

TWO NEW ORIBATID MITES FROM SOUTH AFRICA
(ORIBATEI, ACARI).

BY

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SCUTOVERTEX SCULPERENS sp. nov.

A single specimen was found in a sample taken from underneath *Rhus lancea* and *Ficus capensis* at Groenkloof near Rustenburg. The colour is golden-brown. Measurements : Length 458 μ , breadth 260 μ , height 168 μ .

Prodorsum : (figs. 1-4).

The well developed, slightly convergent lamellae are situated marginally. Their upper surfaces are covered with dark chitinous wrinkles. Antero-medially the lamellae widen to form lamellar cusps which are about twice as broad as the lamellae. Seta *la*, inserted in a slight depression on the apex of each lamellar cusp, is finely barbed, and curves medially (fig. 3), (only the base of the right-handed *la* is present). There are no traces of either *ro* or *in*. The only indication of a translamella is the processes on the inner sides of both lamellar cusps. Small, evenly spaced, circular spots occur on the interlamellar space. Whereas the sensillae are directed postero-laterally, the wedge-shaped bothrydia are directed antero-laterally. Each club-shaped sensilla is distally covered by rows of bristles, which extend further backwards on the dorsal than on the ventral side (fig. 4). The notogaster overlaps the posterior parts of the bothrydia.

Notogaster : (figs. 1, 2 and 5).

The posterior border of the almost egg-shaped notogaster presents a wavy outline. Anteriorly the dorsosejugal suture is incomplete, being interrupted medially. Two concave muscle attachment scars are present behind this suture. A large, lightly coloured lenticular area is situated antero-medially on the notogaster. Its dorsal surface is very finely granulated, as also the oval depression in

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the middle of the notogaster. The latter is enclosed by a ridge consisting of densely spaced granules, arranged into irregular lines which are interrupted posteriorly. The adjoining areas of the notogaster are microsculptured by small, irregular, granulous areas. As setae ta , p_2 and p_3 are lacking, seven pairs of notogastral setae are present. Whereas r_1 is inserted dorsally on a small marginal process,

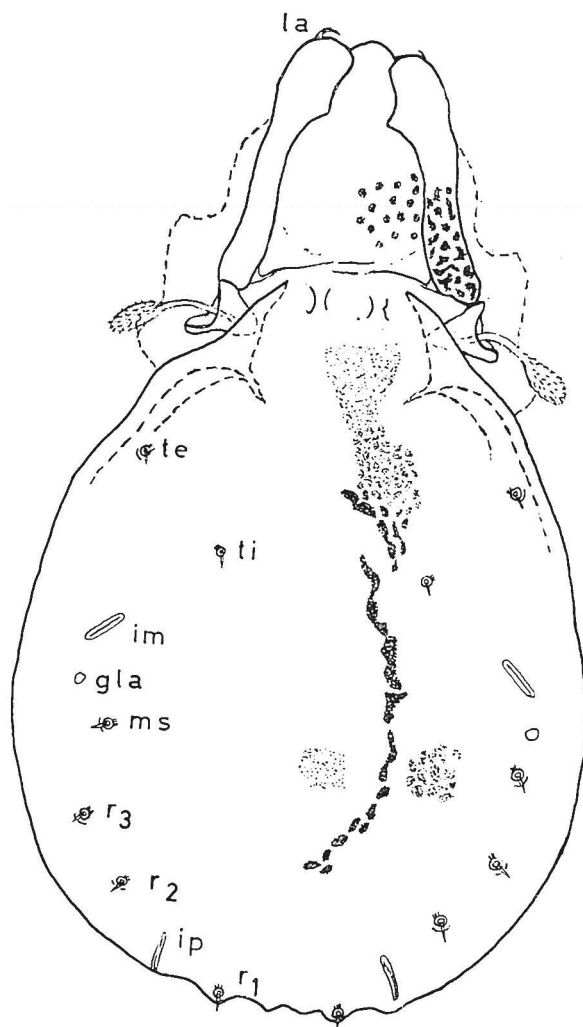


FIG. 1 : *Scutovertex sculperens* sp. nov. Dorsal view (X 312.5).

p_1 is inserted ventrally and is invisible from the dorsal side. All the dorsal setae are short and smooth with pointed tips. Each seta is inserted in a small vesicular cavity (fig. 5). Only two pairs of notogastral lyrifissures are present, of which im is situated in the middle of the notogaster. Both im and ip are broad, about 20 μ long and slant obliquely forwards.

Ventral plate : (fig. 2).

Posteriorly the slightly wrinkled ventral plate forms a blunt process fitting into a corresponding notch in the postero-ventral rim of the notogaster. In fig. 2, the process and notch do not fit into each other, since the ventral plate is slightly

