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# STUDIES ON OPILIOACARIDA (ARACHNIDEA) IV. THE GENERA *PANCHAETES* NAUDO AND *SALFACARUS* GEN. NOV.

by

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With 17 text-figures

In the first three parts of the present series (Van der Hammen, 1966, 1968, 1969) I have dealt with four species of Opilioacarida, viz., *Opilioacarus texanus* (Chamberlin & Mulaik), *Paracarus hexophthalmus* (Redikorzev), *Opilioacarus platensis* (Silvestri), and *Adanacarus arabicus* (With). The detailed redescription of *Opilioacarus texanus* (the first part of the series) constituted the morphological base for the subsequent studies.

In the meantime, I completed a glossary of opilioacarid terminology (Van der Hammen, 1976), in which not only terminology, but also notations, measurement, description and orientation of figures are standardized. Consequently the continuation of my series of studies on Opilioacarida is now based on the above-mentioned glossary.

After publication of the first papers of the present series, I received opilioacarid material from various parts of the world (among which from India). The greater part of this material was already mentioned in my study of opilioacarid phylogeny (Van der Hammen, 1971). The present paper is the first in which part of the new material is described; it contains redescriptions of species of the genus *Panchaetes* Naudo, and descriptions of new species of the genus *Salfacarus* gen. nov. [1]) The present series of papers will be completed by two further papers (a revision of the genus *Opilioacarus,* and a detailed description of all stases of a species of the genus *Phalangiacarus* Coineau & Van der Hammen, from Gaboon).

As far as known, the two genera dealt with in the present paper are

[1]) I am most grateful to Dr. J. M. Betsch (Brunoy), Dr. R. F. Lawrence (Grahamstown), Prof. Dr. R. Legendre (Montpellier) and Mr. M.-H. Naudo (Paris), for contributing valuable material for this study.

geographically separated: *Panchaetes* is West-African, *Salfacarus* is now known from East-Africa and Madagascar.

In my paper on the phylogeny of Opilioacarida (Van der Hammen, 1971) I introduced several hypotheses on the phylogeny of characters. [2]) Recently (Van der Hammen, 1975), I moreover introduced the hypothesis that the idiosomatic chaetotaxy of *Panchaetes* and *Salfacarus* represents an ancestral type (primordiotrichy). Another interesting problem is constituted by the phylogeny of coronidia on the tibiae of legs II-IV of *Panchaetes*. In this genus some two rows of coronidia take the place of the single row of dorsal mucronate setae, present in other opilioacarid genera. Coronidia are probably homologous with the terminal part of the mucronate setae. For this reason, as well as because of their apparent multiplication in number, the hypothesis is introduced here that the presence of mucronate setae represents the ancestral state, the presence of coronidia the derived state.

Because all terms and notations are dealt with in the above-mentioned glossary, the present paper does not repeat these data. I refer to the glossary in question for definitions and explanations.

## **Panchaetes** Naudo, 1963

Diagnosis: All opisthosomatic segments in the adult and tritonymphal stases (and probably also in the deutonymph) with numerous papilliform setae; the arrangement of these setae is apparently atactotrichous. Opisthosomatic lyrifissures probably idionymic. Tibiae II-IV with dorsal rows of coronidia.

Type-species: *Opilioacarus papillosus* André, 1947.

The presence of coronidia on tibiae II-IV constitutes a unique character of *Panchaetes*; in the remaining genera of Opilioacarida a row of unpaired mucronate dorsal setae takes their place. The presence of setae on all opisthosomatic segments constitutes a character also found in *Salfacarus* gen. nov.

*Panchaetes* was introduced by Naudo (1963: 16) as a subgenus of *Opilioacarus* (although it was used as generic name throughout the paper). It was raised by me to generic rank afterwards (Van der Hammen, 1966: 48).

Beside the type-species (from Ivory Coast), only one other species of the genus *Panchaetes* is recorded in the literature, viz., *P. dundoensis* Naudo, 1963, from Angola. Consequently, the genus is now known from the western

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[2]) In my 1971 paper on opilioacarid phylogeny, the species described here as representatives of *Salfacarus*, are still mentioned with *Panchaetes*.

part of Africa only, where the two species described have been found in forests (especially in litter). The two species can be identified with the following key.

Key to the species of *Panchaetes*

1. Prodorsal papilliform setae relatively broad (about two times as long as broad). Dorsal opisthosomatic setae slightly longer than broad on the anterior segments, and about twice as long as broad on the posterior segments . . . . . *P. papillosus* (André)
— Prodorsal setae elongate, up to about six times as long as long as broad. Dorsal opisthosomatic setae about twice as long as broad on the anterior segments, and up to six times as long as broad on the posterior . . . . . *P. dundoensis* Naudo

**Panchaetes papillosus** (André, 1947) (figs. 1, 2)

*Opilioacarus papillosus* André, 1947: 322-326, figs. 1-9.

Locality and date. — Ivory Coast, "Forêt du Banco" (a forest reserve, North of Abidjan), in a termitary, 7 July 1945.

Material. — One specimen (apparently and adult female), from the collection of the Muséum National d'Histoire Naturelle. There are two slides: one contains an incomplete specimen (in ventral view); the second slide contains a left palp and a left chelicera. The specimen is in a rather flattened and deformed condition; all legs are missing, except left leg II and both legs III; parts of the cuticle are apparently also lacking. The label of both slides mentions the same data, viz., "Collection Marc André. *Opilioacarus papillosus* André. Régistre no. 433". The specimen certainly represents the holotype. It was collected by Dr. C. Delamare Deboutteville.

Measurements. — According to André (1947), the length of the specimen was 1.950, the breadth 1.030 mm; judging from his fig. 1, the length without anal tubercle must have been about 1.890. The measurements of the idiosoma of the flattened specimen in the slide are now: length 2.18 mm, breadth 1.38 mm. The length of leg II (without coxa) is 2.17 mm, the length of leg III (without coxa) 2.21 mm; consequently leg II is 1.15 × as long as the idiosoma; leg III 1.17 × (based on the original length as mentioned by André, but reduced by the length of the anal tubercle).

Colour. — According to André (1947), the original colour of the type-specimen was more or less dark blue. This colour has completely disappeared; the specimen in the slide is now light brownish yellow.

Food. — The gut contains large masses of unidentified, brown, chitinous fragments, among which fragments of appendages.

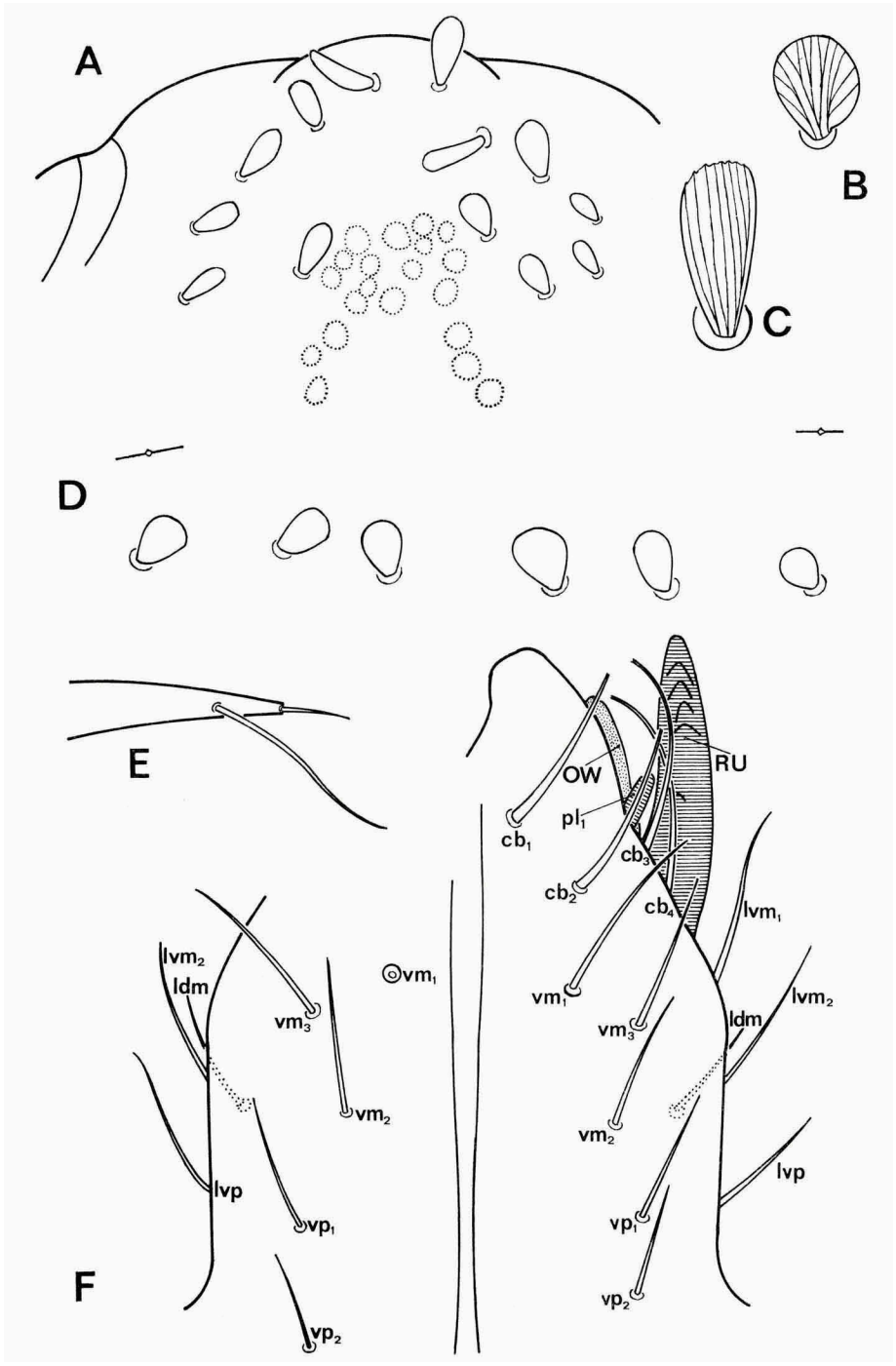


Fig. 1. *Panchaetes papillosus* (André), holotype; A, rostral part of prodorsum (dorsal view); B, dorsal papilliform seta of segment VIII; C, dorsal papilliform seta of one of the posterior opisthosomatic segments; D, dorsal view of part of segment VIII, with dorsal papilliform setae, and two lyrifissures; E, ventral view of left sternapophysis (basal part omitted); F, ventral view of gnathosoma (partial reconstruction of damaged and flattened infracapitulum); A, D, F, × 370; B, C, × 690; E, × 235.

Cuticle. — The microsculpture of the cuticle is coniculate (i.e. with an ornamentation of numerous small cones), just as in the other species of Opilioacarida.

Prodorsum. — The specimen presents two pairs of eyes, one pair of oculorostral grooves, and numerous papilliform setae and sigilla. (A sigillum is the external mark, indicating the place of insertion of a muscle; the term is in current use in arachnology). The prodorsal setae are rather small and relatively broad (about two times as long as broad). The rostral part of the prodorsum is represented in fig. 1A; this figure has been prepared after the flattened specimen in the slide (in ventral orientation).

Opisthosoma. — There are four pairs of stigmata, and numerous sigilla. Dorsally as well as ventrally, the opisthosoma presents numerous papilliform setae. In the anterior dorsal part, these are arranged in distinct rows (fig. 1D); in the remaining part, they present a more irregular disposition. The shape of the papilliform setae is relatively broad (fig. 1B, C); especially the dorsal setae of the anterior opisthosomatic segments are only slightly longer than broad, while the dorsal setae of the posterior opisthosomatic segments are about two times as long as broad. Dorsally as well as ventrally, each opisthosomatic segment presents only a small number of lyrifissures; these could even be idionymic.

Genital region. — The genital region is damaged; only one of the two genital verrucae is present. This verruca presents one compound seta and some three papilliform setae. The pregenital area presents no setae. Genital setae are not discernible. An invaginated ovipositor is apparently present.

Sternal region of the podosoma. — The sternal region is damaged and deformed, but the following characters are still discernible. One sternal verruca is still visible; it presents three elongate papilliform setae, one compound seta (*pvs*), and one large lyrifissure (*ivs*). Various other papilliform and compound setae and lyrifissures are present in the sternal region. The two sternapophyses are still present, although widely separated in the slide; they bear two setae, of which the antiaxial one is more than three times as long as the terminal (fig. 1E).

Gnathosoma. — The infracapitulum (fig. 1F) is flattened because of pressure of the cover slip. It is also slightly damaged; the anterior part is lacking at the right side. The usual three pairs of paralabial setae ($pl_{1\text{-}3}$) and four pairs of circumbuccal setae ($cb_{1\text{-}4}$) are present. The rutellum ($pl_3$) presents five teeth; the corniculus ($pl_1$) is relatively long; $cb_{1\text{-}4}$ are truncate, with split tip. There are three pairs of *vm*, two pairs of *lvm*, one pair of *ldm*, two pairs of *vp*, and one pair of *lvp*.

Chelicera. — The chelicera was represented by André (1947: figs. 7, 9).

