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**Studies on African Aradidae V.
Rwandaptera jacobsi, a new genus and species of apterous
Carventinae from Rwanda (Heteroptera, Aradidae)**

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A b s t r a c t

In addition to seven genera of apterous Carventinae occurring in continental Africa, *Rwandaptera jacobsi* gen. nov., spec. nov. is described upon specimens collected in a rainforest in southern Rwanda, East Africa. The relevant structures are figured.

Z u s a m m e n f a s s u n g

Vom kontinentalen Afrika sind bisher sieben Gattungen apterer Carventinae bekanntgeworden. Aus einem Regenwald im südlichen Rwanda, Ostafrika, stammen Tiere, welche nachstehend als *Rwandaptera jacobsi* gen. nov., spec. nov. beschrieben und abgebildet werden.

K e y w o r d s: Heteroptera, Aradidae, Carventinae, new genus, new species, Rwanda, Africa.

I n t r o d u c t i o n

Although several new genera and species were described in the last decennium, the Aradidae of sub - Saharan Africa are still insufficiently known. Only seven genera of apterous Carventinae are known to date from continental Africa (*Adamanotus* JACOBS 1990, *Dundocoris* HOBERLANDT 1949, *Miteronotus* JACOBS 1996b, *Pondocoris* HEISS & JACOBS 1989, *Silvacoris* JACOBS 1996a, *Trichocarventus* HEISS & JACOBS 1989, *Veroncaptera* VÁSÁRHELY 1979) and four from Madagascar and Comores (*Andobocoris* HOBERLANDT 1963, *Comorocoris* HEISS 1985, *Malgasyaptera* HEISS 1998, *Stysaptera* HEISS 1999).

Due to their limited dispersal range and the increasing rate of rainforest destruction in most African countries it must be assumed that a large number of taxa will disappear before they can be discovered. The new genus described below occurred in the already very reduced remaining rainforest patches of southern Rwanda, where stable environmental conditions enabled the evolution of wingless species of Aradidae.

M a t e r i a l a n d m e t h o d s

For the study of the taxonomically important abdominal structures, the specimens usually covered with incrustation were cleaned. Genitalic structures were coated with gold for the scanning electron micrographs.

Measurements are given in millimeters or units (40 = 1mm). Abbreviations used: Deltg - Dorsal external laterotergite (connexivum); Mst - Mediosternite; Mtg - Mediotergite; Vltg - Ventral laterotergite.

Type repositories: BMNH - Museum of Natural History, London, United Kingdom; CDJP - collection D. H. Jacobs, Pretoria, South Africa; CEHI - collection E. Heiss, Innsbruck, Austria; CGMB - collection G. Monteith, Brisbane, Australia; NHMW - Naturhistorisches Museum Wien, Austria.

***Rwandaptera* gen. nov.**

(Figs. 1 - 4, photo 1 - 5)

Type species: *Rwandaptera jacobsi* spec. nov.

Diagnosis: The new genus is distinguished from all other African apterous genera by the unique shape of the median longitudinal ridge present on meso- and metanotum, posteriorly fused to a distinct longitudinal carina on fused Mtg I + II.

Description: Apterous. Body ovate with shiny surface beneath incrustation, which conceals structural details.