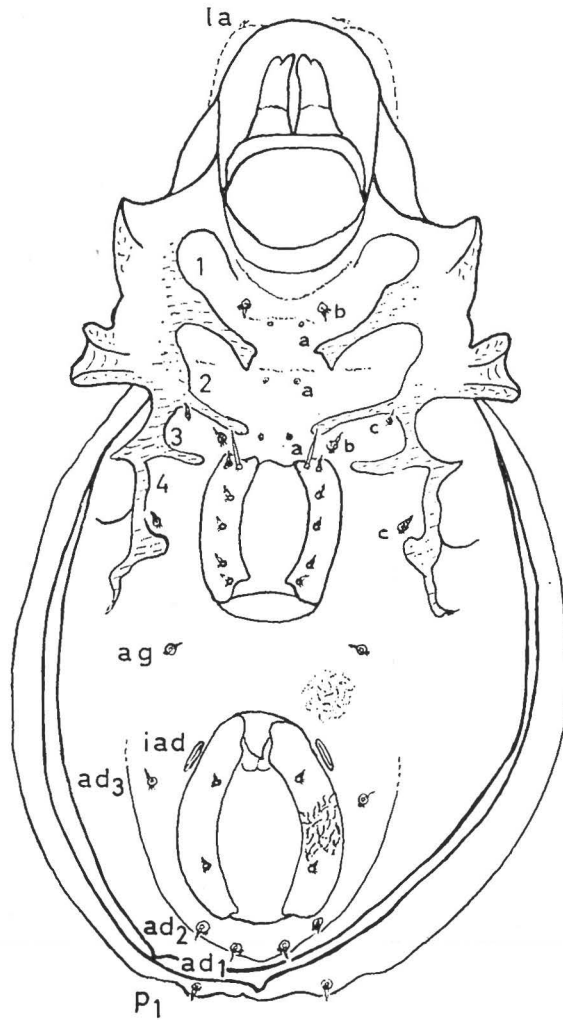


FIG. 2 : *Scutovertex sculperens* sp. nov. Ventral view (X 312.5).

dislocated. A large V-shaped ridge encloses the posterior and lateral sides of the anal plates. Four pairs of short and smooth setae, ad_1 - ad_3 and ag , are present on the ventral plate. Whereas ad_1 and ad_2 are inserted behind the anal plates near to each other, ad_3 is inserted on approximately the same level as the anterior anal seta. Lyrifissure iad , directed obliquely towards the front, is situated next to

the anterior third of the anal plates. Two pairs of minute anal setae occur on the wrinkled ventral surfaces of the anal plates. Each genital plate bears six genital setae. Of these the two anterior ones are inserted almost on the same level, while the four posterior setae are spaced evenly along the inner edge of each genital plate. The anterior genital seta is glabrous and about three times as long as the other genital setae.

Podosoma : (fig. 2).

Darkly coloured ridges partly separate the four epimeres from one another. The sternal plate is absent. The setal formula of the epimeres is 2-1-3-1. Only the alveoli of setal pairs *a* are present. Seta *3c* is shorter than any of the other epimeral setae. A tooth-like process, the discidium, is situated between the bases of the third and fourth legs. Acetabulum I is covered by a pedotectum which tapers postero-dorsally into a thin, pointed ridge. A pedotectum with the shape of an inverted u is present between the second and third acetabula. Both pedotecta have rugose surfaces.

Gnathosoma : (figs. 6-7).

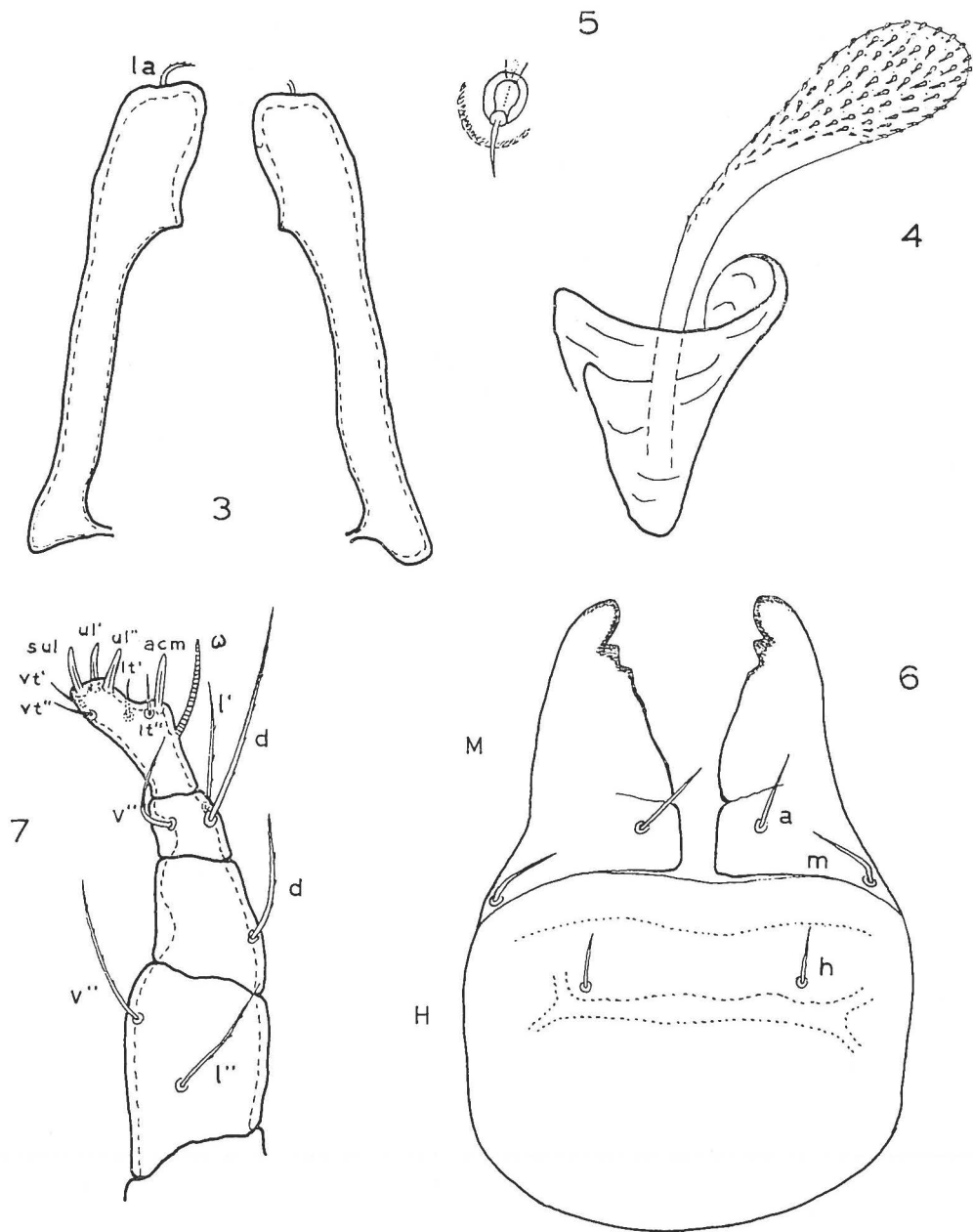
The hypostome is broader than long. Two thin hypostomal setae *h* are inserted in front of a bilaterally forked chitinized ridge.