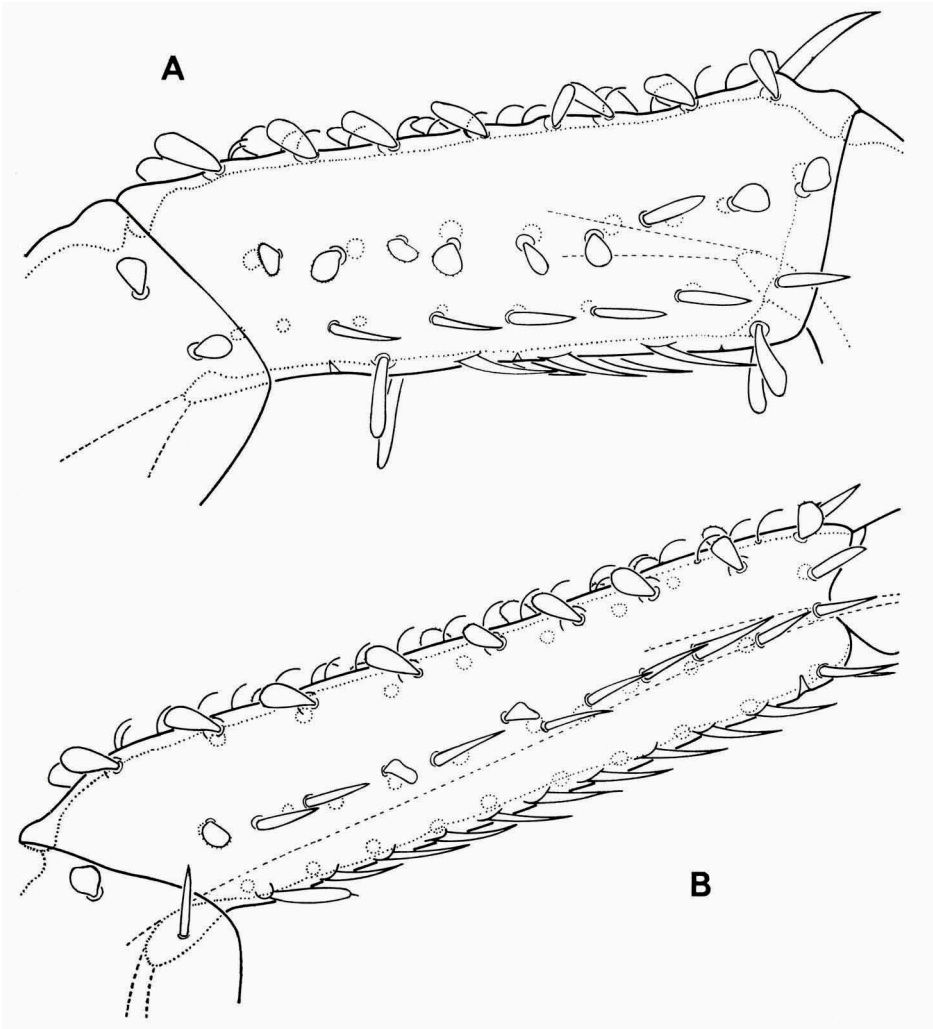


Fig. 2. *Panchaetes papillosus* (André), holotype, paraxial view of parts of left leg II; A, tibia; B, basitarsus; A, B, × 295.

The trochanter presents the usual seta *cht*, the cheliceral body the three usual setae $ch_1''$, $ch_2''$ and $ch_2'$. The usual two lyrifissures (*iα* and *id*) are also present.

Palp. — The palp was represented by André (1947: figs. 2, 6; in the explanation, not in the text, it is referred to as leg I). The tarsus presents a pariaxial group of seven leaf-shaped setae, and a dorsal area with hollow setae, of which some 32 are visible in paraxial view.

Legs. — As mentioned above, only left leg II and both legs III are

present; the lengths of these are dealt with in the paragraph on measurements (both legs are slightly longer than the body). Tibia and basitarsus of left leg II are represented in fig. 2. Leg II and III present the usual segments; they are very characteristic because of the presence on the basitarsus as well as on the tibia of two dorsal rows of coronidia (fig. 2A, B), which extend over the whole length of both segments.

Remark. — Because only one adult specimen of the species is known, no data can be given on the postembryonic development, and no zoogeographical data can be added to the only known locality.

### **Panchaetes dundoensis** Naudo (1963) (figs. 3, 4)

*Panchaetes dundoensis* Naudo, 1963: 16-22, figs. 1-9, 11-18.
*Panchaetes dundoensis condensus* Naudo, 1963: 22-23, fig. 10.

Locality and date. — Dundo, Lunda, Angola; collected in the period 1946-1954, mainly from forest soil, but also from shrubs.

Material. — Of the material mentioned by Naudo (1963), I have studied three slides, among which the holotype; the remaining two slides contain paratypes (labelled as "cotype" by Naudo).

The holotype slide (left label: "*Opil. (Panch.) dundoensis* Naud. holotype ♀. A 727", right label: "1385-7 *Opilioacarus* no. 727") contains one specimen of which right leg I, left legs III and IV, and part of left leg I are missing. Although the slide is insufficiently transparent and many details are thus invisible, a thorough study reveals that the specimen is not an adult female but a tritonymph with the adult stase completely developed inside.

The second slide studied by me (right label: "Collection A. de Barros Machado. *Opilioacarus (Panchaetes) dundoensis* Naudo. Cotype ♀") contains indeed an adult female (recognizable by the presence of an extended ovipositor). Legs II, III and IV are present at both sides, but leg I is missing.

The third slide (label on the left side: "*Opilioacarus (Panchaetes) dundoensis* Naudo. Cotype ♂. A 245") contains a specimen that is insufficiently transparent. Judging from the measurements it is not impossible that it is also a tritonymph. Legs III and IV of the specimen are present at both sides; legs I and II are missing.

In the following the three specimens mentioned above are referred to as holotype tritonymph, paratype female, and second paratype, respectively.

Measurements. — The measurements of the idiosoma (anal tubercle not included) of the three specimens are the following. Length of the holotype tritonymph 1.56 mm, breadth 1.00; length of the female paratype 1.83 mm,

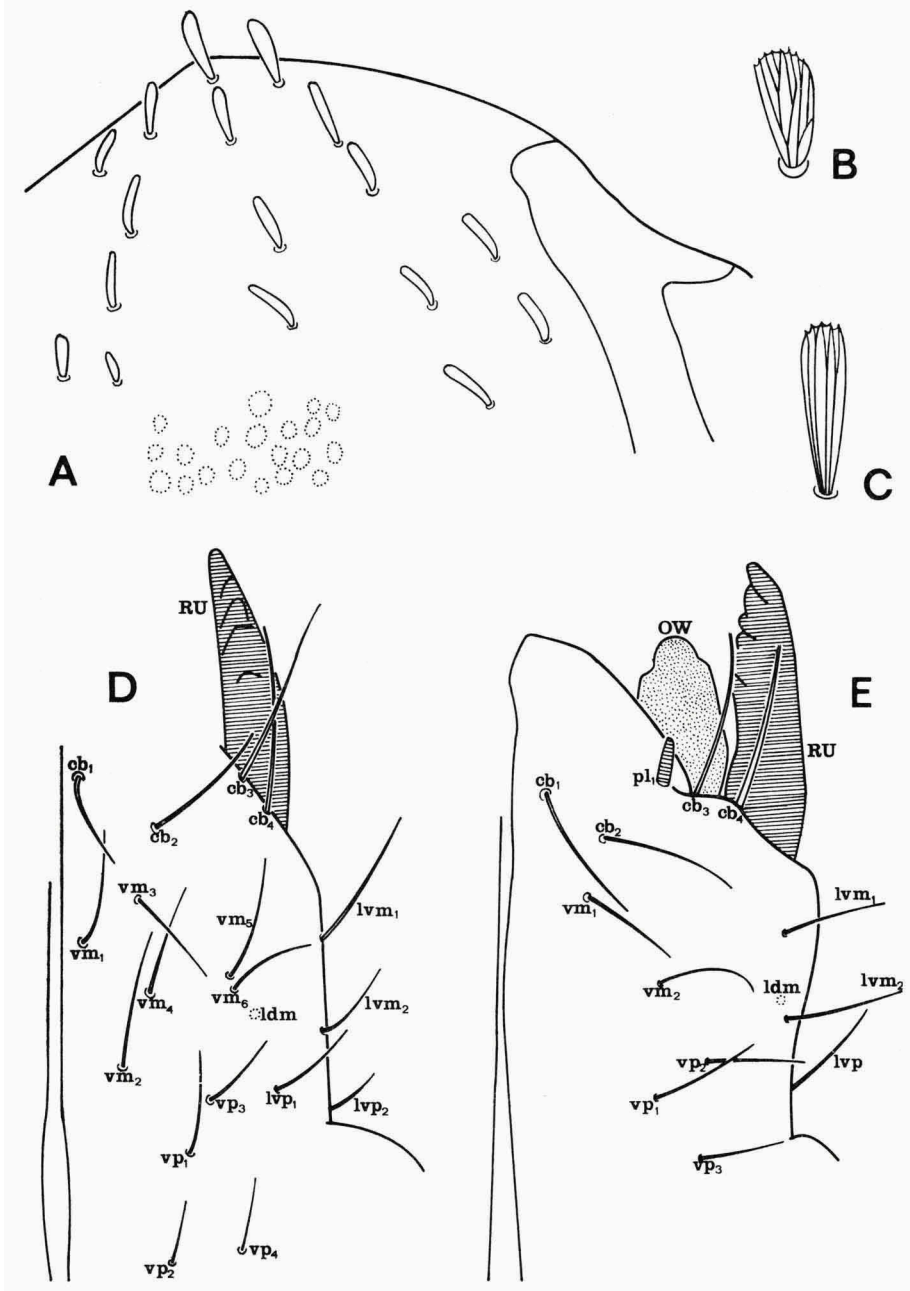


Fig. 3. *Panchaetes dundoensis* Naudo; A-C, paratype female; D, holotype tritonymph; E second paratype (possibly a tritonymph); A, rostral part of prodorsum; B, dorsal papilliform seta of segment IX; C, dorsal papilliform seta of segment XVIII; D, ventral face of infracapitulum; A, D, E, × 370; B, C, × 690.

breadth 1.19; length of the second paratype 1.50 mm, breadth 1.01. In all these cases the specimens in the slides are flattened because of pressure of the cover slip; consequently, the breadth recorded here is too large.

The length of the legs and ratio length leg : length idiosoma (mentioned between brackets) are the following. Leg II: 1.89 (1.21) in the holotype tritonymph, 2.14 (1.18) in the paratype female. Leg III: 1.88 (1.21) in the holotype tritonymph, 2.27 (1.24) in the paratype female, 1.84 (1.23) in the second paratype. Leg IV: 2.68 (1.72) in the holotype tritonymph, 3.38 (1.85) in the paratype female, 2.75 (1.83) in the second paratype. Judging from the description and figure by Naudo (1963: 18, fig. 1), leg I is still longer than leg IV. Consequently, all legs are longer than the idiosoma.

Colour. — Naudo (1963: 18) mentioned the presence of a violet pigment which locally turned to light blue or greenish blue (just as in other Opilioacarida). This pigment is well preserved in the three mounted specimens. The colour is in fact determined by the concentration of the pigment; it can be dark violet blue, lighter violet blue, or greenish blue (the latter colour is partly caused by the yellowish cuticle).

Food. — The gut of the paratype female contains brown, fibrous masses, consisting of fragments of unknown identity; part of these could be of vegetable origin.

Cuticle. — The microsculpture of the cuticle is coniculate.

Prodorsum. — There are two pairs of eyes, one pair of oculorostral grooves, and many sigilla and papilliform setae. The setae are longer and more elongate than in *Panchaetes papillosus* (about six times as long as broad). The rostrum is represented in fig. 3A (this drawing is based on the paratype female, a specimen mounted in an oblique, dorsal orientation).

Opisthosoma. — The opisthosoma presents the usual four pairs of stigmata, and many sigilla and papilliform setae. The setae are distinctly longer and much more elongate (fig. 3B, C) than in *Panchaetes papillosus* (on the anterior segments the dorsal setae are about two times as long as broad, on the posterior segments up to six times). In the anterior dorsal part of the opisthosoma, each segment presents one row of setae; in the posterior part the setae are more numerous and the arrangement is less regular. The number of lyrifissures is small, just as in *P. papillosus*; they are probably idionymic.

Genital region. — In the paratype female (the only adult specimen among my material) the ovipositor is extended, covering the greater part of the genital region. Only the left genital verruca could be studied; it presents five papilliform setae, and one compound seta.

Sternal region of the podosoma. — The sternal verrucae of the paratype

female each present one lyrifissure, one compound seta, and three spiniform setae. The sternapophyses each bear the usual two setae.

Gnathosoma. — All specimens available to me are orientated dorsally in the slides; the ventral surface of the infracapitulum has in each case been studied in this orientation (fig. 3D, E). The numbers of infracapitular setae are the following. The three species all present the usual three pairs of paralabial and four pairs of circumbuccal setae, and moreover one pair of laterodorsal setae *ldm*. There are further at each side 2-6 medioventrals (*vm*), 1-2 mediolateroventrals (*lvm*), 2-6 posteroventrals (*vp*), and 1-2 posterolateroventrals (*lvp*).

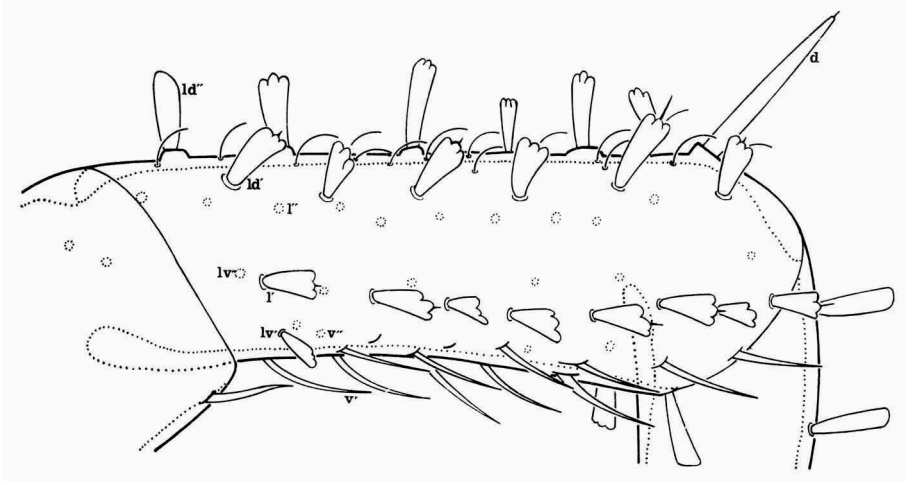


Fig. 4. *Panchaetes dundoensis* Naudo, paratype female; paraxial (slightly oblique) view of tibia of left leg II; × 295.

