies concerning the taxonomy of *Diapericera* Lacordaire, 1848
with a description of two new species
(Coleoptera, Chrysomelidae)**

by Dieter Erber & Lev N. Medvedev

Abstract. Material relating to *Diapericera* Lacordaire, 1848 from Namibia and South Africa was studied, including type specimens of the two previously known species. The genus *Eoclytra* Monros, 1958 is a new synonym for *Diapericera* Lacordaire, 1848. Two new species are described: *Diapericera cornellsbergi* sp.nov. and *Diapericera karooensis* sp.nov. A key to the four species of the genus is given.

Key words. Chrysomelidae – Clytrinae – *Diapericera* Lacordaire, 1848 – new species – new synonymy

Introduction

While going through Clytrinae material from Southern Africa on loan to us, we came upon a small series of specimens belonging to the genera *Diapericera* Lacordaire, 1848 and *Eoclytra* Monros, 1958. The genus *Diapericera* was established by LACORDAIRE (1848) for the single species *D. gemmula* Lacordaire, 1848. The genus *Eoclytra* was described by MONROS (1958) for the single species *E. freudei* Monros, 1958 as well. This author proposed a new tribe, the Eoclytrini, for *Eoclytra* but did not compare this genus either with *Diapericera* or with any other genera of the tribe Clytrini. We have had the opportunity to study type specimens of both these genera and found that they are congeneric. This leads to the conclusion that *Eoclytra* Monros, 1958 is a new synonym for *Diapericera* Lacordaire, 1848.

However, the problem remains as to whether the tribe Eoclytrini really differs from the Clytrini or not. MONROS (1958) gave a very short description of this tribe and did not indicate the exact difference between Clytrini and Eoclytrini, speaking only of the “low degree of specialization” in Eoclytrini. According to his description, the main characters of this tribe are non-emarginate eyes, contiguous anterior coxae and invisible prosternum, very short and feebly serrate antennae with widened preapical segments and a very large groove on the last abdominal segment of the female. However, all these characters are also known among typical Clytrini. On the other hand, a combination of the general form of the body, very short antennae with specific serration (in Clytrini antennae are serrate on the inner sides, in Eoclytrini they are feebly serrate on the inner sides but also widened on the outer sides), and the absence of an epipleural lobe on the elytra, differentiates this genus very clearly from other Clytrini. This seems to be supported by the shape of the kotpresses¹⁾ which, in comparison with those of Clytrini, (see ERBER 1968) do not have clearly outlined sclerites (Figs 39–41). Because of all this we prefer not to unite these tribes: this question requires further investigation.

¹⁾ Structures described by the author ERBER (1968) under the German name *Kotpresse*; since any literal English translation is doomed to unnatural forms, we would like to propose that the term takes its place among the ranks of the German loan words that have done so much to enhance the English language.

Although we have also had access to some egg-cases (Fig. 42) with first instar larvae of the new species *Diapericera cornellsbergi* sp.nov., we have not been able to clear up this problem through larval characters: The larvae were very newly hatched and so extremely shrunken that we were able only to figure the head (Fig. 43) and legs (Fig. 45) of one specimen.

In the course of studying the material, we found that there were some specimens that were not identical with both previously known species. Detailed studies indeed revealed differences in body characters as well as in genital structures. As a result of this, we were able to describe two new species. For better comparison, we will also give a short differential diagnosis of the species already known, *Diapericera gemmula* and *D. freudei*.

Material and methods

Male and female genitalia as well as female kotpresse were removed from the abdomen and macerated in KOH. The aedeagus, the spermatheca and kotpresse were fixed to the cards with the appropriate beetles using Canada balsam.

Measurements are given as follows: the length of body is measured from base of the antennae to the apex of the elytra; the width in male a maximum (either through the pronotum or through the head including the eyes); width in the female is always measured between the humera.

Abbreviations

MNHUB	.....	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
NNIC	.....	Namibian National Insect Collection, State Museum of Namibia, Windhoek, Namibia
PCDE	.....	Private Collection, Dieter Erber, Giessen, Germany
PCLM	.....	Private Collection, Lev Medvedev, Moscow, Russia
SANC	.....	National Collection of Insects, Plant Protection Research Institute, Pretoria, Republic of South Africa
ZSM	.....	Zoologische Staatssammlung, München, Germany

