

FOUR NEW SPECIES OF *NEODISCOPOMA* VITZTHUM, 1941 (ACARI : MESOSTIGMATA) FROM SOUTHERN AFRICA

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TAXONOMY
NEODISCOPOMA
SOUTHERN AFRICA

ABSTRACT : Four new species of *Neodiscopoma* Vitzthum, 1941 (syn. : *Discopoma* Berlese, 1904) (type species *Uropoda splendida* Kramer, 1882) collected from soil in southern Africa are described and figured. The new species are *Neodiscopoma franzi*, *N. crenulatum*, *N. elegans* and *N. potchefstroomensis*.

TAXONOMIE
NEODISCOPOMA
AFRIQUE DU SUD

RÉSUMÉ : Quatre nouvelles espèces de *Neodiscopoma* Vitzthum, 1941 (syn. : *Discopoma* Berlese, 1904) espèce type *Uropoda splendida* Kramer, 1882) récoltées dans le sol en Afrique Australe, sont décrites et illustrées. Les quatre nouvelles espèces sont *Neodiscopoma franzi* ; *N. crenulatum* ; *N. elegans* et *N. potchefstroomensis*.

INTRODUCTION

This genus is represented by relatively large mites. A well sclerotized dorsal shield covers the central area of the idiosoma. This shield is characterized by a bulging outer surface and a conspicuous lateral incision. One or two relatively large pores are situated in these incisions. Various numbers of simple or pilose setae are present on the dorsal shield.

The lateral shield is continuous anteriorly, but reduced posteriorly. A number of scutellas, each bearing a simple seta, are borne on the cuticle posterior to the dorsal shield.

The camerostome is relatively shallow and the lateral shields are fused anteriorly. The outer margin of the lateral shields is either undulated or serrated. The tritosternal base is relatively broad but tapers anteriorly. The laciniae are tripartite or pilose distally. The genital shield reaches from the anterior margin of the sternal shield up

to the posterior margins of coxae IV. A well defined perigenital shield encircles the genital shield completely. Pedofossae are shallow, metapodal shields are absent, the opisthogaster bears a varying number of setae, and the para-anal setae are relatively short and are situated anterior to the anterior margin of the anal opening.

The corniculi are well sclerotized, while the internal malae and labrum-epipharynx are pilose laterally. A relatively broad deutosternal groove with or without deutosternal denticles is present. Gnathosomal setae I are usually longer than the other hypostomal setae. The gnathotectum is densely pilose distally. Well developed cheliceral segments are present and the pedipalpal segments bear 2-4-5-14 setae respectively. A characteristic broad process, on which a single seta is situated, is present on the palptrochanter. There are no claws on tarsus I.

The chaetotactic pattern of the legs (after EVANS, 1972) can be summarized as follows :

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Leg	I	II	III	IV
Coxa	2	2	2	1
Trochanter	4	4	4	4
Femur	9	9	6	7
Genu	$(1 - \frac{2}{1}, \frac{2}{1} - 1)$	$(1 - \frac{2}{1}, \frac{2}{1} - 1)$	$(1 - \frac{2}{1}, \frac{2}{0} - 1)$	$(1 - \frac{2}{1}, \frac{2}{0} - 0)$
Tibia	$(1 - \frac{1}{1}, \frac{2}{1} - 1)$	$(1 - \frac{1}{1}, \frac{2}{1} - 1)$	$(1 - \frac{1}{1}, \frac{2}{1} - 1)$	$(1 - \frac{1}{1}, \frac{2}{1} - 1)$
Tarsus	—	$(3 - \frac{3}{2}, \frac{1}{1}, \frac{3}{2} - 3)$	$(3 - \frac{3}{2}, \frac{1}{1}, \frac{3}{2} - 3)$	$(3 - \frac{3}{2}, \frac{1}{1}, \frac{3}{2} - 3)$

The type material of the four new species has been deposited in the collection of the Institute for Zoological Research, PU for CHE, Potchefstroom, RSA.