Chelicera. — The usual setae *cht*, $ch_1''$, $ch_2''$ and $ch_2'$ are present, just as the lyrifissures *id* and *iα*.

Palp. — The paraxial surface of the palpal tarsus presents only five leaf-shaped setae. The dorsal area of this segment presents some twenty hollow setae.

Legs. — Except for the presence of part of left leg I in one specimen, leg I is lacking in all specimens. The length of legs II-IV is mentioned above. All legs are longer than the body. Tibia and basitarsus II-IV present two dorsal rows of coronidia, which extend over the whole length of the segments in question. Tibia II is represented in fig. 4. The papilliform setae of the legs are distinctly longer than in *P. papillosus*.

Diagnostic characters. — *P. dundoensis* differs from *P. papillosus*, the

only other known species of the genus, by the characters mentioned in the key to the species of *Panchaetes*. Apparently there are also slight differences in the chaetotaxy of the palpal tarsus (*P. dundoensis* presents five leaf-shaped setae, *P. papillosus* seven; the dorsal area in *P. dundoensis* consists of some 20 hollow setae, in *P. papillosus* of some 32).

Remarks. — No data on postembryonic development can be added here to those mentioned by Naudo (1963: 20-23). Naudo (1963: 22-23, fig. 10) distinguished a var. *condensus*, characterized particularly by a larger number of setae on some parts of the legs. Because of the considerable variability of leg chaetotaxy in Opilioacarida (which variability has not yet been studied in detail) the variety is regarded here as part of the normal variability of the species. *P. dundoensis* is known from the type-locality in Angola only.

**Salfacarus** gen. nov. [1])

Diagnosis: All opisthosomatic segments, from the deutonymphal stase, with numerous papilliform setae (just as in *Panchaetes*); the arrangement of these is apparently atactotrichous. Idiosomatic lyrifissures probably idionymic. Tibiae II-IV without coronidia, but with a dorsal row of unpaired mucronate setae.

Type-species: *Salfacarus legendrei* spec. nov.

Remark: the presence of a dorsal row of mucronate setae instead of coronidia is regarded here as an ancestral character. Consequently *Salfacarus* is regarded as constituting a more primitive group than *Panchaetes*.

Five new species are described here: two from Madagascar, two from South Africa, and one from Tanzania. The following key is a provisional one. As long as the variability of many characters (especially in the field of leg chaetotaxy) is insufficiently known, the choice of distinguishing characters is not wide. The detailed study of the development of chaetotaxy in an Opilioacarid from Gaboon (Coineau & Van der Hammen, 1977) probably will be the base of a new evaluation of chaetotaxy in Opilioacarida.

Key to the species of *Salfacarus* (adults)

1. Leg IV longer than leg I. All legs longer than the idiosoma (without anal tubercle). Papilliform setae of the legs relatively long; the laterodorsal setae of tibia IV as long as, or longer than, the height of the segment (fig. 11B) . . . . . *S. robustipes* spec. nov.
— Leg IV shorter than leg I, although longer than the idiosoma (without anal tubercle) . . . . . 2

[1]) Dedicated to the Société des Acarologues de Langue Française (*S.A.L.F.*).

2. Prodorsal setae very numerous, rostrum broad (cf. figs. 12A, 14A) . 3
— Prodorsal setae less numerous, rostrum narrower and rounded (cf. figs. 5A, B, 16A) . . . . . 4
3. Legs relatively short; leg IV about 1.25 × the length of the idiosoma (without anal tubercle) . . . . . *S. lawrencei* spec. nov.
— Legs longer; leg IV about 1.75 × the length of the idiosoma (without anal tubercle) . . . . . *S. tanzaniensis* spec. nov.
4. Leg I more than twice as long as the idiosoma (without anal tubercle); leg IV 1.8 × as long as the idiosoma . . . *S. dispar* spec. nov.
— Leg I less than 1.9 × as long as the idiosoma (without anal tubercle); leg IV less than 1.7 × as long as the idiosoma *S. legendrei* spec. nov.

**Salfacarus legendrei** [1]) spec. nov. (figs. 5-8)

Locality and material. — Ambohibao, near Tananarive, Madagascar; forest of *Eucalyptus*, under rocks; december 1958; leg. Prof. Dr. R. Legendre. — 1 ♂, 3 ♀♀, 2 tritonymphs. Plateau Mahafaly, Madagascar; zone with "dolines", near the "aven Andramanoetse Be", under rocks; 28 July 1967; leg. Dr. J. M. Betsch. — 1 ♂, 2 ♀♀. Morandawa region, Madagascar, Andranomena Forest, Marafandila; under dead wood; 16 december 1969; leg. Dr. J. M. Betsch. — 1 ♀. (A female in a sample from Ambohibao, preserved in tube nr. B 4, is selected as a holotype).

Measurements. — Total length of the males (anal tubercle not included) 1.40-1.50; breadth 0.70; ratio length : breadth 2.0-2.3. Total length of the females 1.50-1.80; breadth 0.80-0.90; length : breadth 1.9-2.1. The lengths of the legs (coxae not included) are the following (the ratio length of the leg : length of the body is mentioned between brackets). In one male: leg II 1.77 (1.13), leg III 1.70 (1.09), leg IV 2.60 (1.66). In three females: leg I (two females only) 2.60-3.08 (1.77-1.89), leg II 1.47-1.83 (1.00-1.07), leg III 1.39-1.78 (0.95-1.03), leg IV 2.22-2.77 (1.50-1.60).

Colour. — Specimens of the present species generally look rather dark because of the concentration of the pigment grains, especially in the posterior dorsal part of the opisthosoma. The basic colour pattern is more or less as follows. Prodorsum with a median triangular, violet-blue stripe; oculorostral groove bordered at both sides by stripes of the same colour; an irregular violet-blue stripe is present along the outer prodorsal border; a much darker, blackish stripe is present along the transverse prodorsal furrow; the eyespots are very dark. Opisthosoma, in the anterior part, with segmentally arranged blackish stripes, alternating with the lighter colour of the inter-

[1]) Dedicated to Prof. Dr. R. Legendre, Université des Sciences et Techniques du Languedoc, Montpellier, who first discovered the present new species.

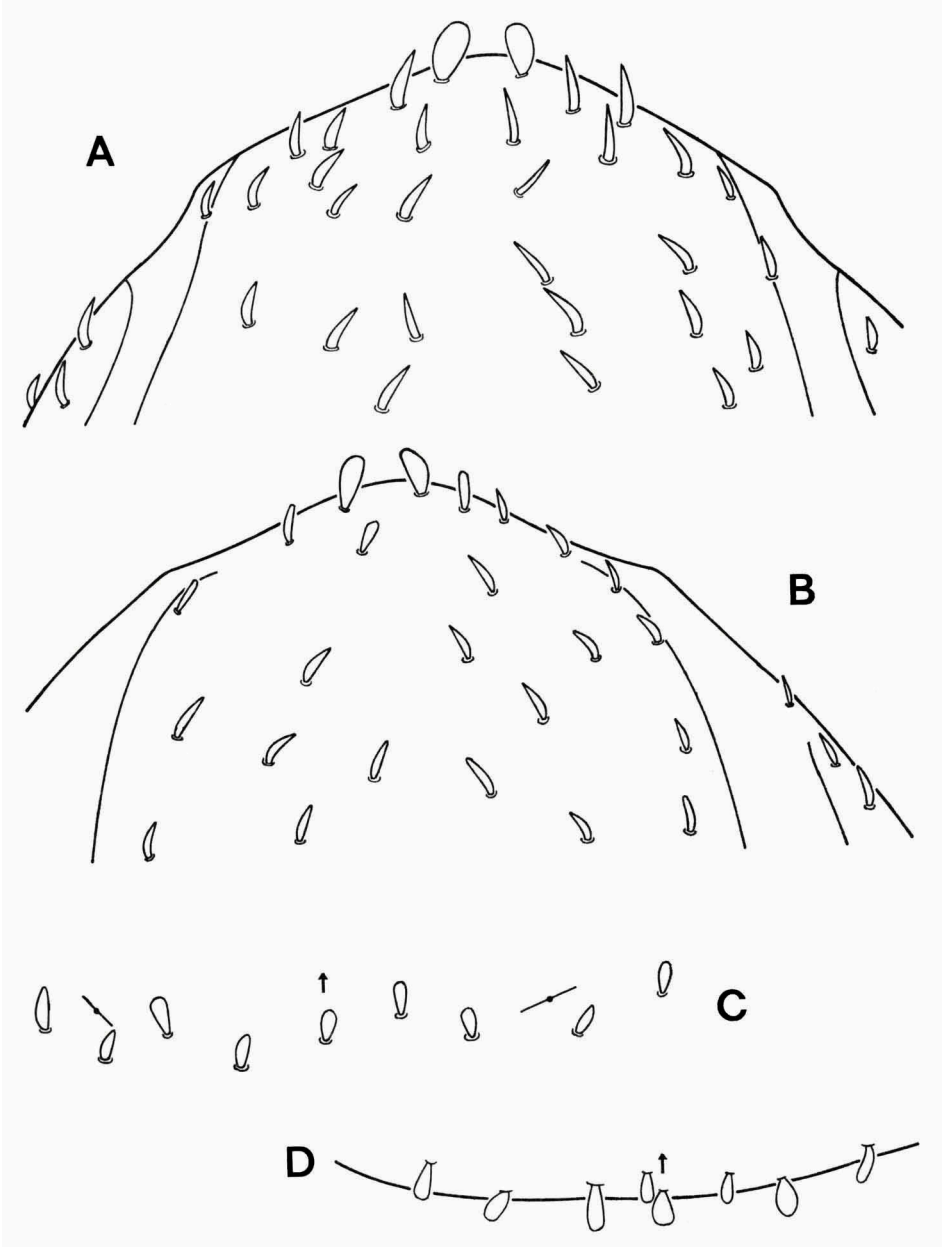


Fig. 5. *Salfacarus legendrei* spec. nov.; A, rostral part of prodorsum of male; B, rostral part of prodorsum of female; C, part of the row of dorsal setae and lyrifissures of segment VIII; D, part of the posterior row of dorsal setae of segment XVIII (the arrows in figs. C and D indicate the median line); A-D, × 370.

segmental furrows; in the posterior part of the opisthosoma the darker transverse stripes have nearly completely fused. The colour of the ventral face of the idiosoma is generally much lighter. The legs generally present violet-blue rings at the base of the eudesmatic and adesmatic segments (with some exceptions, such as trochanter 1). Sometimes the greater part of the legs is violet-blue.

Cuticle. — The cuticle presents the usual coniculate microsculpture; it varies from nearly aciculate to nearly verrucose.

Prodorsum. — The transverse prodorsal furrow and the pair of oculorostral grooves are distinctly present. There are two pairs of eyes. The prodorsum presents a great number of small, narrow, more or less pointed, papilliform setae. The arrangement of these setae is apparently atactotrichous. The pair of rostral setae (fig. 5) is larger and distinctly different in shape; it is much broader, whilst the tip is broadly rounded. The rostral part of the prodorsum has a more or less rounded anterior border.

Opisthosoma. — All segments of the opisthosoma present one or more rows of setae. Generally the dorsal surface of segments VII/VIII and IX presents one row of setae, that of segments X-XVIII two or more rows. The opisthosomatic setae are rather small, papilliform, and more or less rounded at the tip (fig. 5C, D). The arrangement of the setae is apparently atactotrichous. The number of lyrifissures is much smaller than in *Opilioacarus*; they probably are idionymic (fig. 5C). The condition of the number of setae and lyrifissures is the reverse of the condition in *Opilioacarus*: in the last-mentioned genus, regression in the number of setae is accompanied by an increase in number of lyrifissures.

Anal tubercle. — Segment XIX presents the same type of papilliform setae as the segments VII-XVIII. The arrangement of these setae is apparently also atactotrichous.

Genital region. — The external aspect of the genital region of male and female is represented in fig. 6A-C. In our material the genital verrucae present 3-7 papilliform setae in the female, and 4-5 papilliform setae in the male; in both sexes there is moreover one compound seta (*pvg*) and one lyrifissure (*ivg*). The pregenital area presents 0-5 papilliform setae in the female, 3-6 in the male. There are 3-7 compound genital setae in the male (in the female the genital setae are papilliform). The extended ovipositor is represented in fig. 7C, D. It presents no apophyses or setae. The ovipositor is little more than an evaginable tube; it certainly represents the most primitive Arachnidean ovipositor.

Sternal region of the podosoma. — The sternal verrucae each present one compound seta (*pvs*), two or three spiniform setae, and one lyrifissure (*ivs*). The sternapophyses present the usual two setae.