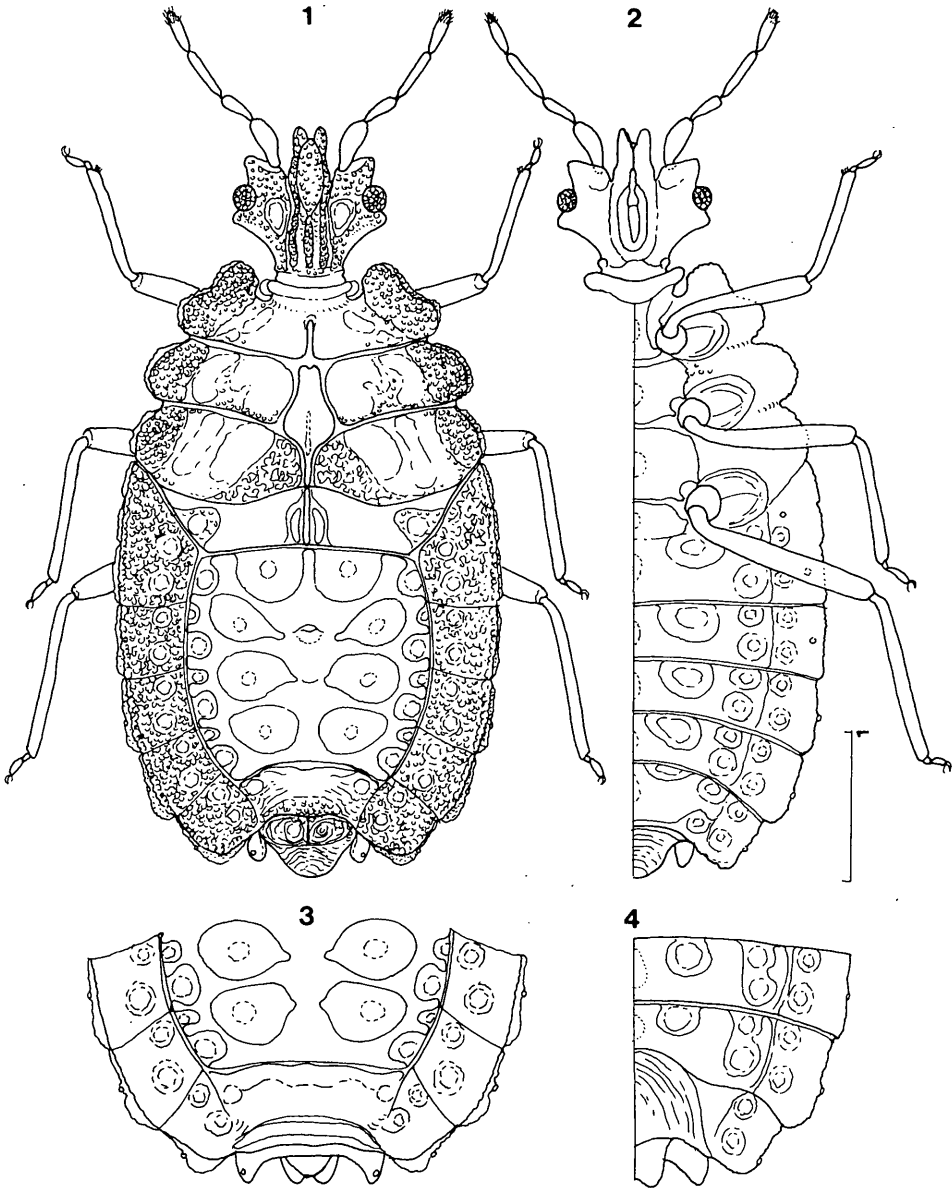
Head: Slightly wider across eyes than long (to neck furrow). Genae not contiguous anteriorly, exceeding apex of clypeus. Antenniferous tubercles well developed, diverging towards blunt apex. Antennae slender, segment I thickest, II thinner and shortest, III thin and as long as I, IV fusiform with pilose apex. Vertex with three longitudinal granulate carinae flanked by 2 (1 + 1) smooth intraocular callosities. Eyes globose. Postocular tubercles distinct, blunt. Neck region strongly converging posteriorly. Rostrum shorter than head, 3 - segmented, arising from a slit-like atrium, rostral groove with carinate borders, which are closed posteriorly.

Thorax: Pronotum trapezoidal, more than 3 x as wide as long. Collar ringlike with 2 (1 + 1) large lateral tubercles at a lower level, laterally deeply incised. Lateral lobes of pronotum thickened and raised with granular surface, anteriorly rounded and producing over collar. Lateral margins sinuate and reflexed, propleural margins visible from above. Disk smooth with poorly delimited ovate elevations laterally and a deep longitudinal groove at middle on posterior half.