KEY TO THE FOUR NEW SPECIES OF *Neodiscopoma*

1. Bulged central area of dorsal shield smaller than dorsal shield; bulged area incised laterally; prominent pore in incision, transversal ridge on opisthogaster absent..... 2
Bulged central area of dorsal shield as big as dorsal shield; incision on bulged area not prominent; transversal ridge on opisthogaster present... *franzi*
2. Inner margin of marginal shield serrate; one pair of pilose setae on anterior margin of marginal shield and one pair on posterior margin of dorsal shield; spore on palptrochanter simple..... *crenulatum*
Inner margin of marginal shield smooth; setae on marginal and dorsal shield simple; spore on palptrochanter obtuse..... 3
3. Margin of bulged dorsal shield smooth, apart from lateral incisions; one large pore in each incision; dorsal setae pilose; seven pairs of cuticular scutellas behind dorsal shield..... *elegans*
Margin of dorsal shield undulated, apart from lateral incisions; two conspicuous pores in each lateral incision; four pairs of cuticular scutellas behind dorsal shield *potchefstroomensis*

Neodiscopoma elegans spec. nov.

(figs. 1-8)

FEMALE (figs 1-8)

Dimensions : Length, 2 000-2 250 μm ; breath (on level of coxae IV), 1 410-1 440 μm ; leg I, 790-800 μm ; leg IV, 800-810 μm ; length of genital shield, 640-645 μm ; breadth (between coxae III), 320-327 μm ; sternal setae, 39-42 μm ; opisthogastric setae, 120-130 μm ; para-anal setae, 60-64 μm ; length of dorsal shield, 1 920-2 000 μm ; breadth, 1 040-1 050 μm ; dorsal setae, 170 μm ; marginal shield, 180 μm ; infra-marginal setae, 90-99 μm ; vertical setae, 100 μm ; setae J5, 200-210 μm .

DORSUM (fig. 1)

This shield is well-sclerotized and covers the central area of the idiosoma. Medial area of dorsal shield conspicuously bulged. The bulged area is properly encircled by a well-defined and sclerotized ridge, and bears one characteristic incision on each lateral margin. Each incision is provided with a relatively large pore. The medial and posterior areas of the dorsal region bear line ornamentations as depicted by fig. 1. Twenty-five pairs of pilose setae are situated on the dorsal shield. Thirteen and twelve pairs of these setae are borne on the podonotum and opisthonotum respectively. The chaetotactic pattern of the