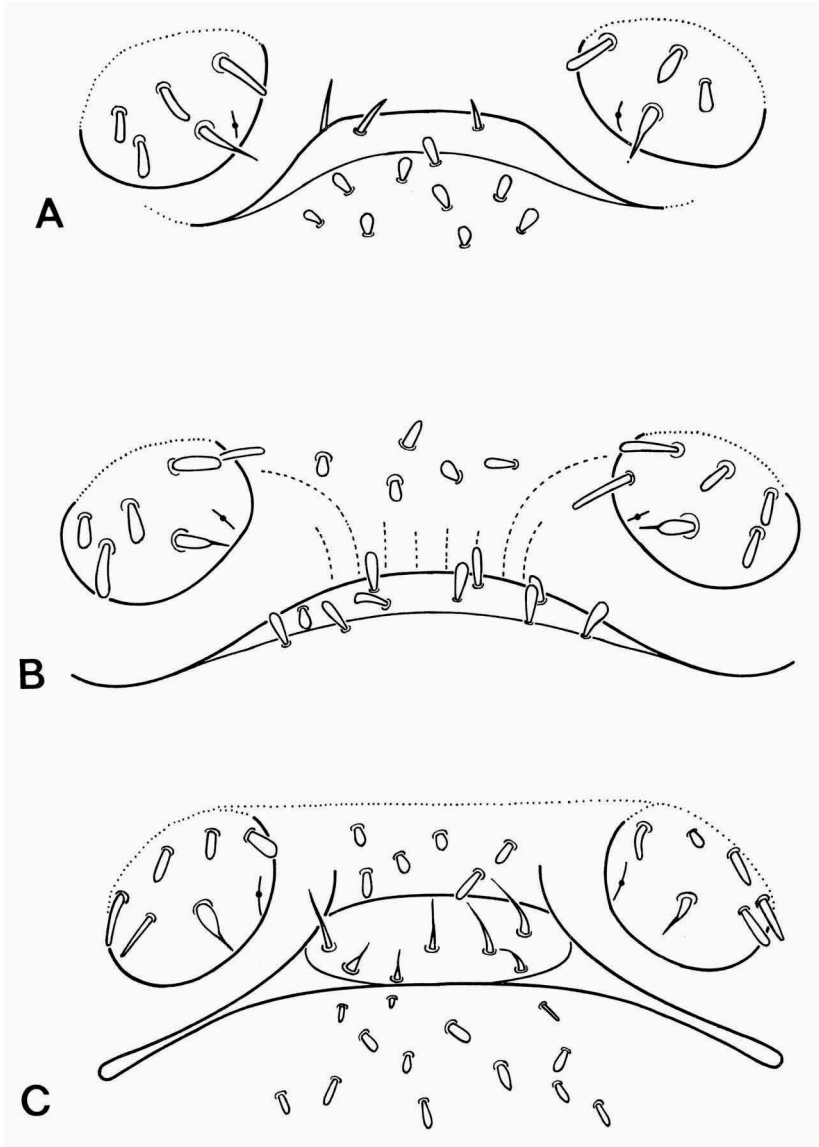


Fig. 6. *Salfacarus legendrei* spec. nov.; A, genital region of female (specimen without pregenital setae); B, genital region of female (specimen with pregenital setae); C, genital region of male; A-C, × 370.

Gnathosoma. — The cheliceral frame presents the usual characters. The infracapitulum (fig. 7A, B) presents the usual number of paralabial and circumbuccal setae. The rutellum has five more or less equal teeth (the basal one slightly shorter than the second). In two females the numbers of median and posterior infracapitular setae at both sides varied in the following way: 2 *vm*, 1-2 *lvm*, 1 *ldm*, 2-4 *vp*, 1-2 *lvp*.

Chelicera. — The cheliceral trochanter presents the usual seta (*cht*), the body of the chelicera the usual three setae ($ch_1''$, $ch_2''$ and $ch_2'$).

Palp. — The palpal tarsus presents some five paraxial leaf-shaped setae, the dorsal area some twenty hollow setae.

Legs. — Legs I and IV are much longer than the idiosoma, legs II and III about as long. As appears from the measurements mentioned above, the total length of the legs (as well as the ratio length leg : length idiosoma) is slightly variable. I have also calculated the relative length of the separate segments (the ratio length segment : length leg). It appears that, in this case, there are no differences between male and female, and that there is only a slight variability. The average relative lengths of the leg segments are the following (from trochanter or trochanter 1 up to and including the ambulacrum; just as in other species of the group, leg I has no acrotarsus, whilst legs III and IV present two trochanters). Leg I: 0.132, 0.252, 0.153, 0.265, 0.086, 0.108, 0.004. Leg II: 0.107, 0.241, 0.139, 0.142, 0.162, 0.146, 0.047, 0.016. Leg III: 0.088, 0.069, 0.210, 0.133, 0.139, 0.154, 0.144, 0.041, 0.022. Leg IV: 0.089, 0.075, 0.215, 0.134, 0.164, 0.153, 0.120, 0.032, 0.018. Especially noticeable are the important relative length of trochanter I and tibia I, and the relatively short tarsus I. Interesting are also the relatively long tibia IV and the relatively short telotarsus IV. Tibia and basitarsus of leg II are represented in fig. 8. Coronidia are present in the basal part of the basitarsus only; the row is slightly longer than half the length of the segment.

Development. — In our material two tritonymphs are present; they constitute the only immature specimens. They are easily recognizable as tritonymphs by the characters already mentioned for other species (Van der Hammen, 1969: 126-127; 1976; Coineau & Van der Hammen, 1976).

Ecology. — According to Legendre (in litt.) the species has been collected by him under humid rocks in a wood of *Eucalyptus*, in the neighbourhood of rice-fields. In the course of seven years of intensive collecting the species was found at one locality only (Betsch later added a second and a third locality). The species was found together with terrestrial Isopods, Japygidae, and spiders (e.g. *Latrodectus menavodi*). Under rocks, covering ant-nests, opilioacarids have never been found. At the type-locality the species has

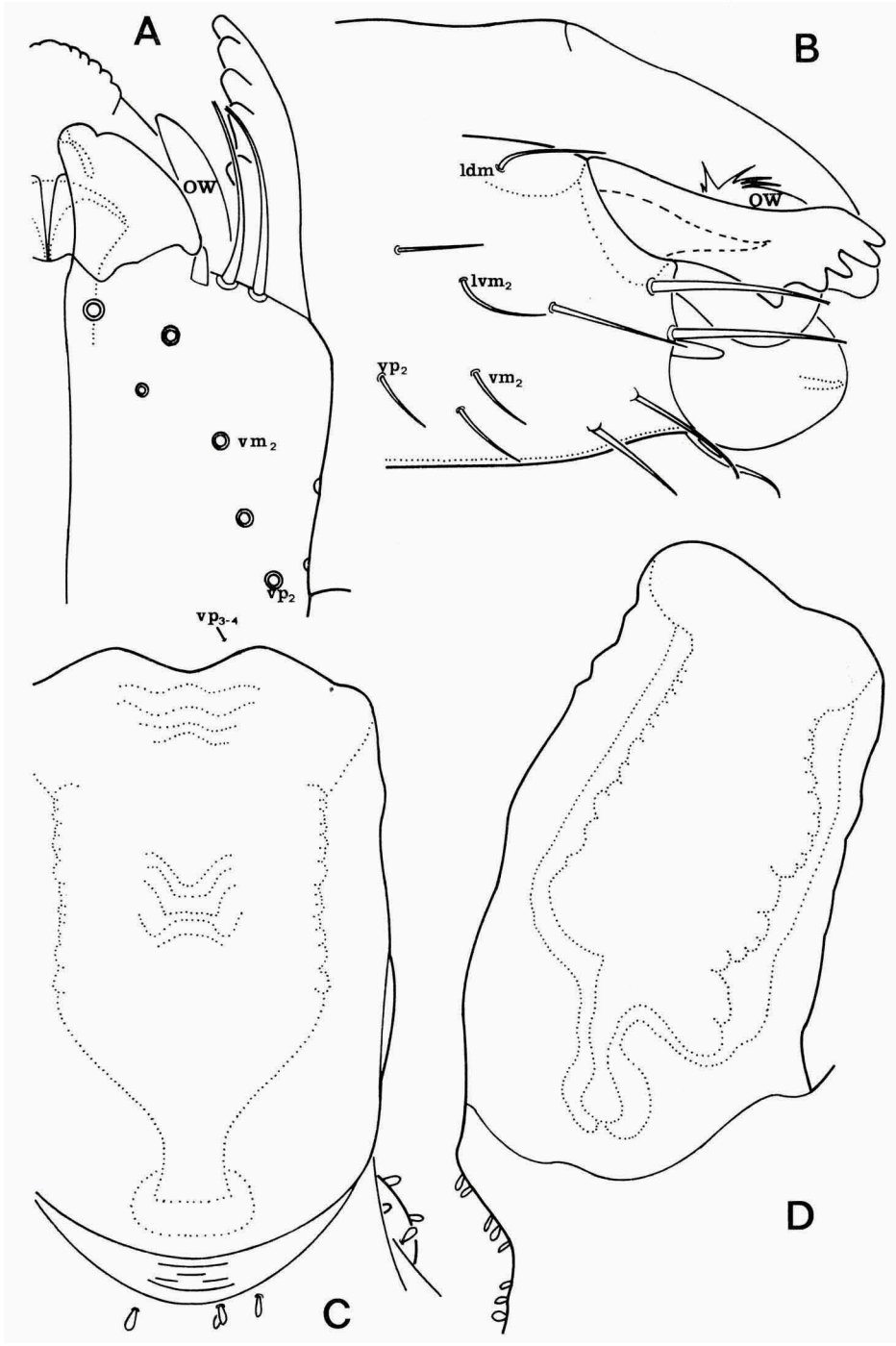


Fig. 7. *Salfacarus legendrei* spec. nov.; A, ventral view of infracapitulum of female; B, lateral view of infracapitulum of another female; C, ventral view of extended ovipositor; D, lateral view of extended ovipositor. A, B, × 370; C, D, × 235.

frequently been collected in the rainy season (November-February), although some specimens have also been collected in the dry season (at the end of July and the beginning of August). The species was always found in small groups of 6-12 specimens. When a stone was turned the specimens moved rather rapidly, exploring the surface with movements of the first pair of legs.

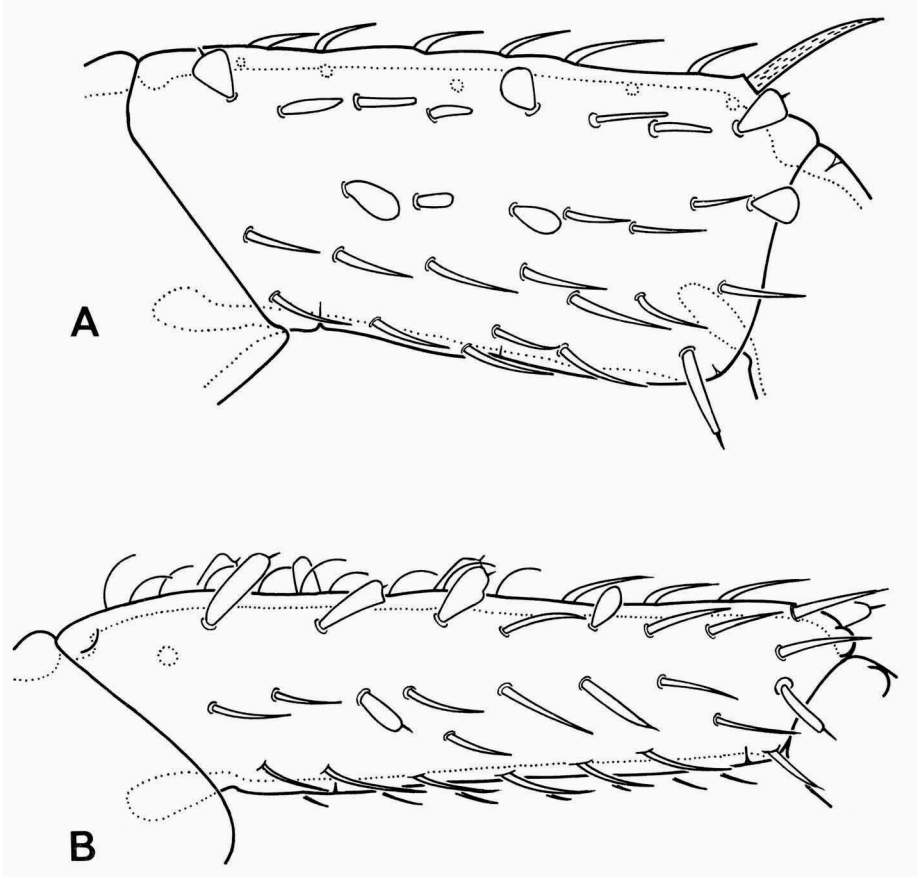


Fig. 8. *Salfacarus legendrei* spec. nov., female, antiaxial face of part of right leg II; A, tibia; B, basitarsus; A, B, × 370.

**Salfacarus robustipes** spec. nov. (figs. 9-11)

Locality and material. — Tampoketsa d'Ankazobe, Madagascar (± 150 km North of Tananarive), forest of Ambohitantely, litter, leg. Dr. J. M. Betsch, 10 April 1967: 2 ♀♀; 27 June 1967: 1 protonymph, 1 deutonymph, 1 female tritonymph.

Measurements. — Total length of the two adult females (anal tubercle not included) 1.81 mm; breadth 0.88-0.90; ratio length : breadth 2.0-2.1. The measurements of one protonymph, one deutonymph and one tritonymph, respectively, are the following: total length (anal tubercle not included) 0.75, 1.14, 1.66; breadth 0.38, 0.55, 0.78; ratio length : breadth 2.0, 2.08, 2.13.