Each maxilla has three chitinized teeth, of which the anterior one is large and blunt. Whereas *m* is situated postero-laterally and bends medially, *a* is straight and inserted anteriorly near the inner edge of the maxilla. Both setae are glabrous.

The setal formula of the pedipalp is 0-2-1-3-9 (fig. 7). With the exception of the short setal pairs *lt* and *vt*, four eupathidial setae *acm*, *ul'*, *ul''* and *sul*, and a free solenidion occur on the tarsus. Seta *acm* is situated on a slight projection in the middle of the tarsus. All the setae of the other podomeres are finely barbed, and inserted in their normal positions. Seta *d* of the tibia is long and extends beyond the tip of the tarsus. Seta *v''* of the same podomere bends sharply near its base.

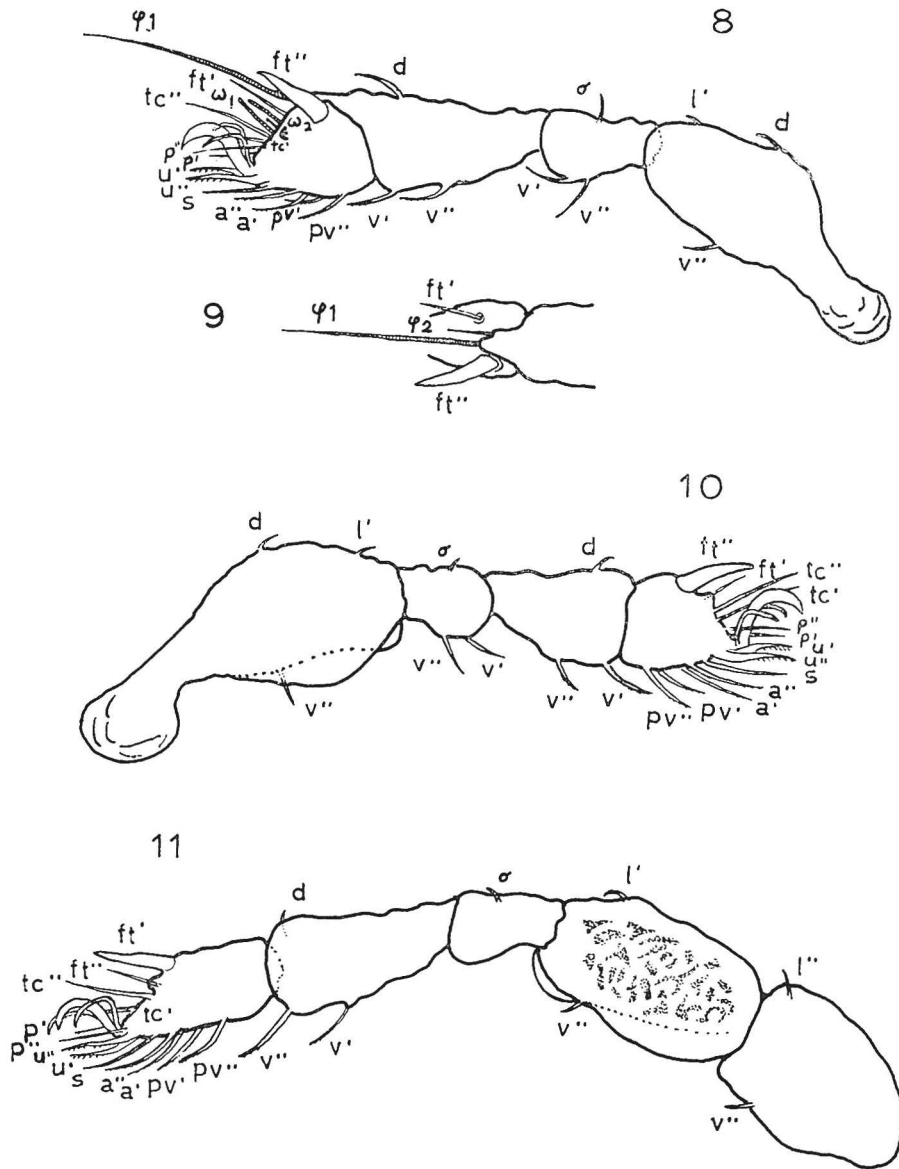
Legs : (figs. 8-11).