Mesonotum separated from pronotum by a deep transverse groove. Structure of lateral lobes as of pronotum. Median longitudinal spindle - shaped ridge elevated on mesonotum, incised anteriorly, narrowed to a thin carina along metanotum. Its surface smooth with a shallow longitudinal sulcus on posterior half of enlarged portion. This conspicuous ridge is bordered and separated from adjacent sclerites by a deep sulcus. Sublateral areas lower, surface smooth with indistinct ovate elevations.

Metanotum separated from mesonotum by a deep transverse groove, which is interrupted medially by the longitudinal carina of mesonotal ridge. Sublateral areas granulate with 2 (1 + 1) rounded and 2 (1 + 1) elongate smooth elevations. Lateral lobes granular and elevated as in pro- and mesonotum.

Mtg I + II fused, forming a smooth transversal ridge which is highest along anterior suture, separating it from metanotum, strongly sloping posteriorly. In continuation of the meso-



Figs. 1 - 4. *Rwandaptera jacobsi* gen. nov., spec. nov. 1 - holotype male, dorsal view; 2 - ventral view; 3 - female paratype, terminal segments of abdomen, dorsal view; 4 - ventral view. Scale bar 1 mm.

metanotal median ridge, a thin but distinct carina is present on the whole length of fused Mtg I + II. This is flanked posterolaterally by 2 (1 + 1) ovate callosities which are delimited by deep sulci. Lateral portion with a triangular depressed area, catching the sublateral glabrous impression.

A b d o m e n : Tergal plate consisting of fused Mtg III - VI, flat and only moderately elevated along midline. Glabrous impressions bordered by elevated smooth carinae which reach the lateral margin of tergal plate. Deltg II + III fused, trapezoidal, extending to posterior margin of metanotum. Deltg IV - VII subrectangular, lateral margins raised, the reflexed Vltg' s are visible from above, bearing spiracles V - VII. Mtg VII strongly raised in male, less in female.

V e n t e r : Pro- meso- and metasternum fused to each other and to fused Mst II + III, but delimited medially by deep transverse grooves. Median portion with smooth surface and shallow round depressions medially and 4 (2 + 2) acute tubercles opposing the coxae on pro- meso- and metasternites. Surface of coxae carinate, that of pleural region irregularly granulate. Mst IV - VII separated by deep transverse grooves, surface smooth with deep glabrous impressions. Vltg III - VII delimited by a longitudinal sulcus, surface granulate. Ventral hem not present. Spiracles II ventral, III + IV ventral but closer to lateral margin, V - VII lateral and visible from above, VIII subterminal on paratergites.

L e g s : Long and slender, femora not inflated, trochanters fused. Tarsi 2-segmented, claws with long thin and curved pseudopulvilli and 2 bristle - like parempodia. Preapical comb present on protibiae.

G e n i t a l s t r u c t u r e s : Male pygophore globose, dorsocaudal portion flattened medially, surface rugose (Photo 4 - 5). Parameres slender, hook - shaped (Photo 1 - 3).

E t y m o l o g y : Named after Rwanda, the country of origin, and „apterus“, greek „without wings“, for its apterous condition; feminine in gender.

D i s c u s s i o n

Rwandaptera resembles *Silvacoris*, the only genus also showing a longitudinal median carina on Mtg I + II, but fusion and shape of median meso- metanotal ridge are different in this and all other apterous genera described from Africa so far.