The length of the adult legs (coxa not included) in one female are the following (the ratio length of the leg : length of the body is mentioned between brackets): leg I 3.10 (1.72), leg II 2.39 (1.32), leg III 2.37 (1.31),

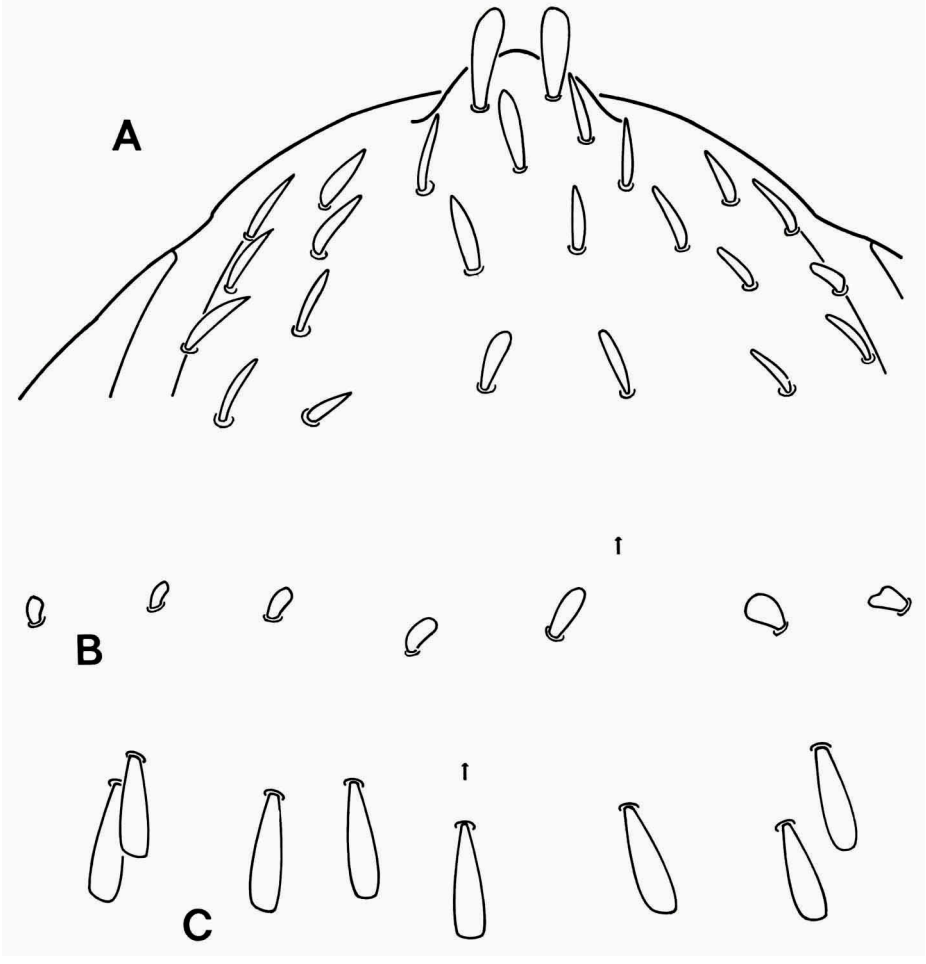


Fig. 9. *Salfacarus robustipes* spec. nov., female; A, rostral part of prodorsum; B, part of dorsal row of setae of segment VIII; C, part of posterior dorsal row of setae of segment XVIII (the arrows in figs. B and C indicate the line of symmetry); A-C, × 370.

leg IV 3.50 (1.93). All legs are consequently longer than the body, and leg IV is even longer than leg I (in *Paracarus hexophthalmus* leg IV is also longer than leg I). In the deutonymph these measurements and ratios are the following: leg I 2.62 (2.30), leg II 1.41 (1.23), leg III 1.43 (1.25), leg IV 1.97 (1.73).

Colour. — Prodorsum with a median, dark, violet-blue stripe, a violet-blue lateral border, a violet-blue stripe connected with the eye-spot, and a transverse violet-blue stripe along the prodorsal furrow (interrupted in the median part). The opisthosoma is very dark violet-blue (nearly black); there can be small, pale, intersegmental stripes, especially in the posterior part. The ventral part of the opisthosoma is lighter. The sternum can present a broad, irregular, blue stripe.

Leg I is nearly completely violet-blue with the exception of the trochanter and the basal and terminal part of the femur; in leg II, the greater (median) part of the femur, the proximal half of genu, tibia and tarsus, and the greater (proximal) part of the telotarsus are violet-blue; in leg III part of trochanter 1 and 2, the greater (proximal) part of the femur, the basal parts of genu, tibia and basitarsus, and the proximal half of the telotarsus are violet-blue; in leg IV part of trochanter 1 and 2, the greater (proximal) part of the femur, and the base of the telotarsus are violet-blue, while the remaining parts are light brownish yellow (a striking character).

Cuticle. — The cuticle presents the usual coniculate microsculpture, varying from nearly verrucose to nearly aciculate.

Prodorsum. — The rostral part (fig. 9A) of the aspidosoma constitutes a distinct rostral lobe; this lobe bears the pair of papilliform rostral setae, which is distinctly larger (and more rounded at the tip) than the remaining prodorsal setae. The last-mentioned setae are also papilliform, although more or less broadly acuminate. The papilliform setae are larger than in *Salfacarus legendrei.*

Opisthosoma. — The opisthosomatic setae are much larger than in *Salfacarus legendrei,* especially the dorsal setae of the posterior segments (fig. 9B, C). Their arrangement is apparently also atactotrichous.

Anal tubercle. — This segment presents papilliform setae with an apparently atactotrichous arrangement.

Genital region. — The female genital region is represented in fig. 10B. In the two adult females present in our material, the genital verrucae show three or four papilliform setae, one compound seta (*pvg*) and one lyrifissure (*ivg*).

The pregenital area presents two or three papilliform setae. There are papilliform genital setae.

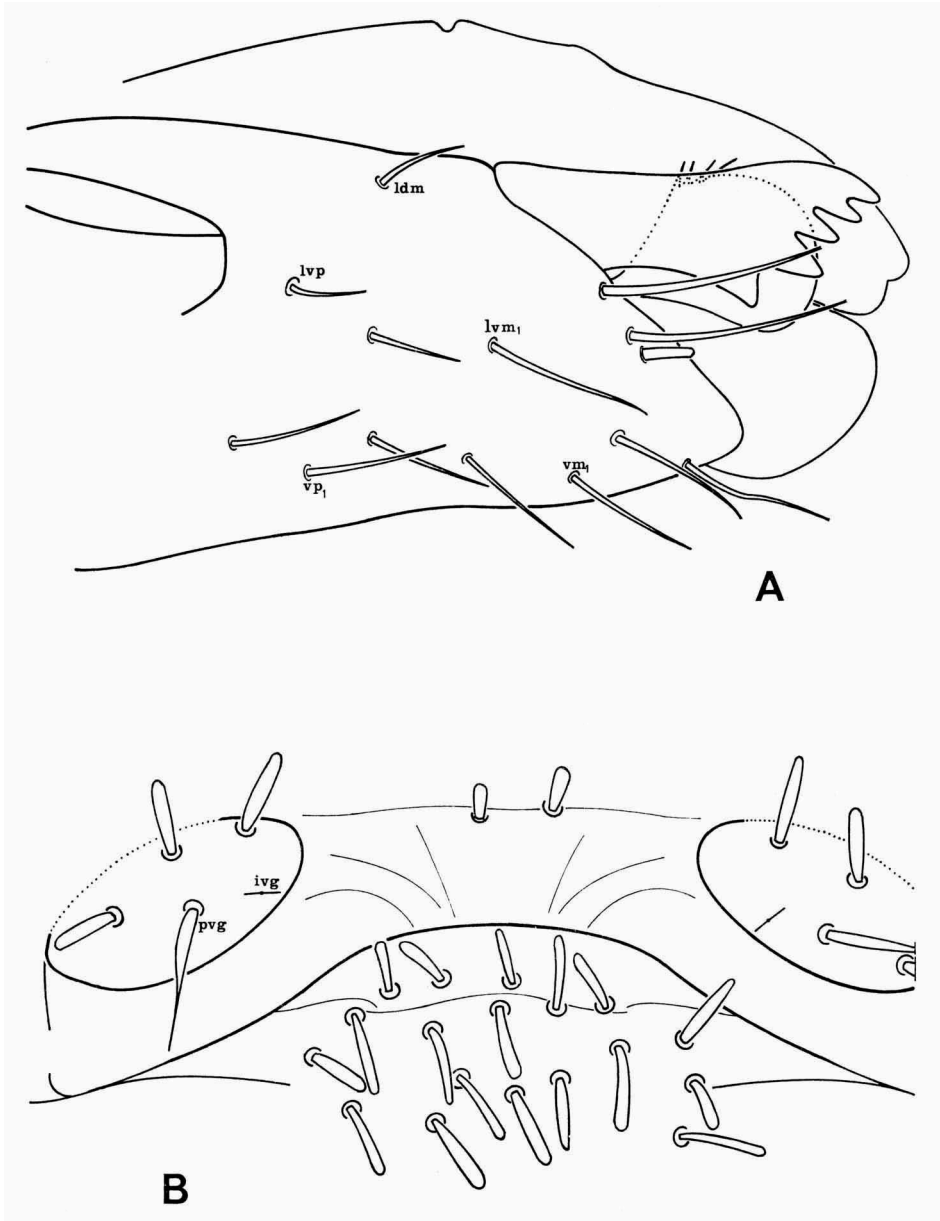


Fig. 10. *Salfacarus robustipes* spec. nov., female; A. lateral view of infracapitulum; B, genital region; A, B, × 370.

Sternal region of the podosoma. — The sternal verrucae present three or four spines, one compound seta (*pvs*), and one lyrifissure (*ivs*). The sternapophyses present the usual two setae.

Gnathosoma — The infracapitulum is represented in lateral view in fig. 10A. Apart from the usual three paralabial and four circumbuccal setae, there are at each side one *ldm*, and a variable number of *lvm, vm, lvp* and *vp*.

Chelicera. — In the adult, the cheliceral trochanter bears one seta (*cht*); the cheliceral body presents the usual number of three setae ($ch_1'$, $ch_2''$, $ch_2''$).

Palp. — The palp presents the usual types of setae.

Legs. — As mentioned above all adult legs are distinctly longer than the body, while the adult leg IV is even longer than leg I (and even relatively longer than in *Paracarus hexophthalmus* (Redikorzev), the only other known species in which leg IV is longer than leg I). Tibia and basitarsus of leg II are represented in fig. 11A; tibia IV is represented in fig. 11B. Coronidia are present on basitarsus II-IV only, just as in other species of the genus. They constitute dorsal rows extending over 0.7 or 0.8 of the total length; in the distal part only their place is taken by unpaired mucronate dorsal setae. In the posterior legs the laterodorsal and lateroventral papilliform setae are extremely long, especially on the tibia (fig. 11B). Tibia I of the adult is not subdivided by a mesotibial scissure.

Development. — The nymphal stases are easily recognizable by the usual characters. The measurements of the three nymphs are mentioned above. It is interesting that, in the deutonymph, leg I is still much longer than leg IV.

In the protonymph the dorsal opisthosomatic setae are absent except in Segment XVIII bears eleven setae, viz., five pairs and the unpaired $pd_x$. present the compound seta *pvs* only, the genital verrucae the compound seta *pvg* (beside the lyrifissures *ivs* and *ivg*).

In the deutonymph setae are present on all opisthosomatic segments. Segment XVIII bears eleven setae, viz., five pairs and the unpaired $pd_x$. In legs III and IV trochanter 2 is incompletely developed; it takes the place of the basifemur. There is an incomplete articulation between this segment and the (telo)femur (fig. 11C). There is one tendon ($tf_s$), one condyle ($k''$) and a compound lyrifissure ($if'$) of the basifemoral ring. Consequently the articulation presents characters of the eudesmatic one between trochanter 2 and femur, and of the adesmatic one between basi- and telofemur.

In the female tritonymph there is one papilliform pregenital seta. The seta *cht* of the cheliceral trochanter is present.