All the legs are tridactyle, with the two lateral claws almost three times more slender than the medial one. From front to rear the lengths of the tarsi increase from 34 to 47 μ . Each tarsus tapers sharply towards the front, and possesses a slight protuberance in front of the strong dorsal spine. (Not visible in fig. 8). The tibiae of the first to the fourth legs have lengths of 56, 49, 42 and 64 μ respectively. All the genua are more or less of similar shape and size. On the antiaxial side ventro-lateral laminae are present on all the femora. (Not visible in fig. 8). As usual only legs III and IV possess trochanters. Irregularly arranged dark areas, consisting of numerous small granules, cover the surfaces of all the podomeres of the legs.



FIGS. 3-7 : *Scutovertex sculperens* sp. nov.

3. — Dorsal view of the lamellae (X 500). 4. — Sensilla and bothrydium (X 1250). 5. — Noto-gastral seta viewed diagonally from the top to show implantation and ridge (X 1250). — 6. — Ventral view of the infracapitulum (X 1250). 7. — Antiaxial view of the left pedipalp (X 1250).



FIGS. 8-11 : *Scutovertex sculperens* sp. nov.

8. — Antiaxial view of the first left leg (X 500). 9. — Dorsal view of the tibia-tarsus connection of the first left leg (X 500). 10. — Antiaxial view of the second right leg (X 500). 11. — Antiaxial view of the third right leg (X 500).

The solenidion formulae are :

I : 0-1-2-2 ; II : 0-1-0-0 ; III : 0-0-1-0-0 ; IV : 0-0-1-0-0.

With the exception of the genua, which each bears a slightly curved σ on the anterior half, solenidia occur on the tarsus and tibia of leg I only. Solenidia ω_1 and ω_2 each has a length of approximately 14 μ . Both ϕ_1 and ϕ_2 are inserted on the antero-dorsal process of tibia I (fig. 9). Solenidion ϕ_1 is 69 μ long, tactile and acuminate-while ϕ_2 , situated lower down on the paraxial side, is short (22 μ) and straight.

As the ontogenetic development of the legs could not be studied, the possibility exists that some of the leg setae may be titled wrongly.

Leg I : (fig. 8-9).

Setal formula : 3-2-3-14-3. Setal pairs a and pv are finely barbed, while u is feathered. As is always the case s is eupathidial, because it is implanted anterior to a . Apart from ft'' and ϵ , as well as the setal pair it , which is entirely absent, all the dorsal setae are smooth and acute, with ft' inserted on a slight protuberance. At its distal end the short ϵ is slightly thickened. Seta ft'' has the form of a stout spine. This tarsal spine is one of the characteristic features of the chaetotaxy of the legs. On the tibia setal pair v is finely barbed, while d is smooth. Both v and v'' are present on the genu. The femur, on the other hand, bears only v'' , as well as two other short setae, d and l' .

Leg II : (fig. 10).

Setal formula : 3-2-3-13-3. With the exception of ϵ and the tibial process which are lacking, the chaetotaxy of this leg is identical to that of leg I.

Leg III : (fig. 11).

Setal formula : 2-2-0-3-13-3. The chaetotaxy of the first two podomeres of leg III are similar to that of leg II. Both v' and v'' of the genu are absent, while d is lacking from the femur. The trochanter possesses two setae, l'' and v'' .

Leg IV :

Setal formula : 2-2-0-3-13-3. The chaetotaxy of this leg corresponds to that of leg III in every respect.

Remarks :

Although *Scutovertex sculperens* sp. nov. closely resembles *Scutovertex subspinipes* Balogh, 1959, it can be distinguished from the latter by the shape of the lamellae, the absence of a translamella, the short notogastral setae, the small cavity in the middle of the notogaster and the large *gla*.

SCUTOVERTICOSUS gen. nov..

Members of the newly established genus *Scutoverticosus* have well developed lamellae which gradually taper towards their posterior ends. The translamella is indistinct. A distinct dorsosejugal suture is absent. A lightly coloured, trapezoid-shaped area represents the lenticule. Ten pairs of notogastral setae are present. Lyrifissures *im* and *iad* are directed almost laterally. On the ventral side the left and right sides of the third epimeres are separated by epimeral edges. The fourth epimeres, on the other hand, converge in front of the genital field. In contrast to the genital plates which possess six pairs of genital setae each, each anal plate bears only two setae. The chaetotaxy and general appearance of the legs form important characteristic features of the genus *Scutoverticosus*. All the legs are monodactyle, and covered with a coarse cerotegument. Each tarsus bears a single *s*, while the four femora possess large, prominent porous areas of different shapes, as well as well developed antiaxial laminae.

SCUTOVERTICOSUS ARCANUS gen. nov., sp. nov..

Eleven specimens were collected at Albertina from damp organic material underneath proteas and grass.

Measurements : Holotype : length 505 μ , breadth 273 μ , height 235 μ . Others : 415-515 μ ; 223-273 μ ; 168-235 μ .

Colour reddish brown to dark brown.

Prodorsum : (figs. 12-15).

The well developed lamellae taper towards their posterior ends. Their upper surfaces are covered with dark wrinkles. Although the broad lamellar cusps converge apically, they do not meet in the median line. A tooth-like projection on the inner edge of each lamella indicates an incomplete translamella. Setal pair *im* is entirely absent, and only the two alveoli of *la* are present on the dorsal surfaces near the apex of each lamellar cusp. Setae *ro* are inserted far from each other and curve medially. They are both unilaterally setose (fig. 14). Both spatulate sensillae are directed laterally. At their distal ends they are covered with bristles (fig. 15). The bothrydia are completely overlapped by the notogaster.