Taxonomy

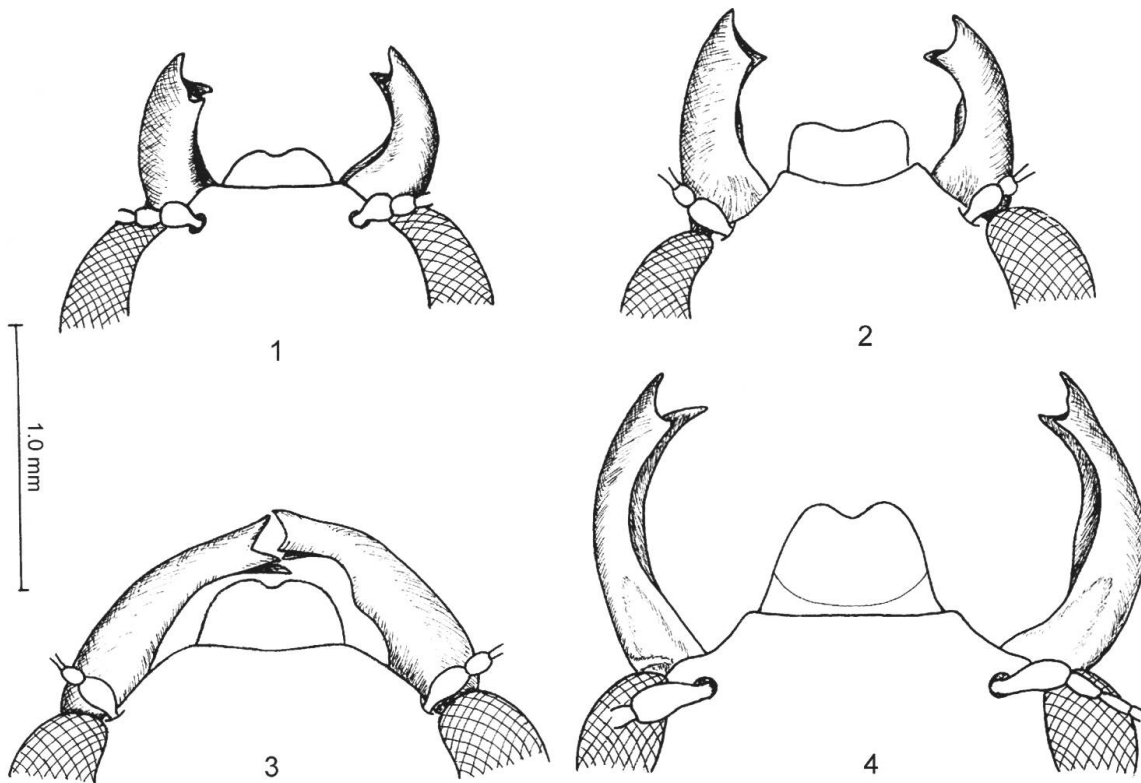
Diapericera Lacordaire, 1848

LACORDAIRE (1848): 388. (Type of genus: *D. gemmula* Lacordaire, 1848)

Eoclytra Monros, 1958: 38 **syn.nov.** (Type of genus: *E. freudii* Monros, 1958)

Diapericera gemmula Lacordaire, 1848

Material studied. Type labelled: "Pr(omont) b(on) sp(ei) (= Cape of Good Hope), Krebs", no. 23288 (MNHUB). Designated as the lectotype here. [The single specimen known, the number of specimens in the type series not indicated by Lacordaire.] RSA, Algoa Bay, Capland, X. 95, leg. Dr. Brauns (PCLM: 1 male); South-west Africa (SANC: 1 female).



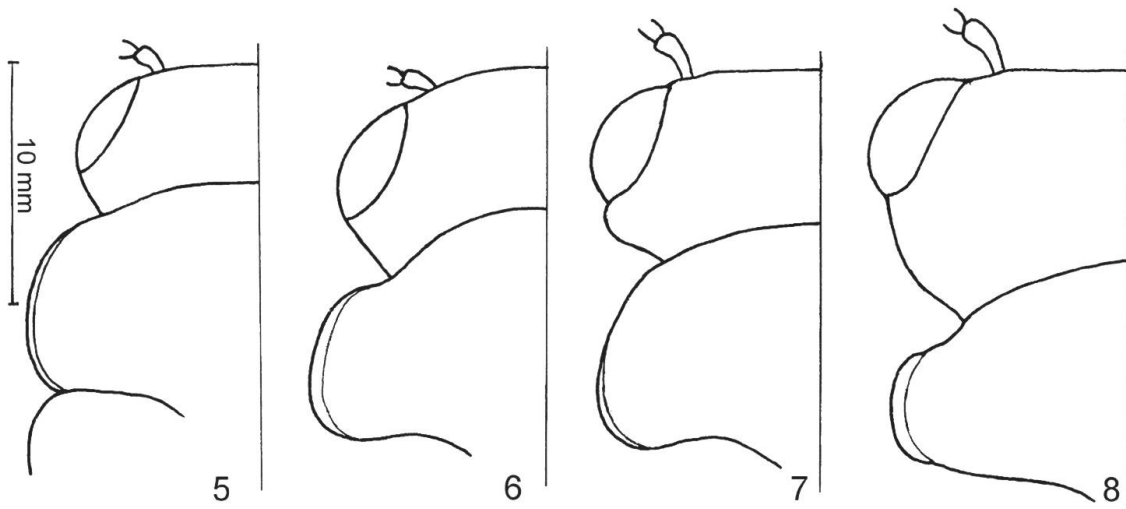
Figs 1–4. Male, front of head with clypeus, labrum and mandibles: 1, *Diapericera gemmula* Lacordaire; 2, *D. freudei* Monros; 3, *D. cornellsbergi* sp.nov.; 4, *D. karoensis* sp.nov.

Redescription. Black with distinct metallic gloss, elytra dark brown, also with slight metallic gloss, legs and antennae reddish.

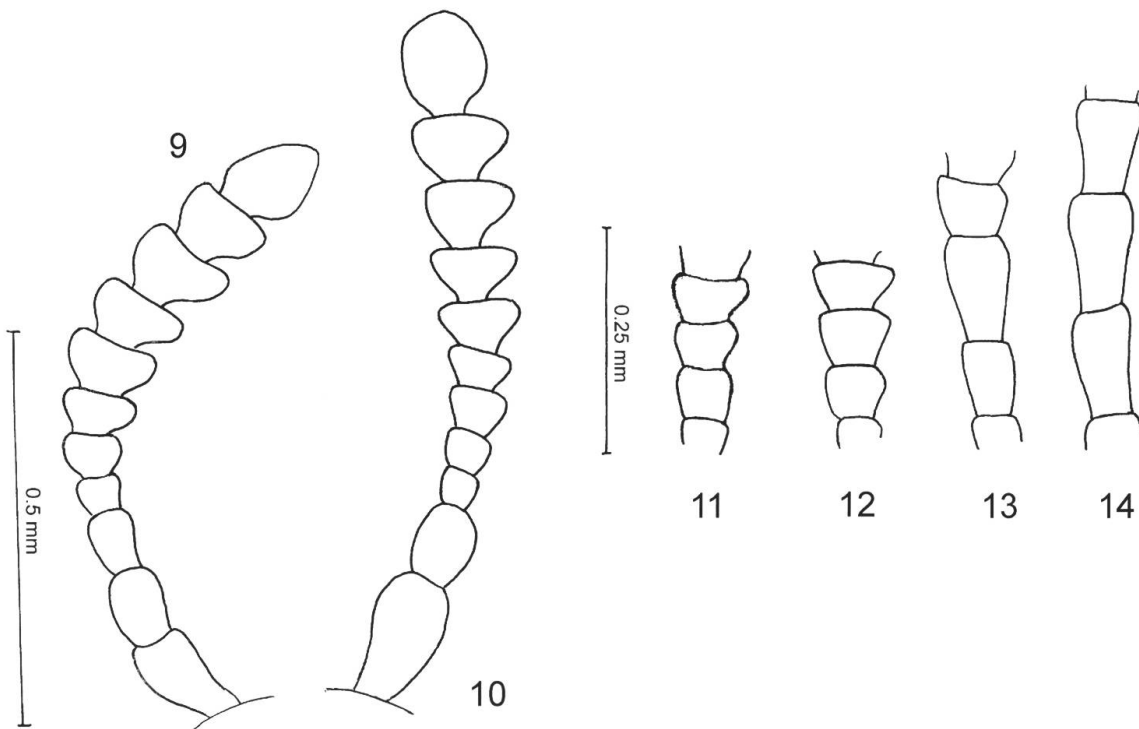
Head with eyes narrower than pronotum (1:1.26). Mandibles very short, apical margin of clypeus only feebly emarginate, labrum rounded and slightly emarginate in the middle (Fig. 1). Temples short and narrowing evenly towards the rear (Fig. 5). Antenna slightly enlarged inwards in segments 6–10, segments 4–6 relatively short, segment 4 nearly quadrangular, segments 5 and 6 broader than long (Figs 9, 11). Pronotum 1.8 to 1.9 times as broad as long with regularly rounded lateral margins in male, 1.7 times as broad as long with lateral margins widened towards the rear, depressed towards the front in female (Fig. 15 a, b). Scutellum triangular with obtuse-angled apex in male, more rectangular with rounded corners in female (Fig. 19 a,b). Aedeagus very slender in posterior half, broadly widened and rounded in apical third with a short triangular projection at apex (Fig. 23). Tegmen formed like a vase with nearly straight sides, tergal apodeme robust with very short apical twigs (Figs 27, 28). Spermatheca: Vasculum regularly rounded, horseshoe-like, ductus thin and coiled (Figs 34). Kotpresse, Fig. 39.