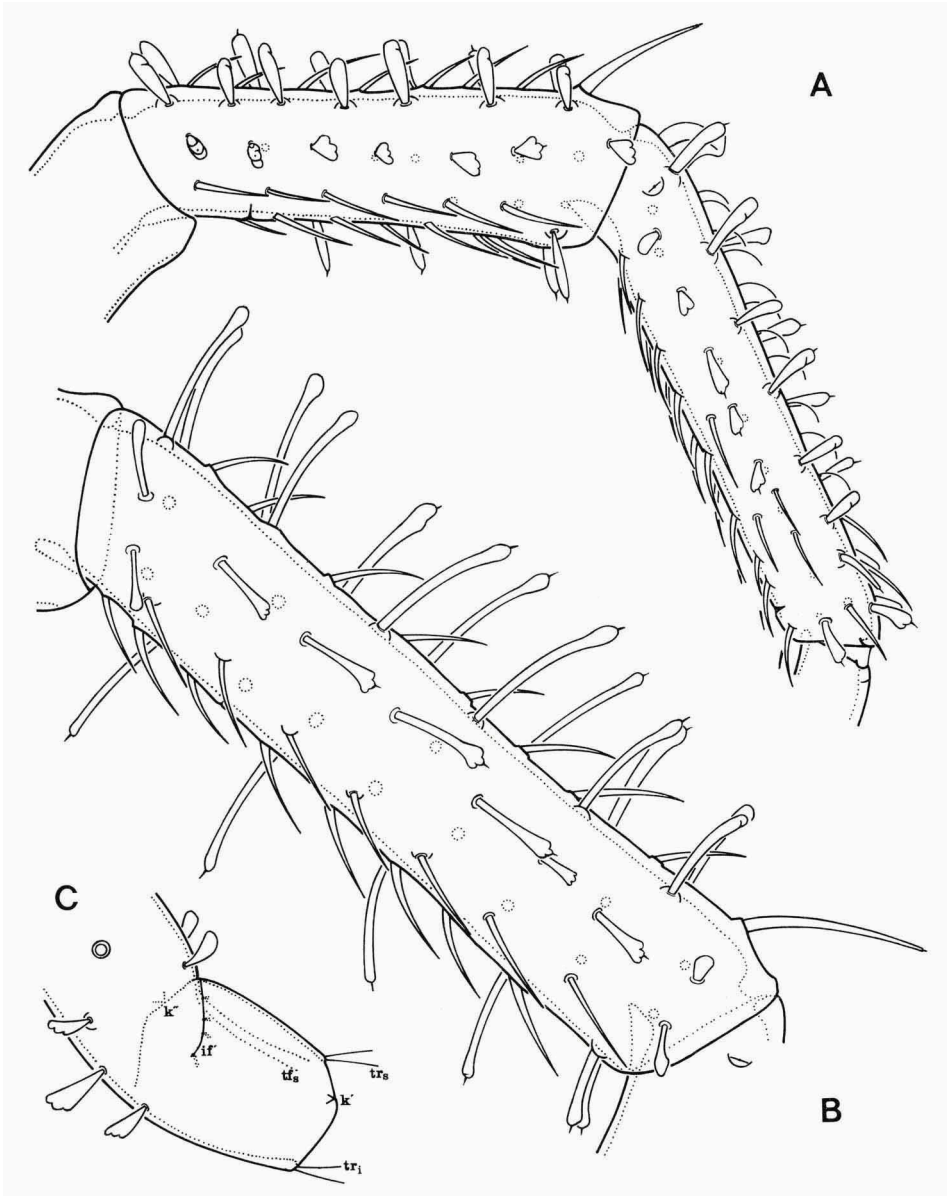


Fig. 11. *Salfacarus robustipes* spec. nov.; A, tibia and basitarsus of right leg II of an adult female (antiaxial face); B, tibia of right leg IV of an adult female (paraxial face); C, base of femur of leg III of a deutonymph (anterior = antiaxial face), with incompletely developed trochanter 2 taking the place of the basifemur; A, B, × 185; C, × 295.

Ecology. — The species was collected in litter of a primary forest on a high plateau. Only one locality is known.

Diagnostic characters. — The species is, especially in the adult stase, easily recognizable by the long robust legs, the length of leg IV, the long papilliform setae on the posterior legs, and the pale terminal part of leg IV.

**Salfacarus tanzaniensis** spec. nov. (figs. 12, 13)

Locality and date. — Tanzania, southern slope of Mt. Hanang, altitude 2500 m, in high coppice with *Protea*, 26 May 1957.

Material. — One male specimen, recognizable by the presence of many compound genital setae, in dorsal orientation in a sufficiently transparent, permanent slide (collection of the Muséum National d'Histoire Naturelle, Paris). Chelicera and palp are present at both sides; leg I is lacking; legs II and III are present at both sides; leg IV is present at the right side only. The label of the slide mentions only the number 445 (in ink) and some erroneous data (in pencil). The single specimen is the holotype of the present new species. It was collected by the "Mission Basilevski-Leleup".

Measurements. — The single male specimen is relatively large. The length of the idiosoma (without anal tubercle) is 1.91 mm, the breadth (the specimen in the slide is slightly flattened) is 1.25 mm; the ratio length : breadth is 1.53. The lengths of the legs (without coxae) are the following (the ratio length of the leg : length of the body is mentioned between brackets): leg 2.18 mm (1.14); leg III 2.21 (1.16), leg IV 3.36 (1.76). Consequently all legs are longer than the body. Leg IV is relatively longer than in *S. legendrei*.

Colour. — The mounted specimen presents the usual colour-pattern of stripes and spots. The main colour of the pigment is violet-blue, that of the cuticle yellow-brown. The violet-blue colour passes locally into purple or greenish; the jaws of the chelicerae are green.

Food. — The gut of the specimen contains masses of brown fragments, probably of vegetable origin; fragments of animals could not be discerned.

Cuticle. — The microsculpture of the cuticle is coniculate and consists of small, low cones with rounded tip.

Prodorsum. — The usual two pairs of eyes, one pair of oculorostral grooves, and numerous sigilla are present. The papilliform prodorsal setae are rather small; they are very numerous. The two rostral setae are not strikingly larger than the remaining prodorsal setae. The rostrum of the specimen in the slide (fig. 12A) is very broad and nearly truncate.

Opisthosoma. — The usual four pairs of stigmata and numerous sigilla are present. There are numerous papilliform opisthosomatic setae. In the

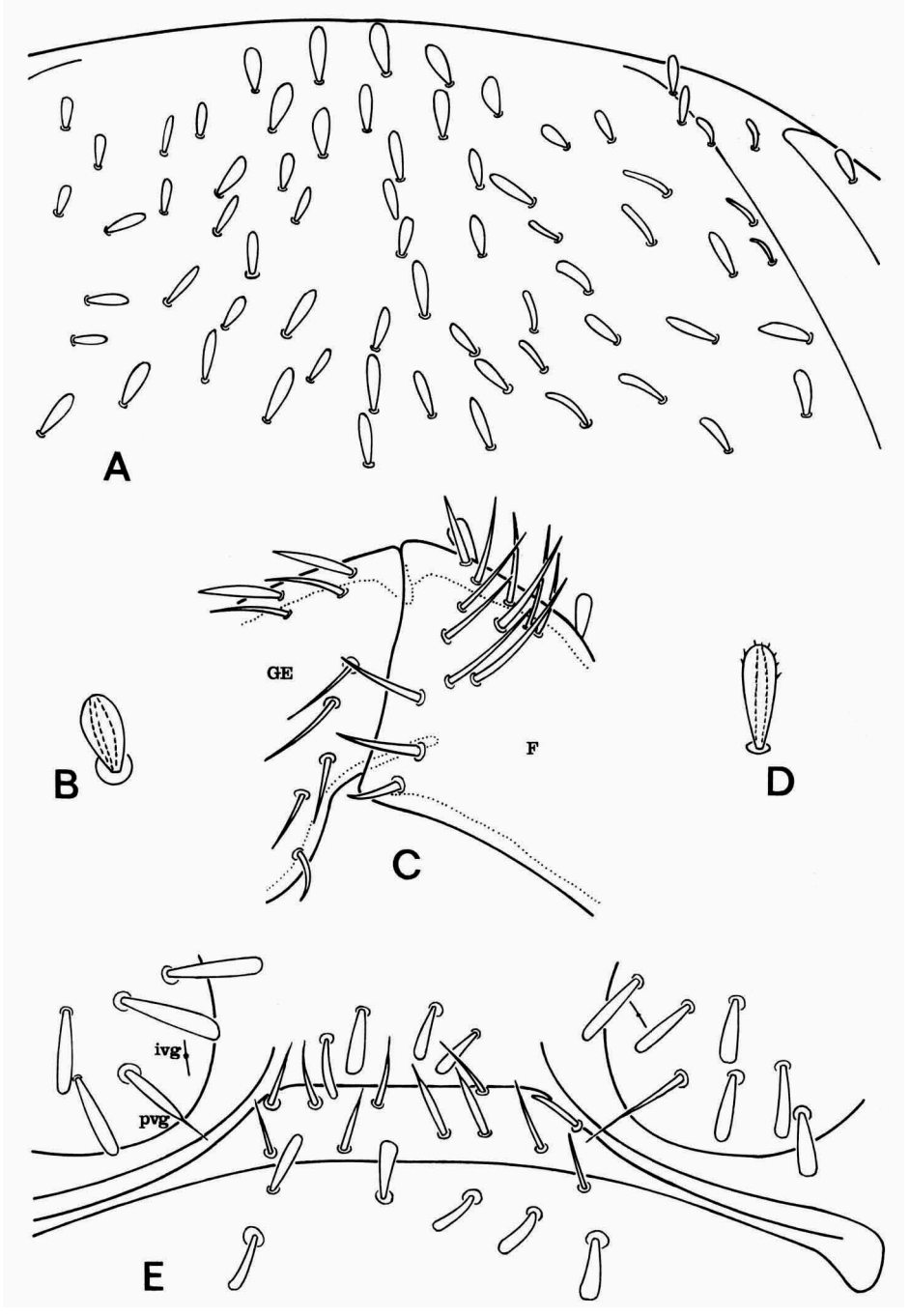


Fig. 12. *Salfacarus tanzaniensis* spec. nov., male; A, rostral part of prodorsum; B, dorsal papilliform seta of segment IX; C, paraxial view of terminal part of femur and basal part of genu of right palp; D, dorsal papilliform seta of segment XVIII; E, genital region; A, C, E, × 370; B, D, × 690.

anterior segments the dorsal setae are still arranged in one row; the dorsal setae of the segments XI-XVIII are distinctly arranged in several rows. The opisthosomatic setae are rather small; those of the posterior segments (fig. 12D) are slightly longer and more slender than those of the anterior rows (fig. 12B). There is only a small number of opisthosomatic lyrifissures; these are probably idionymic.

Genital region. — Although the single specimen is orientated dorsally, the slide is sufficiently transparent to permit of a study of the genital region (fig. 12E). The specimen distinctly represents a male; the genital area presents ten compound setae, irregularly arranged in two rows. The genital verrucae each present one compound seta (*pvg*), one lyrifissure (*ivg*), and six papilliform setae.

Sternal region of the podosoma. — The sternal verrucae each present one compound seta, one large lyrifissure, and three or four spiniform setae.

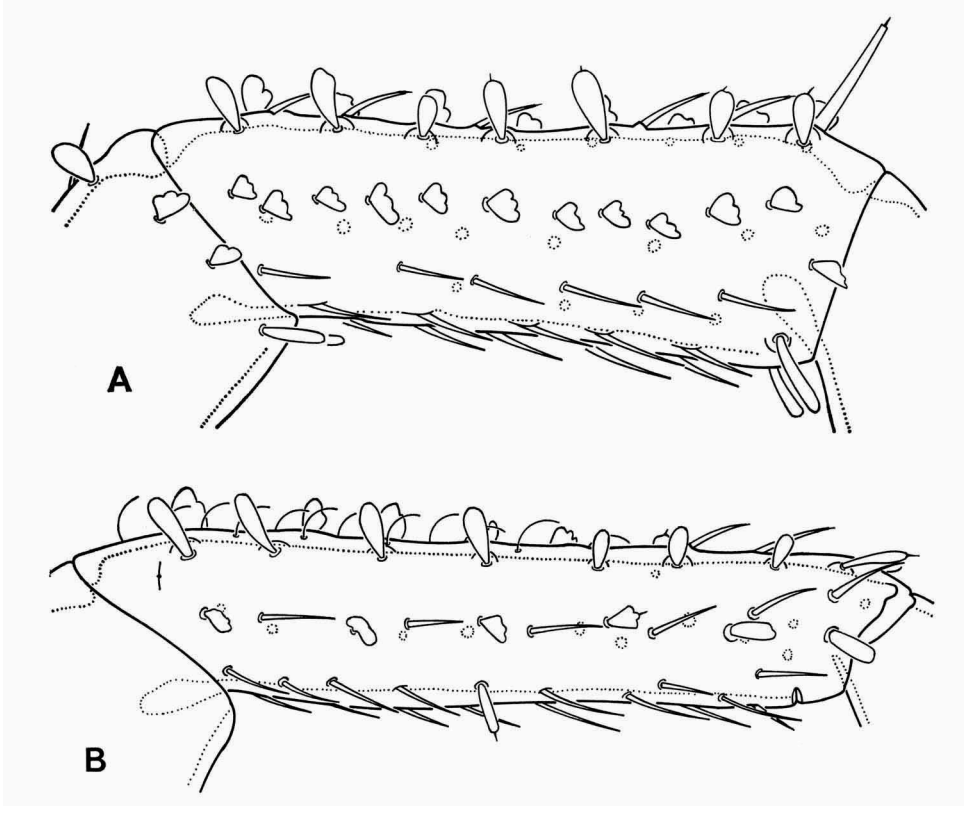


Fig. 13. *Salfacarus tanzaniensis* spec. nov., male, antiaxial view of part of right leg II; A, tibia; B, basitarsus; A, B, × 295.

The sternal region further presents numerous papilliform setae, a number of lyrifissures, and the usual sternal taenidia. The sternapophyses each bear the usual two setae.

Gnathosoma. — The gnathosoma could be studied in dorsal orientation only. The tegulum of the type-specimen is violet-blue. The infracapitulum presents the usual three pairs of paralabial setae and four pairs of circumbuccal setae. As far as discernible in dorsal orientation, there are at each side two *vm* setae, two *lvm*, one *ldm*, two *vp* (discernible at the right side only), and one *lvp*.

Chelicera. — The usual setae *cht*, $ch_1''$, $ch_2'$ and $ch_2''$ are present.

Palp. — The distal part of the palpal femur presents paraxially a characteristic laterodorsal group of some ten spines (fig. 12C). The palpal tarsus presents paraxially at least six leaf-shaped setae and a laterodorsal area of some twenty hollow setae.