Notogaster : (figs. 12-13).

The notogaster is longer than broad and presents an undulating outline. The dorsosejugal suture is indistinct, and is probably represented by two faint, converging lines meeting each other in the interlamellar area and enclosing a lightly coloured

red triangular space. A large lenticule is situated posteriorly to the triangular area mentioned above. Ten pairs of small notogastral setae are present of which p_1 - p_3 are inserted ventrally. Four pairs of lyrifissures, ih , im , ip and ips , are also present on the notogaster. Of these im is directed almost laterally.

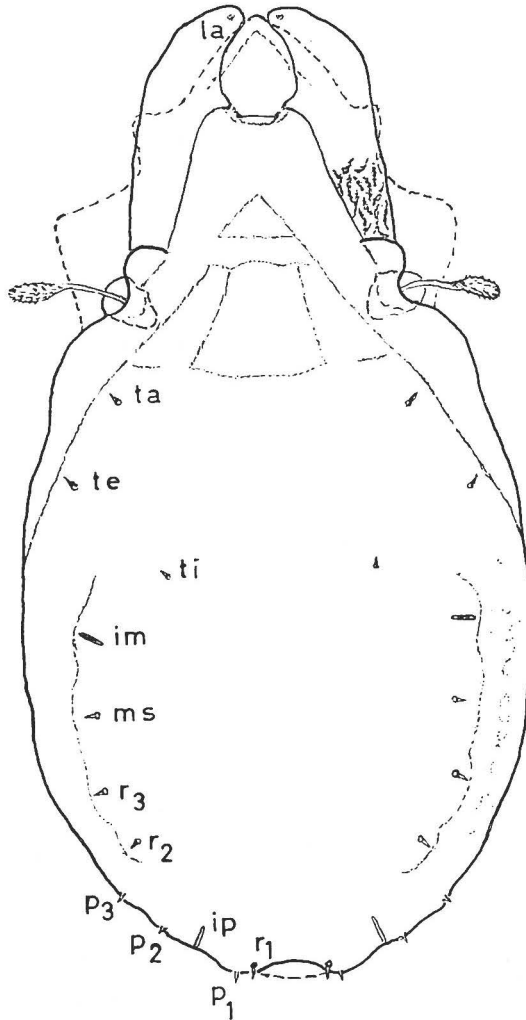


FIG. 12 : *Scutoverticosus arcanus* gen. nov., sp. nov.. Dorsal view (X 312.5).

Ventral plate : (fig. 13).

Setal pairs ad_1 - ad_3 and ag are present on the ventral plate. Whereas ad_1 and ad_2 are inserted near to each other posterior to the anal plates, ad_3 is inserted on approximately the same level as the anterior anal seta. Lyrifissure iad , directed almost laterally, is situated anteriorly to the anal plates. In contrast to the anal

plates which possess two pairs of minute anal setae, each genital plate bears six genital setae. Of these the two anterior ones are inserted next to each other, while the four posterior setae are evenly spaced along the inner edge of each genital plate. The innermost anterior seta is about twice as long as any of the other genital setae.