Size: male 3.4 mm long, 1.9 mm broad; female 3.4 mm long, 1.9 mm broad.

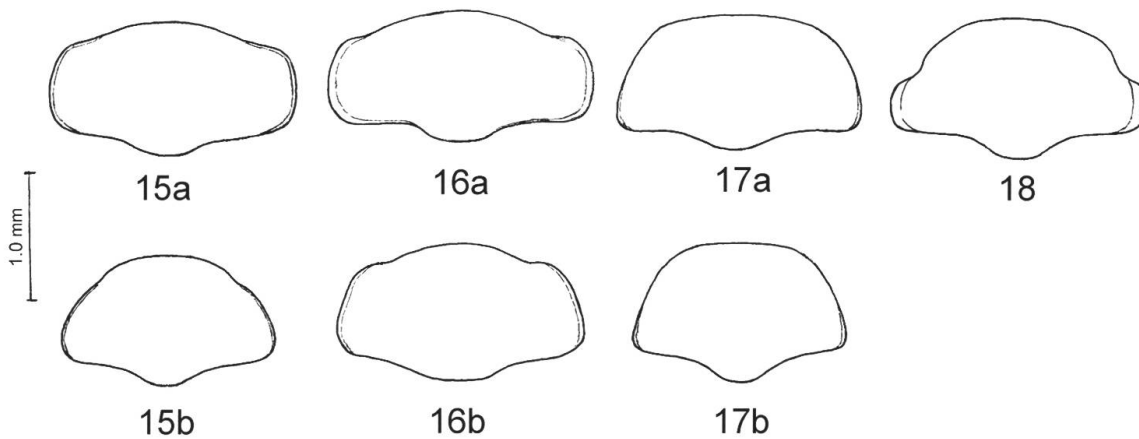
Distribution. South Africa.



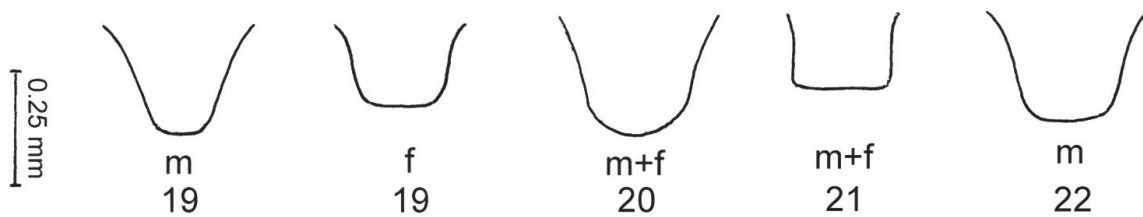
Figs 5–8. Male; contour of head and pronotum: 5, *Diapericera gemmula* Lacordaire; 6, *D. freudei* Monros; 7, *D. cornellsbergi* sp.nov.; 8, *D. karoensis* sp.nov.



Figs 9–14. Male; left antenna (in Figs 11–14 only segments 4–6): 9, 11, *Diapericera gemmula* Lacordaire; 10, 12, *D. freudei* Monros; 13, *D. cornellsbergi* sp.nov.; 14, *D. karoensis* sp.nov.



Figs 15–18. Pronotum of males (a = row above) and females (b = row below): 15a, b, *Diapericera gemmula* Lacordaire; 16a,b, *D. freudei* Monros; 17a, b, *D. cornellsbergi* sp.nov.; 18, *D. karoensis* sp.nov.



Figs 19–22. Scutellum of males and females: 19, *Diapericera gemmula* Lacordaire; 20, *D. freudei* Monros; 21, *D. cornellsbergi* sp.nov.; 22, *D. karoensis* sp.nov.