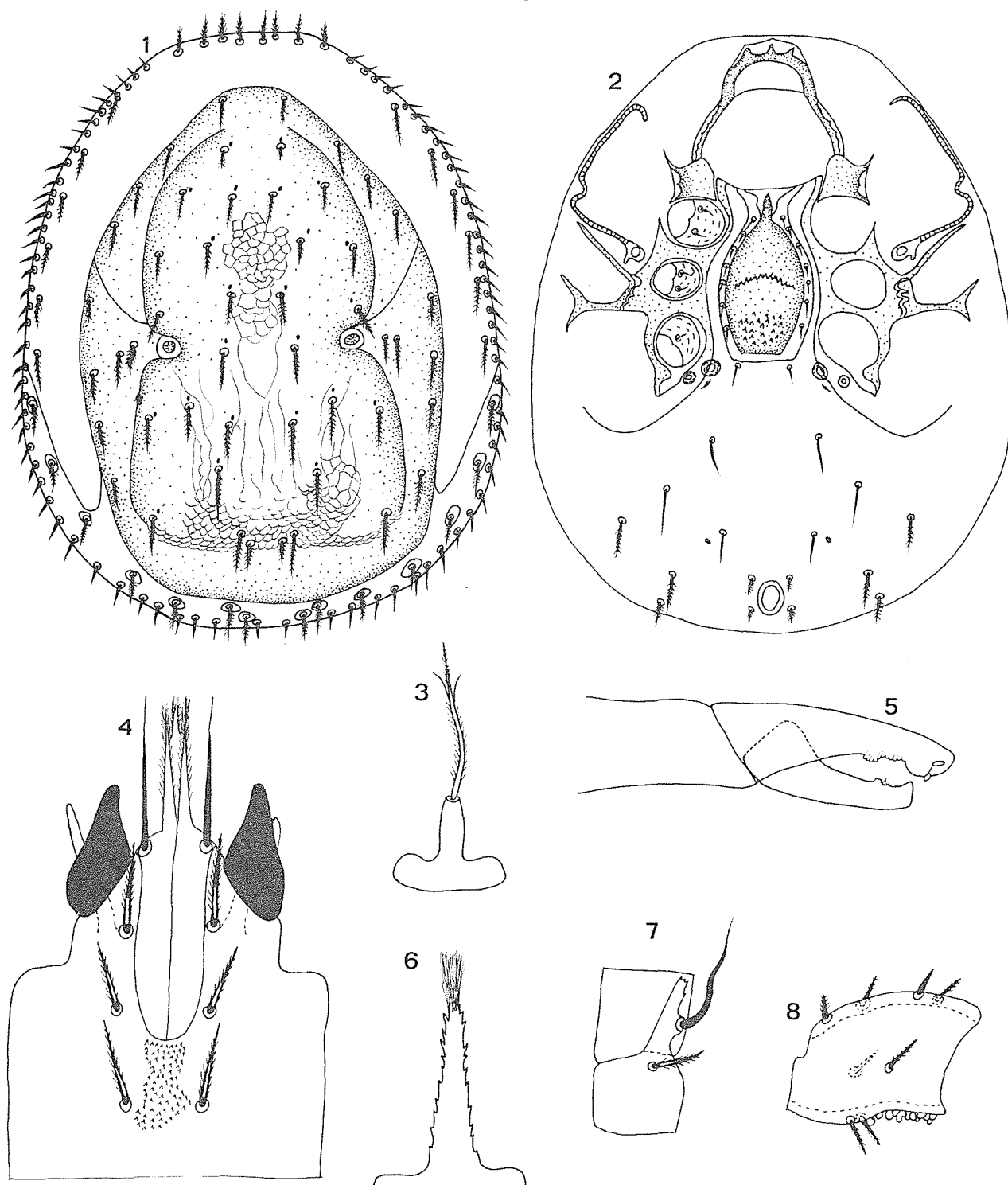


FIG. 1-8 : *Neodiscopoma elegans* spec. nov., female.

1. — Dorsum ; 2. — Venter ; 3. — Tritosternum ; 4. — Gnathosoma ; 5. — Chelicera ; 6. — Tectum ; 7. — Palp trochanter ;
8. — Femur I.

podonotum is as follows : setae j1, 2, 3 and 5 ; z4 ; s3-6 ; r2, 3, 4 and 6. The pattern on the opisthonotum is : J1, 3 and 5 ; Z2, 4 and 6 ; S1, 2 and 5 ; R1, 2 and 4. Fifteen pairs of the dorsal setae are situated on the bulged area of the dorsal shield.

The marginal shield is relatively broad anteriorly and terminates beyond setae R4. This shield bears two rows of setae, the inner row being pilose. Seven pairs of setae borne on scutellas are situated on the cuticle on the posterior area of the idiosoma.

VENTER (figs. 2-3)

The shields of the camerostome are fused anteriorly and bear small tooth-like structures on the anterior margin (fig. 2). The lower part of the tritostenum base (fig. 3) is broad and tapers towards the distal end. The tripartite lacinae are pilose, an oval-shaped punctated sternal shield reaches posteriorly up to the posterior margin of coxae IV and has a mucronated anterior margin. A relatively narrow peri-genital shield encircles the genital shield completely, except for the anterior margin. Eight pairs of sternal setae are present of which all but the eighth pair, are borne on the sternal shield. The podal shields between coxae I and II are free, while the others are continuous. The stigma is situated on the level of the anterior margin of coxae III and the peritreme is relatively long. Two large rounded pores and one pair of slit-like pores are present immediately behind coxae IV. Metapodal shields are absent. Pedofossae are shallow. Seven pairs of setae are borne on the cuticle of the opisthogaster (para-anal setae excluded). The opisthogastric chaetotaxy is : Jv1, 3 and 5 ; Zv2, 4 and 5 ; Lv3. Setae Jv1 and 3 and Zv2 are simple, while the others are pilose. The length of these setae varies and the para-anal setae are short and are situated on the level of the anterior margin of the anal opening.