Legs. — Leg I is absent in the single specimen of the species studied by me. As mentioned above, legs II-IV are longer than the idiosoma; they are distinctly more slender than in *S. legendrei*. The legs present the usual segments. The relative lengths of these are the following (from trochanter or trochanter 1 up to and including the ambulacrum; in all cases the lengths of telotarsus, acrotarsus and ambulacrum are condensed to one number). Leg II: 0.106, 0.241, 0.139, 0.149, 0.169, 0.196. Leg III: 0.081, 0.068, 0.209, 0.128, 0.149, 0.169, 0.196. Leg IV: 0.083, 0.079, 0.232, 0.132, 0.166, 0.154, 0.154. In all cases the terminal segments (telotarsus, acrotarsus and ambulacrum) are relatively shorter than in *S. legendrei*. In the case of legs II and III, tibia and basitarsus are relatively longer than in *S. legendrei*. In the case of leg IV the femur is relatively longer than in *S. legendrei*. The largest heights of femur, genu, tibia and basitarsis of leg IV (and the ratio height : length of the segment, mentioned between brackets) are the following: 0.162 (0.23), 0.153 (0.36), 0.130 (0.22), 0.089 (0.17). Tibia and basitarsus II, are represented in fig. 13A, B. Tibia II-IV present dorsal mucronate setae. Basitarsi II-IV present a double row of dorsal coronidia; this row extends from the base of the segment over about 3/5 of the total length of the basitarsus.

Remark. — Because only one specimen of the species is known, no data can be mentioned here on variability, geographic distribution, or postembryonic development.

Diagnostic characters. — *Salfacarus tanzaniensis* resembles *S. legendrei*, *S. lawrencei* and *S. dispar*, but is recognizable by the following combination of characters: the rostral setae are not strikingly larger than the remaining

prodorsal setae; the prodorsal setae are very numerous; the rostrum is broad; the idiosoma is rather large, and the legs are more slender; leg IV is relatively longer; there are distinct differences from *S. legendrei* in the relative length of some leg segments; the coronidia of basitarsus II-IV extend over about 3/5 of the total length. The para-laterodorsal group of spines, present in the distal part of the palpal femur, constitutes also a diagnostic character, but could be restricted to the male.

**Salfacarus lawrencei** [1]) spec. nov. (figs. 14, 15)

Locality and date. — Near Letaba, Kruger National Park, South Africa, under rocks, November 1963 [2]).

Material. — One adult female (holotype), and one female tritonymph (paratype) containing a nearly mature adult. The type-specimens have been collected by Dr. R. F. Lawrence; they are preserved in the collection of the British Museum (Natural History), London.

Measurements. — The total length of the idiosoma (without anal tubercle) of the adult female is 1.88 mm, the breadth 0.97, and the ratio length : breadth 1.94. The lengths of the adult legs (coxae not included) are the following (the ratio length of the leg : length of the body is mentioned between brackets): leg I 3.13 (1.66), leg II 1.61 (0.86), leg III 1.68 (0.84), leg IV 2.58 (1.37).

Habitus and colour. — The specimens present the typical habitus of an Opilioacarid. The colour pattern is mainly due to the distribution of violet-blue pigment grains under the pale yellowish-brown cuticle. Generally, the dorsal and lateral surfaces of the idiosoma, with the exception of the sigilla and furrows, are violet-blue, while the ventral surface for the greater part is pale. The dorsal and lateral furrows and sigilla, where the violet-blue pigment is lacking, are the following: the oculorostral groove, the longitudinal areas of muscle-insertion of the prodorsum, the transverse prodorsal furrow, the disjugal furrow, the abjugal furrow, scattered prodorsal sigilla, the sigilla and furrows of the opisthosoma. The ventral surface presents a broad, transverse violet-blue band in the sternal region between legs II, and two violet-blue, semi-circular stripes in the pregenital region, while the ventral region of segments XVII and XVIII is completely violet-blue. The gnathosoma presents some blue stripes. The femur of the palp is partly violet-blue; genu, tibia and tarsus are pale in colour. The legs present violet-

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1) Dedicated to Dr. R. F. Lawrence, late director of the Natal Museum, Pietermaritzburg, South Africa, who collected the material of the present new species.

2) According to Dr. R. F. Lawrence (in litt.) the biologist to the Park, Dr. U. de V. Pienaar, mentioned the find in his Annual Report; this report was not available to me.

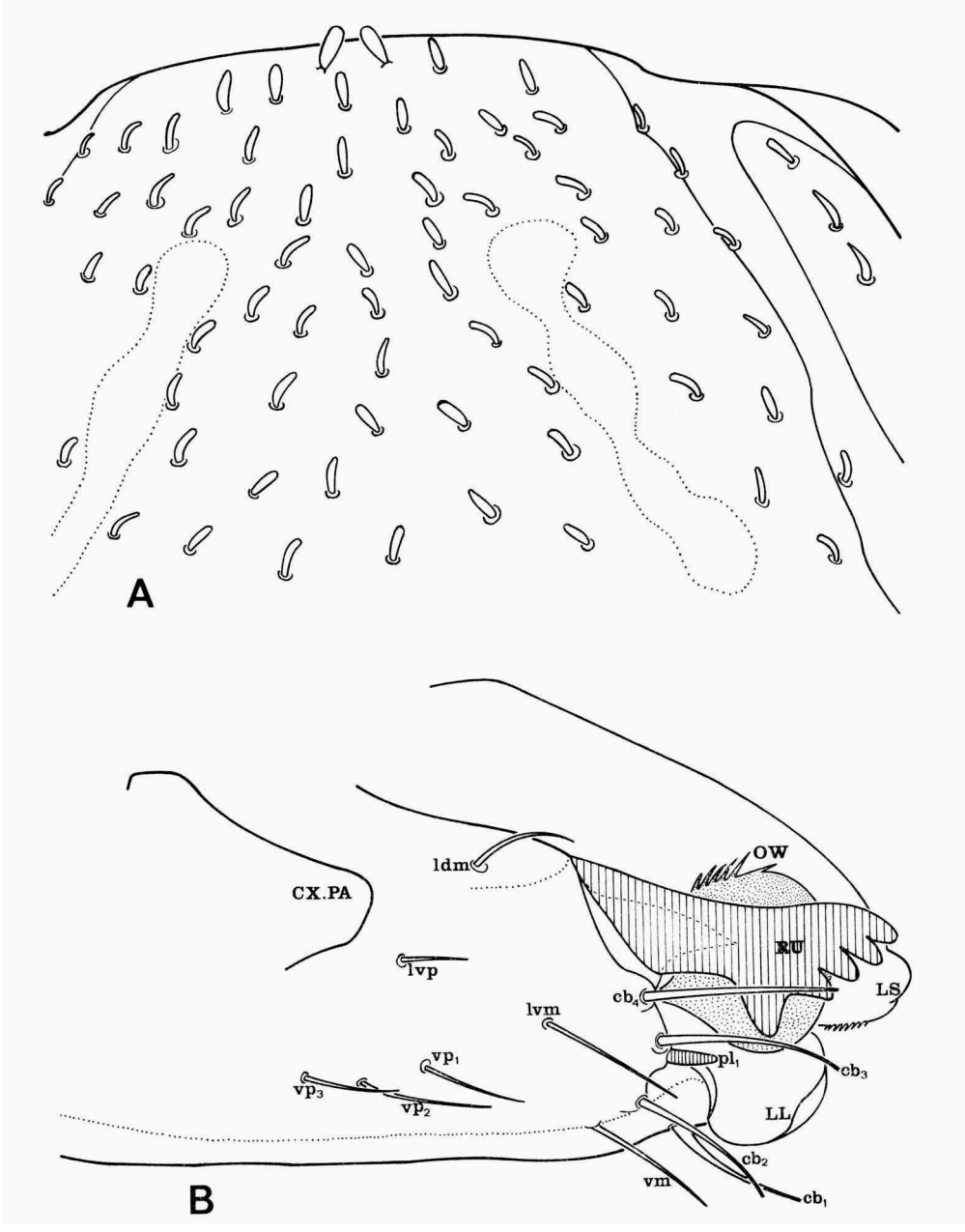


Fig. 14. *Salfacarus lawrencei* spec. nov., female; A, rostral part of prodorsum; B, lateral view of infracapitulum; A, B, × 370.

blue rings. The following parts of the legs are pale in colour: leg I, trochanter, proximal half of telotarsus; leg II, trochanter, proximal half of femur, and telotarsus; leg III, trochanter 1 and 2, femur, part of genu, distal half of basitarsus, part of telotarsus; leg IV, trochanter 1 and 2, greater part of femur, greater part of genu.

Cuticle. — The cuticle presents the usual coniculate microsculpture; the small cones are slightly rounded.

Prodorsum. — The prodorsum is bordered by the abjugal and disjugal furrows; it presents a pair of oculorostral grooves and a transverse prodorsal furrow, just as in other species of Opilioacarida. There are two pairs of eyes, and numerous papilliform setae. The rostrum (fig. 14A) is broad; there is no elevated rostral lobe.

Opisthosoma. — The arrangement of the sigilla resembles that of the other known species of Opilioacarida. Stigmata 4 are slightly more widely separate than stigmata 3. There are numerous small papilliform setae, more or less arranged in transverse rows. The number of lyrifissures (although not exactly established, because the holotype could not be warmed) is distinctly smaller than in species of the genus *Opilioacarus*.

Anal tubercle. — The anal tubercle (segment XIX) presents numerous small, papilliform setae, arranged in three transverse rows; the microsculpture resembles that of the greater part of the idiosoma.

Genital region. — In the female specimen, the ovipositor is partly extended; the pregenital area and the genital verrucae are not completely visible (one compound seta and some papilliform setae could be observed on the genital verrucae). There are ten compound genital setae inserted on an oval sclerite (an exceptional character for a female). The extended part of the ovipositor is broad and slightly bilobate; its colour is brown.

Sternal region of the podosoma. — The sternapophyses present the usual two setae. The sternal taenidia resemble those of other species of Opilioacarida. The sternal verrucae present one compound seta, three or four spiniform setae, and (at one side) moreover two papilliform setae; the usual pair of large lyrifissures *ivs* is present.

Lateral region of the podosoma. — The usual three pairs of suprapedal lobes are present above coxae I-III.

Gnathosoma. — The following pairs of infracapitular setae are present in the holotype: *RU, OW,* $pl_1$, $cb_{1\text{-}4}$, $vm_{1\text{-}2}$, *lvm, ldm,* $vp_{1\text{-}3}$, *lvp*. The rutellum presents five large, nearly equal teeth (the proximal tooth is slightly larger). With's organ is disk-shaped; its dorsal border presents a fringe of some six rather long ciliae.

Chelicera. — The chelicerae present the usual number of setae: one on the trochanter (*cht*) and three on the cheliceral body ($ch_1''$, $ch_2''$, $ch_2'$).

Palp. — The cuticle of the palpal tarsus is not completely smooth; the antiaxial face presents, in the proximal part, a small area with a coniculate microsculpture. The paralaterodorsal area of the tarsus presents some 25-30 hollow setae. There is a paraxial tarsal group of five leaf-shaped setae. Femur and genu of the species (fig. 15A) resemble those of species of the genus *Opilioacarus*.

Legs. — As mentioned above, legs I and IV are longer than the body, legs II and III distinctly shorter. The relative lengths of the leg segments are the following (from trochanter or trochanter 1 up to and including the

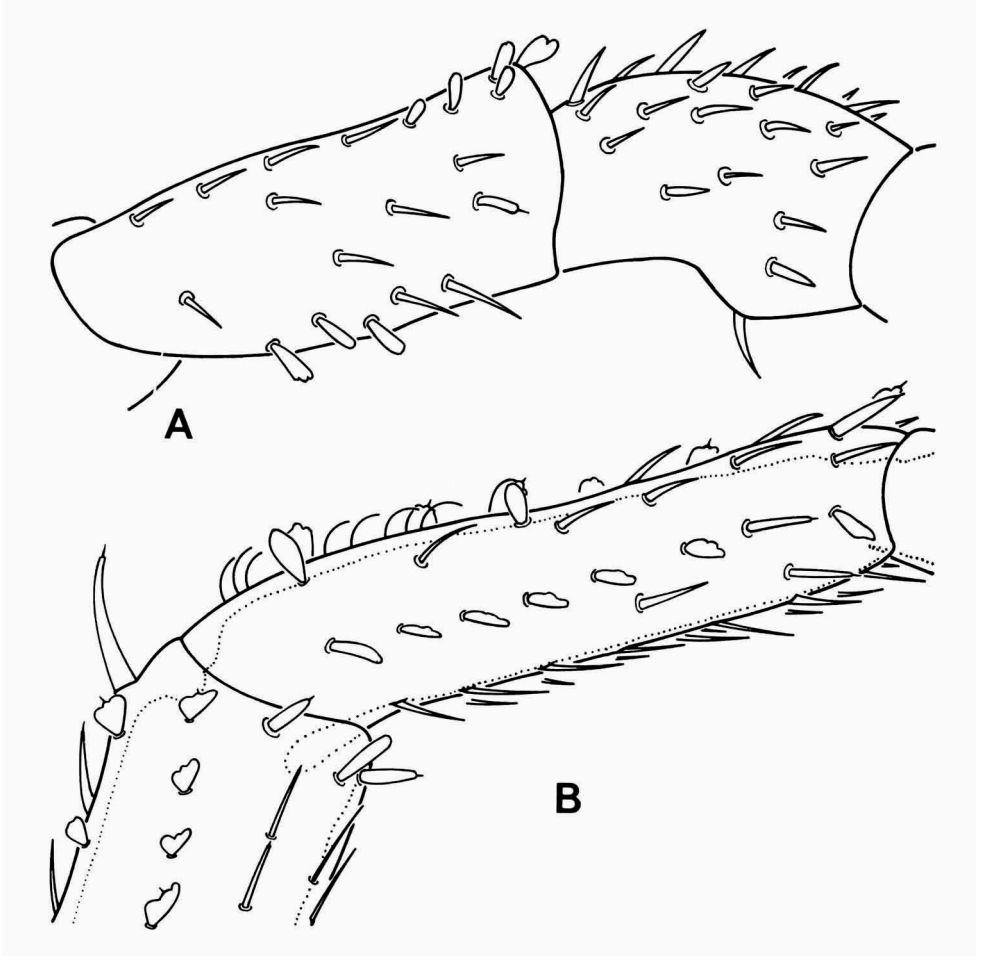


Fig. 15. *Salfacarus lawrencei* spec. nov., female; A, antiaxial view of femur and genu of right palp; B, antiaxial view of distal part of tibia, and basitarsus of right leg II; A, B × 370.

ambulacrum; in all cases the length of telotarsus, acrotarsus and ambulacrum is condensed to one number). Leg I: 0.136, 0.265, 0.148, 0.265, 0.084, 0.102. Leg II: 0.124, 0.244, 0.136, 0.155, 0.166, 0.175. Leg III: 0.086, 0.082, 0.198, 0.134, 0.138, 0.168, 0.194. Leg IV: 0.097, 0.085, 0.226, 0.121, 0.158, 0.150, 0.163. The largest heights of femur, genu, tibia and basitarsus of leg IV (and the ratio height : length of the segment, mentioned between brackets) are the following: 0.133 (0.24), 0.133 (0.41), 0.115 (0.28), 0.065 (0.17). The telotarsal organ of leg I presents the usual two solenidia *h* and *f*; *f* is relatively long. Coronidia are present on basitarsi II-IV (fig. 15B); they are arranged in two dorsal rows which occupy the proximal part (1/3 of the total length of basitarsi II-III, 2/3 in the case of basitarsus IV).