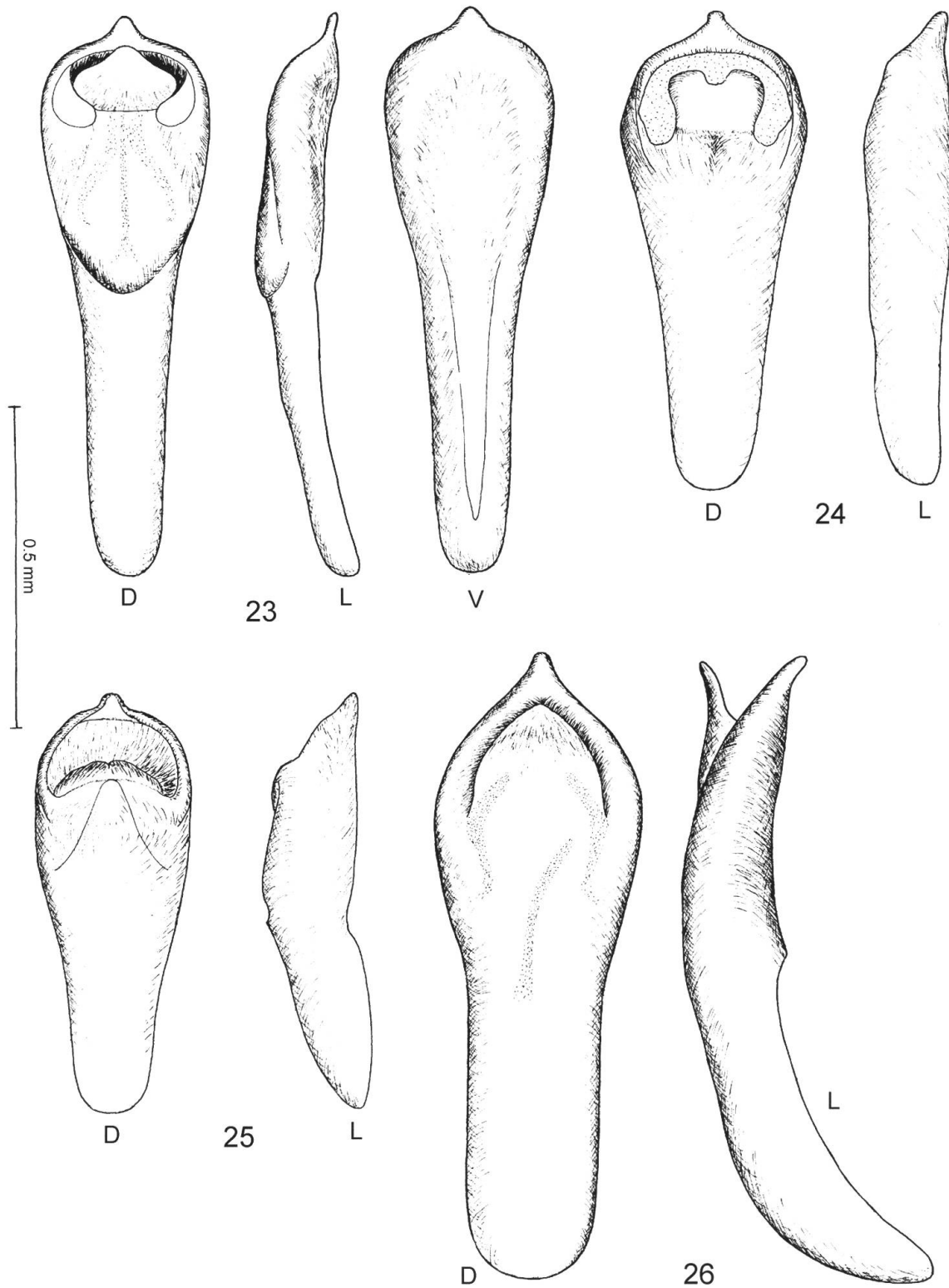
Diapericera freudei (Monros, 1958) comb.nov.

Eoclytra freudei: MONROS (1958): 38.

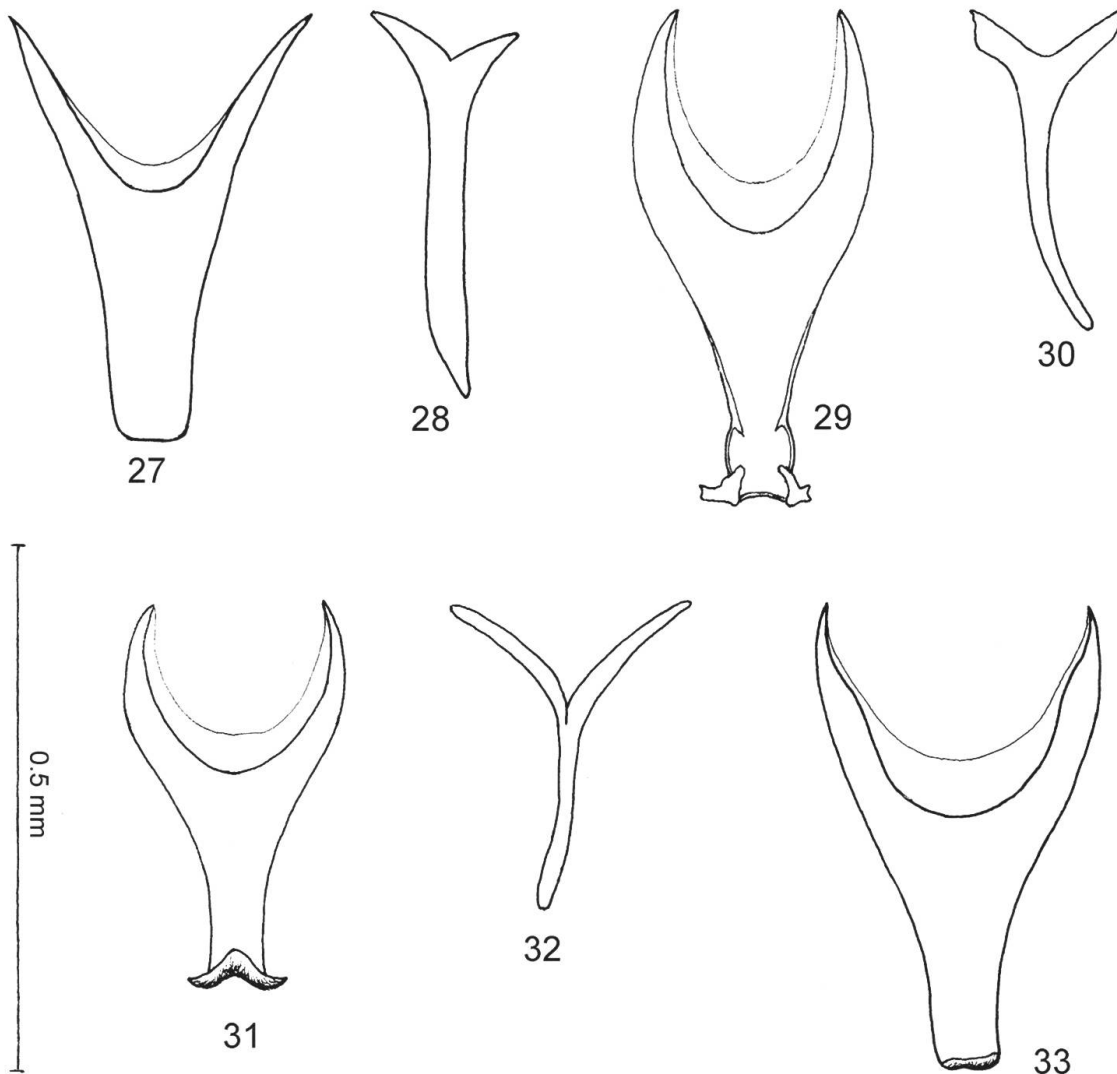
Material studied. Holotype, male: S. W. Afr. (Namibia), Abachaus, Otjiwarongo Distr., 10. III. 1954, leg. G. Hobohm (ZSM). Paratypes: same dates, (ZSM: 1 male, 1 female); same locality and collector, 15. IV. 1954 (ZSM: 1 female).