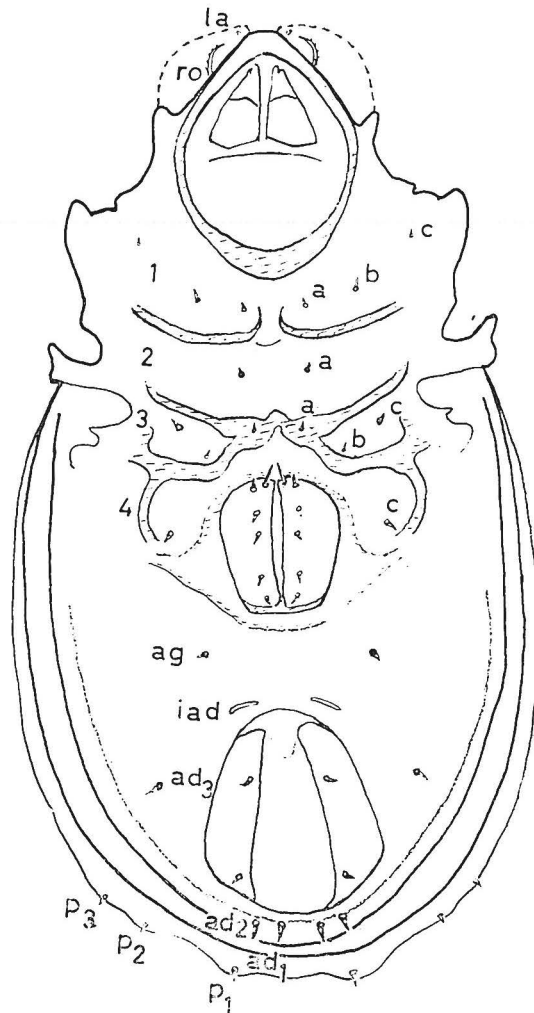
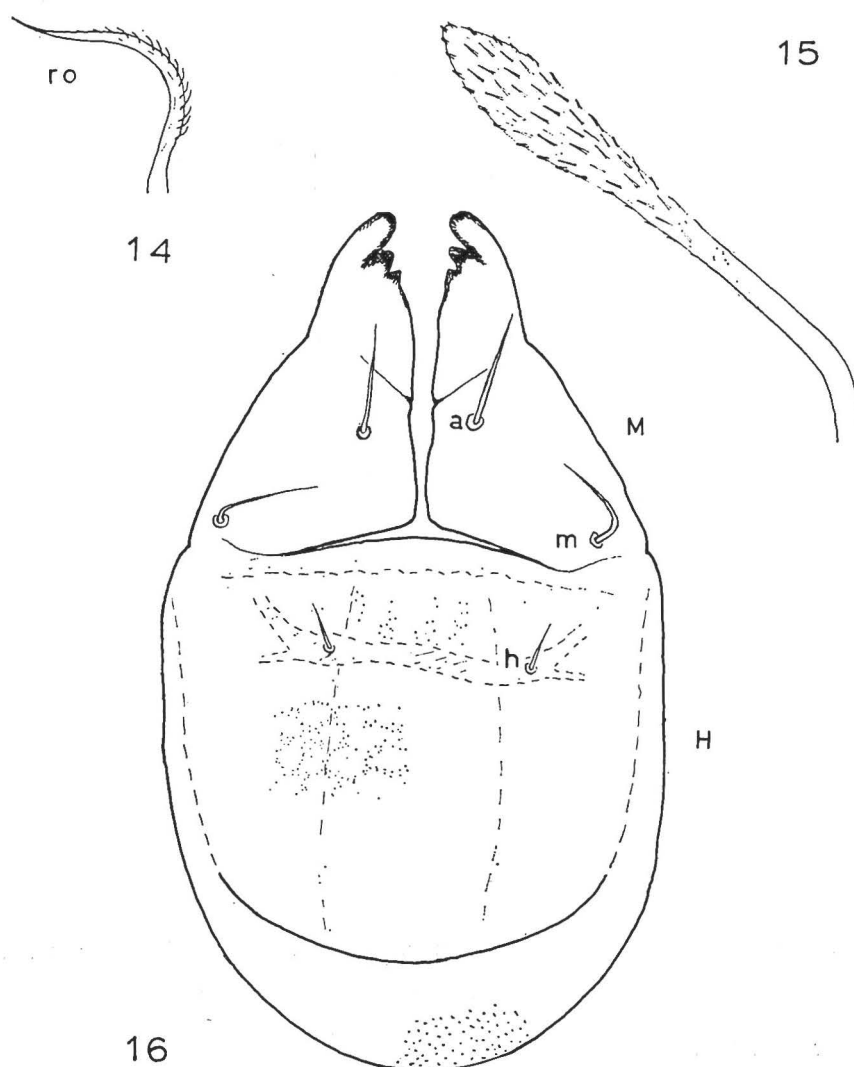


FIG. 13 : *Scutoverticosus arcanus* gen. nov., sp. nov. Ventral view (X 312 .5).

Podosoma : (fig. 13).

As there is no sternal plate, the left and right sides of the first two epimeres are fused. Those of epimeres 3, however, are separated by darkly coloured, chitinised epimeral edges. The left and right sides of the fourth epimeres, although partly

separated by the genital plates, converge above the genital fields. The setal formula of the epimeres is 3-1-3-1. Setal pairs *rc* and *3b* are very small. All the other epimeral setae are minute. Setae *3a* are inserted medially on the only continuous epimeral edge. A small discidium is situated in front of the fourth leg, approximately on the same level as *3c*. Acetabulum I is covered by a rugose pedotectum which tapers postero-dorsally into a thin, pointed ridge. Another pedotectum occurs between the second and third acetabula. It is finger-shaped and curves forward underneath acetabulum II.



FIGS. 14-16 : *Scutoverticosus arcanus* gen. nov. sp. nov..
 14. — Rostral seta (X 1250). 15. — Sensilla (X 1250). 16. — Ventral view of the infracapitulum (X 1250).

Gnathosoma : (fig. 16).

A broad, granulous band limits the finely reticulated hypostome posteriorly. This band becomes thinner on either side of the hypostome. Setal pair *h*, which is thin and short, is inserted on a chitinous strip on the anterior half of the hypostome. The lateral ends of this strip splits into two. The maxillae possess three pairs of chitinised teeth, of which the anterior ones are large and rounded. Setae *a* and *m*, situated antero-medially and postero-laterally respectively, are both glabrous, but whereas *a* is straight, *m* is bent sharply inwards near its base.

The firm attachment of the chelicerae and the pedipalps made observations on them impossible.

Legs : (figs. 17-23).