Rwandaptera jacobsi spec. nov. (Fig. 1 - 4, photo 1 - 5))

M a t e r i a l e x a m i n e d : Holotype male, labelled „Rwanda, Ostafrika \ Prov. Cyangugu \ Nyakabuye, Regenwald \ 20 - 25. I. 84, Heiss“ in CEHI; paratypes, 18 ♂♂ 16 ♀♀ collected with holotype, 12 ♂♂ 11 ♀♀ from the same locality April 1984, leg. H. Mühle, in the collections of BMNH, CDJP, CEHI, CGMB, NHMW.

D i s t r i b u t i o n : The type series is from the already considerably reduced rainforest area in southern Rwanda, East Africa.

D e s c r i p t i o n : Apterous male. Colour of body beneath incrustation cinnamomeus, shiny, legs and antennae yellowish brown.

H e a d : Slightly wider than long (40 / 38), genae produced beyond clypeus, straight. Antenniferous tubercles prominent, diverging towards blunt apex. Postocular tubercles not

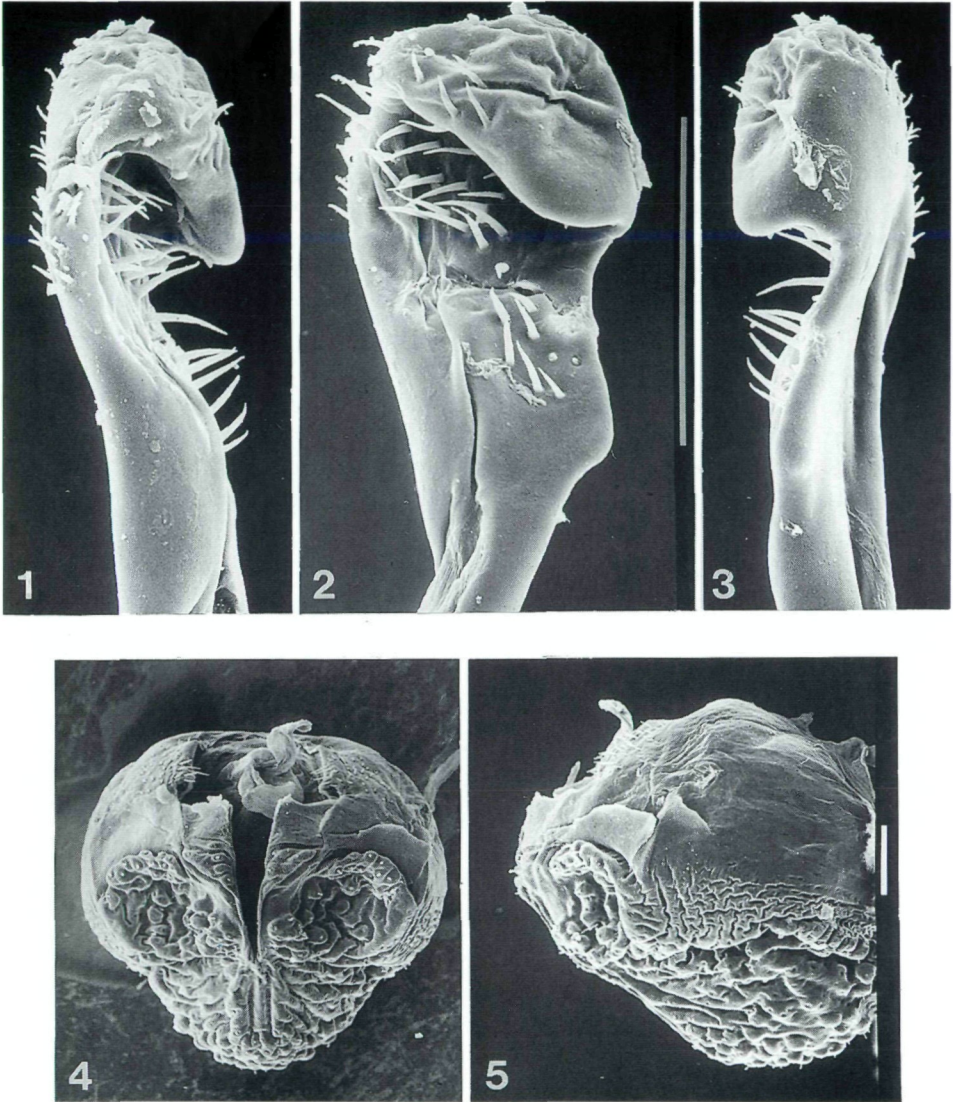


Photo 1 - 5. Scanning electron micrographs of *Rwandaptera jacobsi* gen. nov., spec. nov. 1 - 3 paramere in different positions; 4 - pygophore dorsal, parameres extracted; 5 - pygophore, lateral view. Scale bar 0.1 mm.

reaching lateral margin of eyes. Antennae 1.25 x as long as width of head, segment I extending beyond apex of clypeus. Relative length of antennal segments I / II / III / IV = 14 / 10 / 14 / 12. Rostrum shorter than head, rostral groove deep and closed posteriorly.

T h o r a x : Pronotum more than 3 x as wide as long (66 / 20), lateral lobes elevated and granulate, roundedly projecting anteriorly over ring - like collar, lateral margins sinuate. Disk with smooth surface and moderate elevations, with a longitudinal median groove, which is open posteriorly. Mesonotum strongly transverse with lateral lobes as on pronotum. Median elevated ridge spindle - shaped, extending to anterior margin of Mtg I. Sublateral areas with smooth surface and irregular ovate callosities. Metanotum rugose sublaterally, with smooth callosities and granulate lateral lobes as on pro- and mesonotum. The median longitudinal keel is fused to and part of the median ridge of mesonotum. Mtg I and II fused, elevated anteriorly and sloping posteriorly towards lower transverse sulcus, delimiting the tergal plate. A median longitudinal keel - like carina, flanked by 2 (1 + 1) oblong callosities, separate this plate into two parts.