Further material: Damaraland (Namibia), Otjiwarongo Distr., III. 1950, leg. G. Hobohm (PCDE: 1 female); Damaraland (Namibia), Abachaus, XII. 1951, leg. G. Hobohm (PCDE: 1 male); Namibia, Abachaus, III. 1953, leg. G. Hobohm (PCLM: 2 males); Namibia, Ougusa 314, Tsumeb, SE1817 Da, H. 6939, 17.–18. II. 1972, leg. ?? (PCLM: 1 male); Namibia, Tsumeb, 19°14'S, 17°42'E, XI. 1978, leg. S. J. v. Tonder (SANC: 1 male, 1 female); Namibia, Otjiwarongo, 20°27'S, 16°40'E, XI. 1978, leg. S. J. v. Tonder (SANC: 1 male); Namibia, Hedwigstal 77, Otjiwarongo, SE2016 Cc, H. 38799, 16. III. 1979, leg. S. Louw & M. L. Penrith (NNIC: 1 female); Namibia, Dehli 96, Outjo, SE2015 Bc., H. 38740, 16. III. 1979, leg. S. Louw & M. L. Penrith (NNIC: 1 female); Namibia, Otavi, 19°38'S, 17°19'E, XI. 1978, leg. S. J. v. Tonder (SANC: 1 male, 1 female); Namibia, Windhoek, Bochberg, 158, 21°55'S, 17°43'E, 24.–26. II. 1982, leg. M. L. Penrith & J. Irish (PCDE: 1 male); Namibia, 20km S. Okaukuejo, 19°22'S, 15°56'E, 11. IV. 1993, leg. B. & M. Uhlig (MNHUB: 1 female).

Redescription. Black without metallic sheen, elytra yellowish-brown with basal and lateral margins and suture darkened brownish, often darkening progressively from base



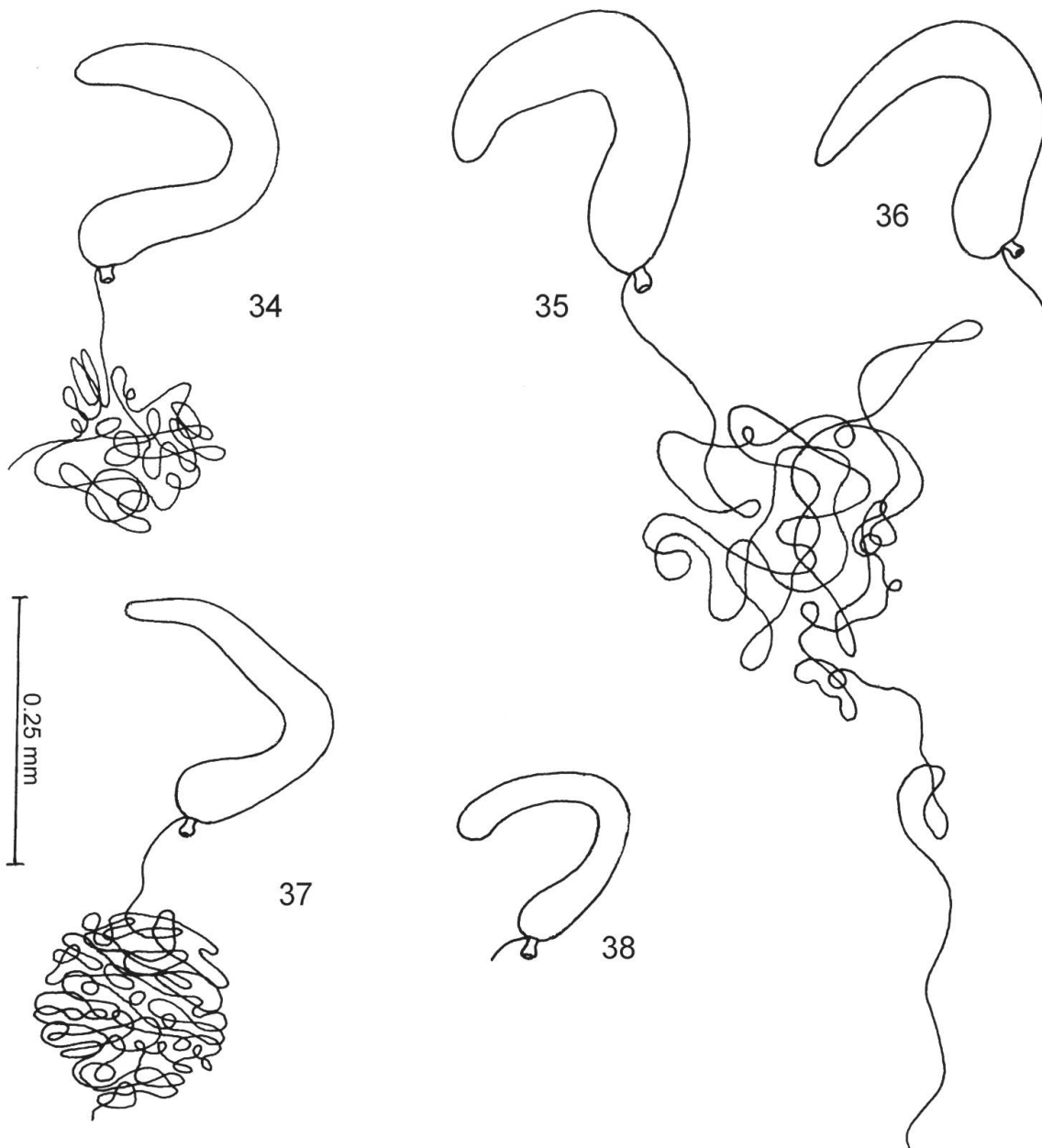
Figs 23–26. Aedeagus (d = dorsal, l = lateral, v = ventral view): 23, *Diapericera gemmula* Lacordaire; 24, *D. freudei* Monros; 25, *D. cornellsbergi* sp.nov.; 26, *D. karoensis* sp.nov.