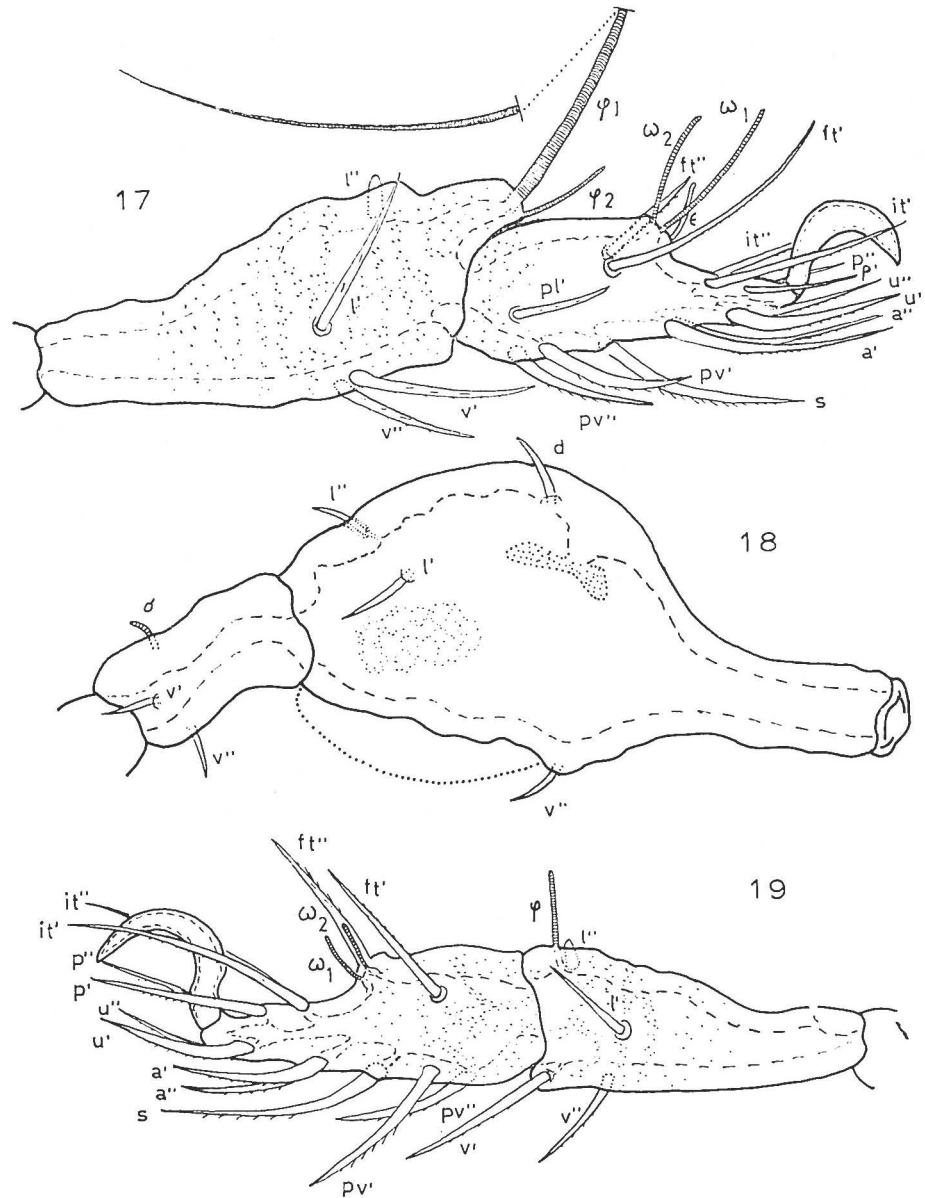
All the legs are monodactyle. The posterior halves of all the tarsi are slightly bulging, while their anterior halves taper towards the front. An antero-dorsal process of tibia I extends over the posterior part of the adjoining tarsus. All the tibiae attenuate gradually posteriorly. This is the case especially with tibia I, because its anterior part is much larger than any of the others. There are no significant differences in the shape and size of the four genera. Large ventral laminae are present on the antiaxial sides of all the femora. Porous areas with large, distinct pores are present on femora I and II. They are situated partly behind *d*. The semilunar porous areas of femora III and IV, situated on the posterior third of the podomeres, have small punctated pores. Both sides of femora I and II, as well as the antiaxial side of femora III and IV, are reticulated. On their paraxial sides, the latter two femora are covered by large, darkly coloured, circular pits (fig. 22). Particles of dirt often adhere to the coarse, granulous cerotegument which covers all the legs.

The solenidion formulae are : I : 0-1-2-2 ; II : 0-1-1-2 ; III : 0-0-1-1-0 ; IV : 0-0-1-1-0.

Solenidia ω_1 and ω_2 of tarsus I are much longer than those of tarsus II. In both cases they are inserted on a flattened protuberance. Both ϕ_1 and ϕ_2 are inserted on the antero-dorsal process of tibia I. Whereas ϕ_1 is extremely long (96 μ), tactile and acuminate, ϕ_2 is short (11 μ) and straight. Tibiae II, III and IV each bears a single ϕ on its anterior third. A short, slightly curved σ is inserted on the anterior half of each genu.

Leg I : (figs. 17-18).

Setal formula : 1-4-2-4-15-1. With the exception of ϵ , which is rather long and obtuse, all the setae of tarsus I are unilaterally barbed and acute. Seta *ft'* is about twice as long as the corresponding seta on the antiaxial side. Whereas *s* is situated behind *a*, *pl'* is inserted ventro-laterally above and behind *pv'*. Setal pair *tc* is absent. On the tibia *l'* is inserted rather low down on the lateral side.