Development. — As mentioned above, the material studied here, comprised one female tritonymph (containing a nearly mature adult). The genital region of the specimen presents four genital setae and one pregenital seta; the genital verrucae present one compound seta and seven or eight papilliform setae. Legs III and IV of the tritonymph are absent at one side. In the nearly mature female, present inside the tritonymphal skin, these legs have developed under the tegument of the tritonymphal idiosoma, pressed against the idiosoma of the adult, whilst the remaining adult legs have developed inside the tritonymphal legs (a similar case of regeneration is described by Coineau & Legendre, 1975, for an Opilioacarid from Gaboon).

Remark. — The species is known from the type-locality only; the two specimens were collected under rocks. No further data on ecology and geographical distribution can be given.

Diagnostic characters. — The species rather resembles *S. legendrei, S. tanzaniensis* and *S. dispar*. It is characterized by the numerous prodorsal setae, the broad rostrum, the rather small rostral setae, the compound genital setae of the female (inserted on a sclerite), the presence of a coniculate microsculpture on part of the palpal tarsus, the relatively short legs, and the relative lengths of the leg segments.

### **Salfacarus dispar** spec. nov. (figs. 16, 17)

Locality and date. — Near Letaba, Kruger National Park, South Africa, under rocks, November 1963.

Material. — One adult male (holotype), collected by Dr. R. F. Lawrence, and preserved in the collection of the British Museum (Natural History), London.

Measurements. — The length of the single specimen is 1.64 mm, the breadth 0.72 mm, the ratio length: breadth 2.28. The lengths of the legs, and the ratio length leg : length idiosoma (mentioned between brackets) are

the following : leg I 3.50 (2.13), leg II 1.93 (1.18), leg III 1.94 (1.18), leg IV 3.05 (1.86); consequently all legs are longer than the body.

Habitus and colour. — The species looks rather robust, especially because of its relatively large legs. The coloration is distinctly more variegated than in *S. lawrencei*; the pale spots at the places of furrows and sigilla are larger and, in addition, the median part of the prodorsum is also pale. The colour of the pigment passes, in many places, into green. The ventral surface is completely pale. Leg I is dark violet-blue, with the exception of the trochanter, the base of the femur, the terminal part of the tibia, and the tarsus. Legs II-IV are pale in colour, with the exception of the violet-blue rings in the median part of the femur and at the base of tibia, basitarsus and telotarsus.

Cuticle. — The coniculate microsculpture is slightly different from that of *S. lawrencei*; the small cones are distinctly pointed instead of rounded.

Prodorsum. — In comparison with *S. lawrencei* the rostrum (fig. 16A) is much narrower, and its anterior border more rounded. The prodorsal setae are much less numerous; they are, moreover, slightly longer, and generally more pointed.

Opisthosoma. — The opisthosoma resembles that of *S. lawrencei*. Stigmata 4 are also more widely separate than stigmata 3.

Anal tubercle. — The anal tubercle is similar to that of *S. lawrencei*; it presents some three rows of papilliform setae.

Genital region. — The single male specimen presents six compound genital setae and five papilliform pregenital setae (fig. 16C). The genital verrucae each present four papilliform setae, one compound seta, and one lyrifissure.

Sternal region of the podosoma. — The sternal verrucae each present one compound seta, one or three spiniform setae, and one large lyrifissure (*ivs*).

Lateral region of the podosoma. — This region resembles that of other species of Opilioacarida.

Gnathosoma. — Beside the usual paralabial and circumbuccal setae, the following infracapitular setae are present at both sides: one *vm*, one *lvm*, one *ldm*, one or two *vp*, and one *lvp*. With's organ presents the same dorsal fringe as in *S. lawrencei*. The rutellum resembles that of *S. lawrencei*.

Chelicera. — Seta *cht* of the cheliceral trochanter is strikingly long (about 0.07 mm) much longer than in any other known species of Opilioacarida.

Palp. — The tarsus of the palp presents a coniculate microsculpture in the proximal part of the antiaxial surface; the paraxial surface is completely smooth. The paralaterodorsal area of the palpal tarsus presents some 20-25 hollow setae. There are five paraxial leaf-shaped setae. Femur and genu of

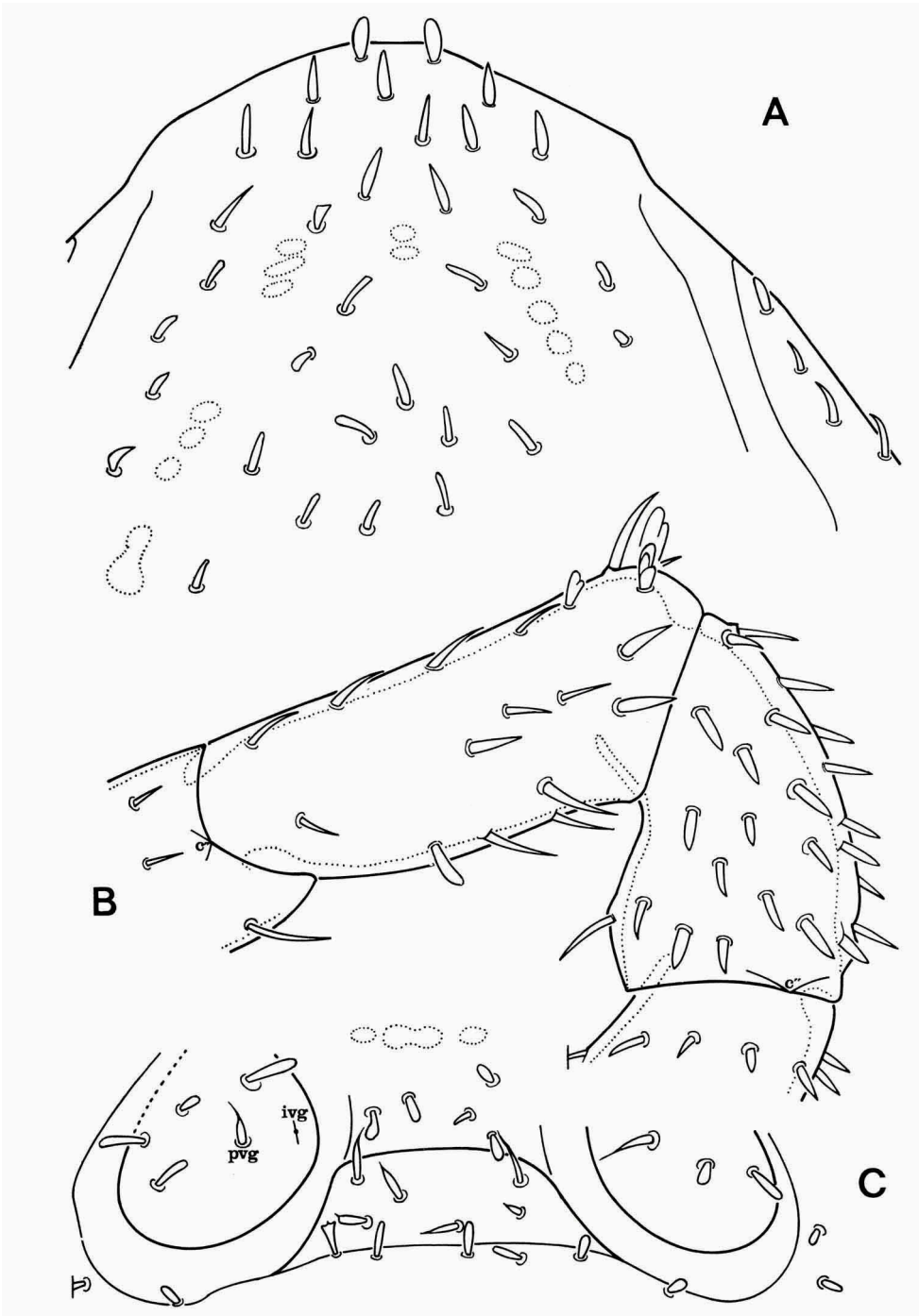


Fig. 16. *Salfacarus dispar* spec. nov., male; A, rostral part of prodorsum; B, antiaxial view of femur and genu of right palp; C, genital region; A-C, × 370.

the palp are represented in fig. 16B. The articulation genu/tibia is bivalent, just as in other species of Opilioacarida.

Legs. — As mentioned above, all legs are longer than the idiosoma (without anal tubercle); leg I is more than two times as long as the idiosoma (longer than in any other known species of *Salfacarus*). The legs are more robust than in *S. lawrencei*. The relative lengths of the leg segments are the following (from trochanter or trochanter 1, up to and including the ambulacrum; in all cases the length of telotarsus, acrotarsus and ambulacrum is condensed to one number). Leg I: 0.113, 0.232, 0.179, 0.291, 0.089, 0.096. Leg II: 0.097, 0.246, 0.142, 0.149, 0.162, 0.204. Leg III: 0.065, 0.074, 0.210, 0.135, 0.142, 0.168, 0.206. Leg IV: 0.090, 0.078, 0.225, 0.131, 0.164, 0.148, 0.164. The largest heights of femur, genu, tibia and basitarsus of leg IV (and the ratio height : length of the segment, mentioned between brackets) are the following: 0.165 (0.25), 0.148 (0.38), 0.124 (0.25), 0.080 (0.18). Solenidion *f* of the telotarsal organ is shorter than in *S. lawrencei*, and slightly less protruding. Tibia and basitarsus of leg II are represented in fig. 17A, B. Coronidia are present in the proximal half of the basitarsus of

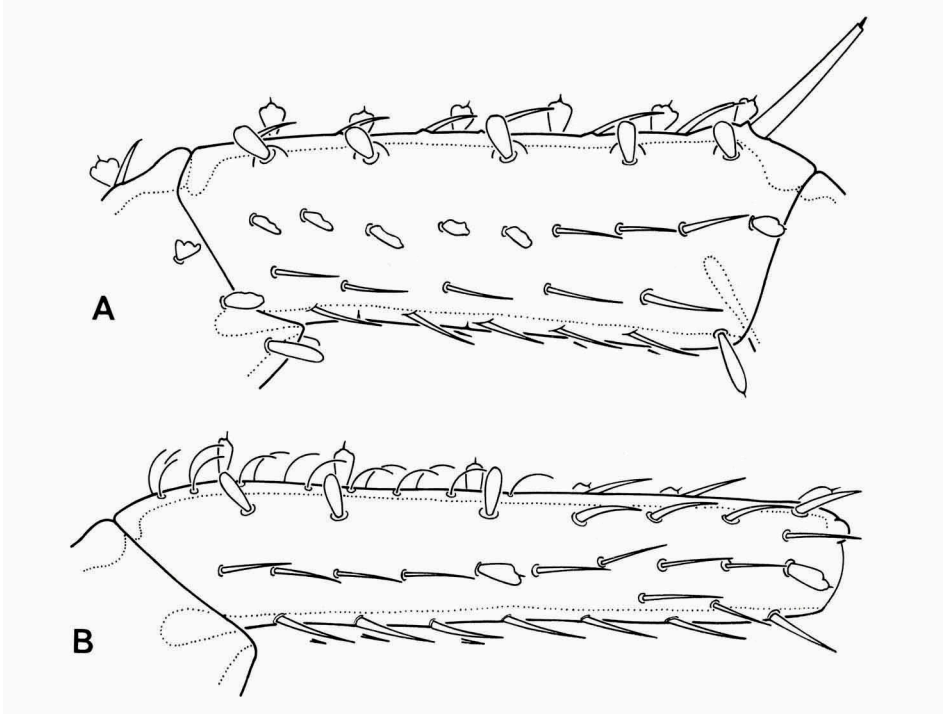


Fig. 17. *Salfacarus dispar* spec. nov., right leg II of male; A, antiaxial view of tibia; B, antiaxial view of basitarsus; A, B, × 295.

legs II and III (fig. 17B) and in the proximal two third part of the basitarsus of leg IV.

Remark. — Only one adult male specimen of the species is known. It was collected under rocks. No further data on geographical distribution, ecology and development can be given.

Diagnostic characters. — The species especially resembles *S. tanzaniensis*, *S. legendrei*, and *S. lawrencei*. It is characterized by the narrow, rounded rostrum, the relatively small number of prodorsal setae, the length of seta *cht* of the cheliceral trochanter, the presence of a coniculate microsculpture on part of the palpal tarsus, the relatively long legs (all legs longer than the body, leg I more than two times as long as the body), and the relative lengths of the leg segments.

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