Figs 27–33. Male; tegmen and tergal apodeme: 27, 28, *Diapericera gemmula* Lacordaire; 29, 30, *D. freudei* Monros; 31, 32, *D. cornellsbergi* sp.nov.; 33, *D. karoensis* sp.nov.

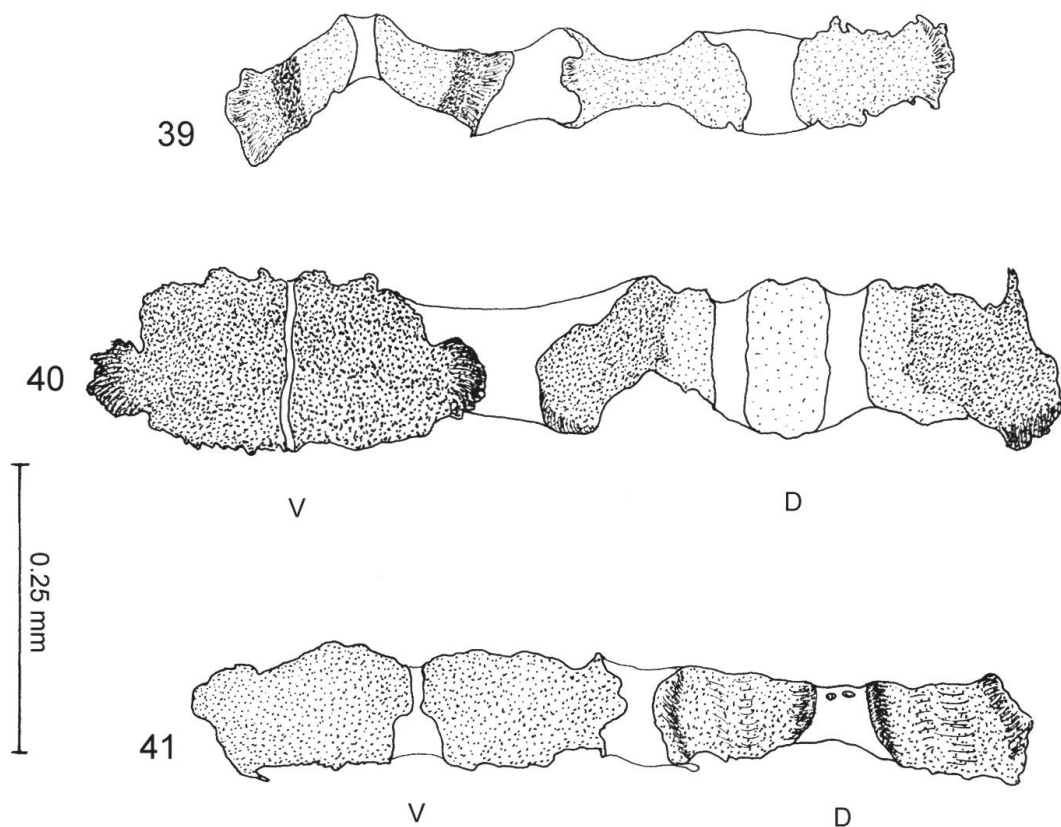
to apex to nearly black, antennae yellow-reddish, anterior segments often dark, legs blackish-brown, anterior femora often reddish.

Head with eyes narrower than pronotum (1:1.17). Mandibles robust, but longer than in previous species, apical margin of clypeus rounded emarginate, labrum nearly rectangular with rounded corners and broadly emarginate apical margin (Fig. 2). Temples rounded, narrowing towards the rear (Fig. 6). Antenna slightly enlarged inwards in segments 6–10, segments 4–6 relatively short, segment 4 nearly quadrangular, segment 5 slightly, segment 6 clearly broader than long (Figs 10, 12). Pronotum 2 times as broad as long with regularly rounded and broader flattened lateral margins in male (Fig. 16a), nearly 1.9 times as broad as long with lateral margins slightly narrowed but



Figs 34–38. Spermatheca: 34, *Diapericera gemmula* Lacordaire; 35, 36, *D. freudei* Monros; 37, 38, *D. cornellsbergi* sp.nov.

only slightly depressed towards the front in female (Fig. 16b). Scutellum narrowed to broadly rounded apex in male and female (Fig. 20). Aedeagus shorter than in previous species, broadly widened and slightly rounded and angular in apical third with a short obtuse projection at apex (Fig. 24). Tegmen with clearly rounded sides (formed like a bootjack, see Fig. 29), tergal apodeme with robust apical twigs and slightly bent towards the rear (Figs 29, 30). Spermatheca: Vasculum irregularly rounded, differently shaped in different females, ductus thin and loosely coiled (Figs 35, 36). Kotpresse see Fig. 40.



Figs 39–41. Kotpresse: 39, *Diapericera gemmula* Lacordaire; 40, *D. freudei* Monros; 41, *D. cornellsbergi* sp.nov.

Size: male length 3.1–3.96 mm; breadth 1.76–2.0 mm (holotype 3.8 x 1.98; average 3.63 x 1.99); female length 3.08–3.96 mm; breadth 1.89–2.29 mm (average 3.54 x 2.09).

Distribution. Namibia.

***Diapericera cornellsbergi* sp.nov.**

Material studied. Holotype (male): RSA, N-Cape, Cornellsberg, 60km E Alexander Bay, Richtersveld, 28°35'S, 17°12'E, 250m, 6. IX. 1992, *Sarcocaulon* sp. flowers (Geraniaceae), leg. S. Naser (SANC). Paratypes: same dates, (SANC: 2 females; PCDE: 1 male; PCLM: 1 female); eggs: same dates, also on *Sarcocaulon* flowers (SANC).