A b d o m e n : Ovate, lateral margins convex with reflexed Vltg' s visible from above. Tergal disk with elevated carinae delimiting the pattern of glabrous impressions. Deltg II + III fused, extending laterally to metanotum. Median part of venter smooth, Vltg II - VII granulate. Spiracles II ventral, III + IV ventral, however placed closer to lateral margin, V - VII lateral and visible from above, VIII subterminal and visible from above.

L e g s : As in the generic description.

M a l e g e n i t a l i c s t r u c t u r e s : Pygophore globular, constricted posteriorly, with a median cleft, visible part transversely rugose (Photos 4 - 5). Paratergites VIII clavate, shorter than pygophore. Parameres hook - shaped (Photos 1 - 3):

F e m a l e : As in male, except: larger, tergite VII raised posteriorly into a transverse ridge. Paratergites VIII triangular, about as long as tergite IX.

M e a s u r e m e n t s : Holotype ♂. Length 4.95 mm; head width / length 40 / 38; pronotum width / length 66/20; antennal segments I / II / III / IV = 14 / 10 / 14 / 12; width of mesonotum 44, metanotum 48, abdomen across Tg IV 51. Range of length in male paratypes 4.5 - 5.05 mm.

Female paratype. Length 5.60 mm; head width / length 42 / 40; pronotum width / length 74 / 22; antennal segments I / II / III / IV = 15 / 10 / 15 / 13; ratio length of antennae / width of head 1.26; width of mesonotum 46, metanotum 51, abdomen across Tg IV 59. Range of length in female paratypes 5.5 - 6.0 mm.

E t y m o l o g y : Dedicated to my friend, D. H. Jacobs, Pretoria, in appreciation of his outstanding contributions to the knowledge of South African Aradidae.

A c k n o w l e d g m e n t s

I thank my friends Angela and Hans Mühle for their kind hospitality during my stay in their house in Nyakabuye and also for the additional specimens of this interesting species, collected on my behalf. I also thank S. Tatzreiter, Institute of Botany, University of Innsbruck, for the scanning electron micrographs.

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