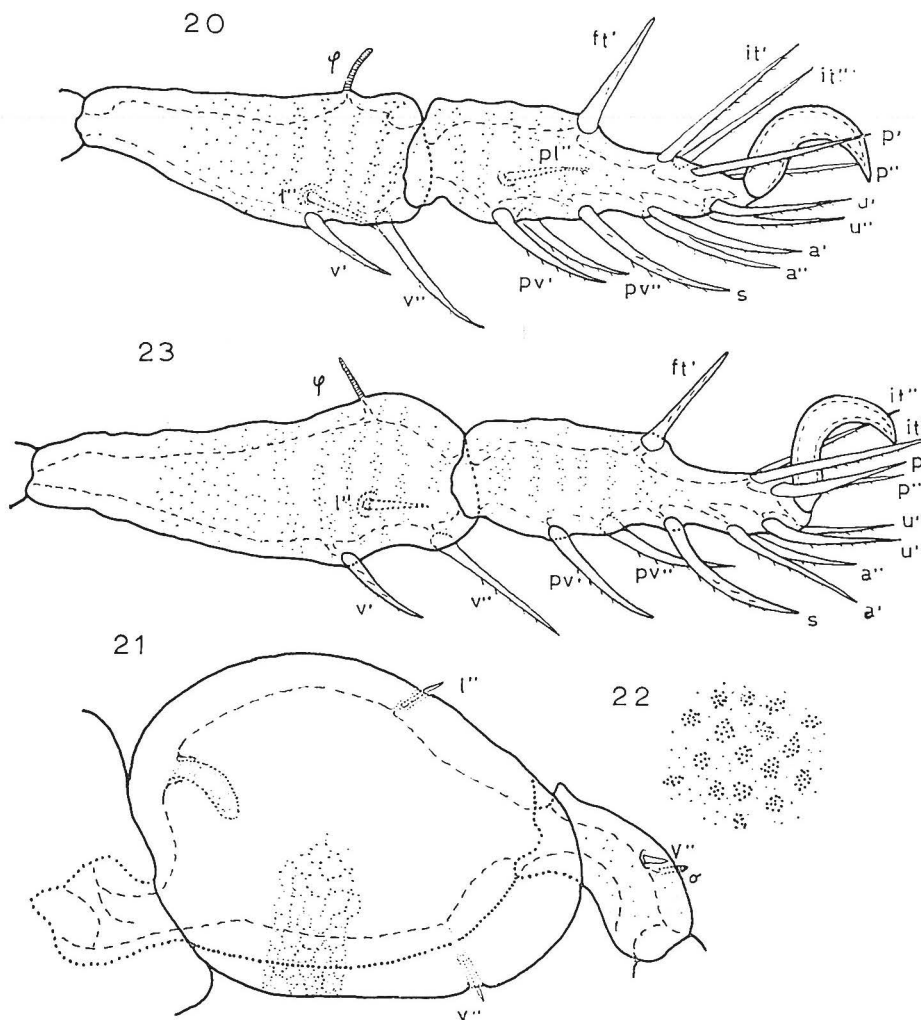
FIGS. 17-19 : *Scutoverticosus arcanus* gen. nov., sp. nov.

17. — Paraxial view of the tarsus and tibia of the first left leg (X 1250). 18. — Paraxial view of the genu and femur of the first right leg (X 1250). 19. — Paraxial view of the tarsus and tibia of the second right leg (X 1250).

Seta v' is always longer than v'' . Seta l'' , implanted in a dorso-lateral position, is obtuse, short and thick. Only two short and smooth setae, v' and v'' are present on the genu. All the setae of the femur are glabrous. They are d , v'' , l' and l'' .

Leg II : (fig. 19).

Setal formula : 1-4-2-4-13-1. Both ϵ and pl' are lacking on tarsus II. Although the chaetotaxy of this leg is similar to that of leg I, there are a few differences in



FIGS. 20-23 : *Scutoverticosus arcanus* gen. nov., sp. nov.

20. — Paraxial view of the tarsus and tibia of the third right leg (X 1250). 21. — Anti-axial view of the genu and femur of the third left leg (X 1250). 22. — Paraxial sculpture of femur III (X 1250). 23. — Paraxial view of the tarsus and tibia of the fourth right leg (X 1250).

the lengths of some setae. Seta ft' , for instance, has the same length as ft'' , while the setal pairs a and p are shorter and longer respectively than their corresponding setae of leg I.

Leg III : (figs. 20-21).

Setal formula : 3-2-1-3-13-1. All the paired setae of the tarsus, as well as s , are unilaterally barbed. Instead of the usual position on either side of the claw setal pair it extends above the claw. Setal pair p is long and reaches the distal end of the claw. The dorsally situated ft' is stout. Its corresponding seta on the antiaxial side is absent. In contrast to tarsus I, in which pl' is present, tarsus III only bears pl'' . The tibia lacks l' . Seta v'' of the latter podomere is always longer than v' . This is due to the fact that leg III (as well as leg IV) is directed backwards, with the result that v'' actually corresponds to v' of the first two pairs of legs. Whereas the genu bears only v'' , the femur possesses both v'' and l'' . Approximately two-thirds of the latter two setae, of which v'' is inserted on the femoral keel, are implanted in sheaths, which are connected by narrow canals with the interior of the legs.

Leg IV : (fig. 23).

Setal formula : 1-2-1-3-12-1. Setae it are situated in their normal positions on either side of the claw. The tarsus lacks pl'' . In other respects, the chaetotaxy of this leg is similar to that of leg III.

The type specimens on which the descriptions of the two new species are based, are kept in the oribatid collection of the Zoology Department, University of the Orange Free State, Bloemfontein, Republic of South Africa.

ACKNOWLEDGEMENTS.

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SUMMARY.

Two new oribatid species, *Scutovertex sculperens* n. sp. and *Scutoverticosus arcanus* n. g., n. sp. are described. *Scutoverticosus* is also a new genus.

RÉSUMÉ.

Deux nouvelles espèces d'Oribates sont décrites, *Scutovertex sculperens* n. sp. et *Scutoverticosus arcanus* n. g., n. sp. Le genre *Scutoverticosus* est nouveau.

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