Description. Black without metallic sheen; elytra creamy white with basal margin and an indistinct small spot on humerus fulvous; mandibles black with reddish tips; labrum dark fulvous; antennae reddish with darkened anterior half; legs fulvous, posterior half of tibiae and femora except knee dark.

Head with eyes very slightly broader than pronotum, temples directly behind eyes protruding somewhat and then narrowing to nearly right-angled (Fig. 7), loosely hairy, hairs directed towards two closely adjacent, twisted 'crowns' in posterior part; mandibles

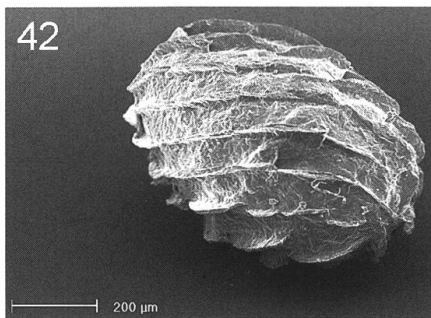


Fig. 42. *Diapericera cornellsbergi* sp.nov.: Egg case.

much more slender and longer than in previous species, narrowed in apical third, distinctly hairy on outer side; apical margin of clypeus rounded and very feebly emarginate above labrum; labrum rounded towards the front with a small “cove” in the middle (Fig. 3). Antenna as in previous species but segments 4 and 5 lengthened (4th segment 1.5 times as long as broad, 5th segment longer, but also nearly 1.5 times as long as broad), 6th segment relatively small (Fig. 13), segments 7–10 slightly enlarged inwards. Pronotum nearly 1.9 times as broad as long, lateral margins regularly rounded, narrowed and

depressed towards the front, margins small, flattened (Fig. 17a,b), punctured, shagreened and loosely hairy as in head, hairs directed from centre to margins. Scutellum rectangular with truncate apex (Fig. 21). Elytra 1.18 times as long as broad, broadest at shoulders, slightly broader than pronotum and head, puncturation as dense as in pronotum but larger, therefore intervals smaller, also shagreened as in pronotum, somewhat less densely hairy than in pronotum and head, hairs shorter and slightly curved and erect, directed from base to apex. Legs very similar to those of *D. freudei*, but tibia of foreleg nearly straight, of middle leg less curved, finely and loosely hairy. Aedeagus relatively short, similar to that of *D. freudei* but more robust than in the other species, with small, rounded projection at apex (Fig. 25). Tegmen formed as in *D. freudei*, but shorter and broader and with more rounded sides, tergal apodeme Y-like with long apical twigs (Figs 31, 32).

Size of holotype: length 3.65 mm; breadth 1.98 mm (shoulder), 1.94 mm (eyes), 1.89 mm (pronotum); paratype: length 3.12 mm; breadth 1.5 mm.

Female: Differs from male as follows: Head with eyes smaller than pronotum (1:1.4), temples behind eyes not protruding, head retracted into the pronotum to the eyes; mandibles, clypeus and labrum much smaller than in male. Pronotum only 1.25 times as long as broad, strongly depressed towards the front (Fig. 17 below). Scutellum as in male (Fig. 21). Elytra 1.3 times as long as broad, broadest at shoulders. All legs nearly straight.

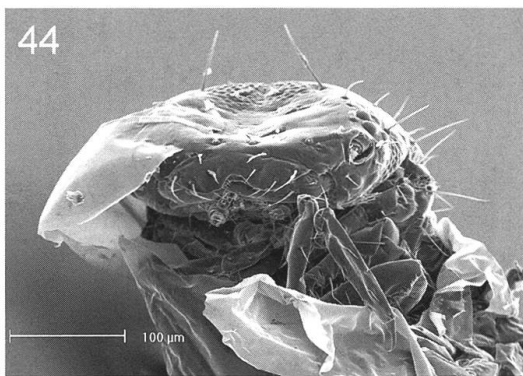
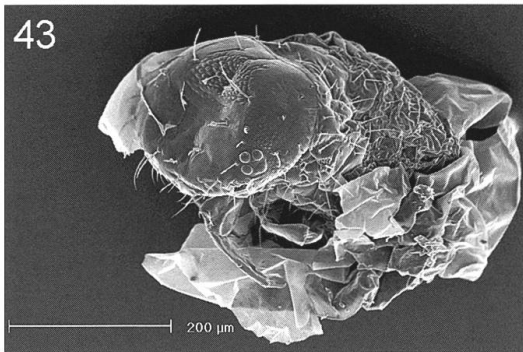
Spermatheca: Vasculum differently shaped in different females, ductus thin and densely coiled (Figs 37, 38). Kotpresse, Fig. 41.

Size of female: length 2.99–3.3 mm; breadth 1.67–1.94 mm.

Biology. Eggs have been found together with adults on *Sarcocaulon* sp. flowers. Egg case is formed as in all Clytrinae (as well as in the all other Camptosomata) by small plates of dung. In this case the dung plates are fixed flatly on the egg surface, but its margins are bent upwards at right-angles, so that the case shows longitudinal spiral ribs (Fig. 42).

The first instar larvae contained within are so shrunken that we could obtain EM-photos of only the head and leg (Figs 43, 44).

The head of the larva is without ridges on vertex, as in all Clytrinae larvae; it bears 6 transverse rows of bristles – crossways: the first row with 2 bristles directly above



Figs 43–44. *Diapericera cornellsbergi* sp. nov.:
Head of the 1st instar larva.

labrum, the next rows correspondingly with 3, 4, 6, 4 bristles (with 2 very long ones at the margins of a wrinkled field) and a further row with 4 bristles. Labrum is deeply emarginate in the middle of the anterior margin and bears 6 setae. Eyes consist of 4 ocelli (Fig. 43). Tibiotarsus (Fig. 43) has 1 bristle on upperside and 2 or 3 bristles on underside (Fig. 45), while in other Clytrinae larvae there are usually at least 3 bristles on upperside and 4 bristles (2 pairs) on underside.

Distribution. South Africa.

Differential diagnosis. Differs from *D. gemmula* and *D. freudei* in long mandibles and antennal segments 4–5 distinctly elongate.

***Diapericera karoensis* sp. nov.**

Material studied. Holotype (male): RSA, Cape Province, Karoo National Park, 32°19'S, 22°30'E, 12.–14. XI. 1983, leg. J. Deckert (MNHUB).

Description. Black without metallic sheen; elytra creamy white with margins very small and fulvous; mandibles black with reddish tip; labrum fulvous; antennae reddish with darkened anterior half; legs very dark brown. Head with eyes as broad as pronotum, temples strongly rounded and narrowed towards the rear without projection behind eyes (Fig. 8), loosely and indistinctly punctured, punctures very small, surface dull and more or less slightly undulating, loosely haired, with hairs directed towards two closely adjacent “crowns” in posterior part; mandibles very similar to previous species, slender and narrowed in apical third, haired on outside; clypeus with nearly straight apical margin, labrum narrowed towards the front, rounded at apex and distinctly emarginate (Fig. 4). Antenna as in previous species but segments 4–6 lengthened (4th segment 1.8; 5th segment 1.6; 6th segment 1.5 as long as broad) (Fig. 14), segments 6–10 slightly enlarged inwards. Pronotum about 1.85 times as broad as long, but strongly retracted in anterior half, margins in rear half broadly flattened (Fig. 18), coarsely punctured, punctures irregularly touching one another and partly confluent, intervals very small but distinctly shagreened, loosely haired as on head, hairs directed from centre to margins. Scutellum slightly narrowed towards the rear and broadly rounded at apex (Fig. 22). Elytra 1.12 times as long as broad, broadest at shoulders, slightly broader than pronotum and head, finely punctured near base more densely than at apex, more glossy than head and pronotum, densely haired, hairs shorter and half erect, directed from base to apex, slightly to lateral margins. Legs more slender than in previous species, tibiae distinctly curved, especially in fore- and middle legs, indistinctly covered with short, fine hairs.

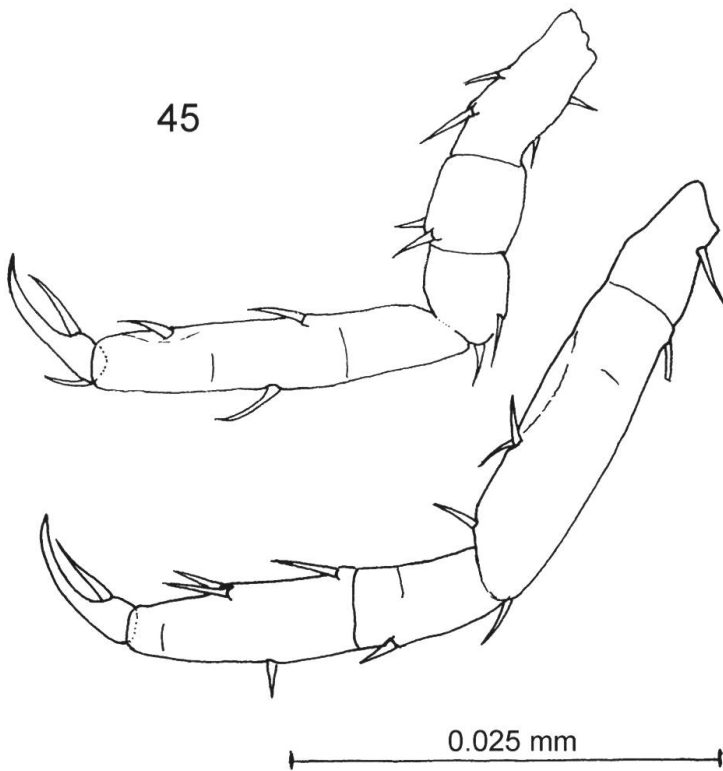


Fig. 45. *Diapericera cornellsbergi* sp.nov.: Foreleg and middle leg of the 1st instar larva.

Aedeagus relatively large and broad, in apical half rounded, enlarged and triangularly narrowed toward a slightly prolonged apex (Fig. 26). Tegmen formed as in *D. freudei*, but apical twigs more open and sides less rounded (Figs 33), tergal apodeme unfortunately lost.

Size of holotype: length 4.05 mm; breadth 2.16 mm (shoulder), 1.98 mm (eyes), 1.96 mm (pronotum).

Female: unknown.

Distribution. South Africa.

Differential diagnosis. Near *D. cornellsbergi* sp.nov., but differs clearly in different form of pronotum and temples.

Key to species of the genus *Diapericera*

1. Antennal segments 4–6 short and transverse or at least as long as wide. Mandibles short. 2.
- Antennal segments 4–5 distinctly elongate. Mandibles long. Body without metallic sheen. Elytra creamy white. 3.
2. Black with metallic sheen, especially on head and pronotum; elytra dark brown to black. Scutellum of female truncate.
South Africa, Algoa Bay. *Diapericera gemmula* Lacordaire
- Black without metallic sheen; elytra yellowish-brown to dark brown or even nearly black. Scutellum of female rounded.
Namibia, Damaraland. *Diapericera freudei* Monros
3. Pronotum evenly rounded on lateral sides, margins weakly flattened. Male temple roundly projected behind eye. Antennal segment 6 feebly transverse. Scutellum quadrate with truncate apex.
South Africa, N-Cape, Cornellsberg. *Diapericera cornellsbergi* sp.nov.
- Pronotum retracted in anterior half of lateral sides, broadly flattened in posterior half. Temple without projection behind eye.
South Africa, Cape Province, Karoo Nat. Park. *Diapericera karooensis* sp.nov.

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We are very grateful to Dr. M. Baehr (München), Mrs. B. Grobbelaar (Pretoria), Mrs. R. Müller (Pretoria), Dr. E. Marais (Windhoek) and Dr. M. Uhlig (Berlin) for the loan of the material studied.

Zusammenfassung

Material von *Diapericera* Lacordaire, 1848 aus Namibia und Süd-Afrika wurde einschließlich der Typen der beiden bisher bekannten Arten untersucht. Die Gattung *Eoclytra* Monros, 1958 ist ein neues Synonym von *Diapericera* Lacordaire, 1848. Zudem werden zwei für die Wissenschaft neue Arten beschrieben: *Diapericera cornellsbergi* sp.nov. und *Diapericera karoensis* sp.nov. Ein Schlüssel für die nun vier bekannten Arten wird gegeben.

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