GNATHOSOMA (figs. 4-7)

Corniculi well-sclerotized and relatively large. Two long, pilose malae internae are conspicuous

(fig. 4). A broad deutosternal groove bears no denticles but these are situated posteriad to the groove. Gnathosomal setae 1 are simple, but almost twice the length of the other pilose gnathosomal setae. The movable digit of the chelicera (fig. 5) bears three teeth, the anterior one is relatively small while the proximal one is broad and blunt. The fixed digit is somewhat longer than the movable digit and is provided with a number of small teeth and a single larger one. The gnathotectum is depicted by fig. 6. The palptrochanter (fig. 7) bears one relatively long, simple seta fixed to a large process. The other seta of this segment is pilose. The number of setae on the palpfemur is normal for the genus.

LEGS (fig. 8)

The chaetotaxy of the legs is normal for the genus. The characteristic femoral ridge is absent and numerous small knobs are present on the ventral margin of this segment (fig. 8).

MATERIAL STUDIED

♀ holotype and 5 ♀ paratypes collected from forest soil near the Luachime River, Angola, during March 1962 by Dr. A. DE BARROS MACHADO.

Neodiscopoma crenulatum spec. nov.

(figs. 9-15)

FEMALE (figs. 9-14)

Dimensions : Length, 2 291-2 301 μm ; breath (between coxae IV), 1 540-1 550 μm ; leg I, 808-818 μm ; leg IV, 885-895 μm ; length of genital shield, 674-679 μm ; breadth (between coxae IV), 327-337 μm ; sternal setae, 48-51 μm ; opisthogastric setae, 115-308 μm ; para-anal setae, 115 μm ; length of dorsal shield, 1 926-1 936 μm ; breadth (between setae J1), 1 078-1 088 μm ; dorsal setae, 200-288 μm ; marginal shield (lateral), 173 μm ; infra-marginal setae, 115-288 μm ; vertical setae, 86 μm ; setae j1, 260 μm ; J5, 288 μm .

DORSUM (fig. 9) :

The central area of the ovate idiosoma is covered with a well-sclerotized dorsal shield. The bulged medial area of the shield is incompletely divided into two sections by means of lateral incisions. The dorsal shield bears 22 pairs of relatively long, simple setae. Twelve pairs of these setae are borne on the podonotum, while 10 pairs are situated on the opisthonotum. The chaetotaxy is as follows : j1, 2, 3 and 5 ; z4 ; s3, 4 and 5 and r2-5. The opisthonotal chaetotactic pattern is comprised of setae J1, 3, 4, 5 ; Z3 and 5 ; S1 and 5 ; R1 and 2. One pair of setae on the anterior margin of the marginal shield and one pair on the posterior margin of the dorsal shield are short and densely pilose.

The marginal shield is relatively broad and terminates on the level of setae S5, and the inner margin is dentate as illustrated by fig. 9. The marginal setae correspond with those of *N. elegans* except that all setae are simple. Four pairs of scutellas, each bearing a simple seta, are present on the cuticle posterior to the dorsal shield.

VENTER (fig. 10)

The shields of the camerostome is fused anteriorly, and the tritosternum is similar to that of *N. elegans*. The mucronated genital shield is relatively long (674 μm) and terminates anteriorly on the level of the anterior margins of coxae II. Seven pairs of short setae are borne on the well-defined perigenital shield. The podonotal shields are free between coxae II, III and IV. The stigmata is situated in line with the anterior margin of coxa III, and the peritreme reaches anteriorly as far as the idiosomal margin. Pedofossae shallow and five pairs of pores are present immediately posterior to coxae IV. Six pairs of setae of varying length are situated on the ventroanal shield, and the chaetotaxy is : Jv1, 3, 5 ; Zv1, 4 ; LV2.

GNATHOSOMA (figs. 11-14)

Corniculi, malae internae, labrum-epipharynx, gnathosomal setae and deutosternal groove (fig. 11) are similar to those of *N. elegans*. Deutoster-

nal denticles occur in, as well as posterior to, the groove. The movable digit (fig. 12) of the chelicera bears a relatively large and blunt tooth. The fixed digit is somewhat longer than the movable digit and bears two blunt teeth. The gnathotectum (fig. 13) is similar to that of *N. elegans*. A relatively conspicuous process on the palptrochanter (fig. 14) is provided with a large simple seta.

LEGS

The leg segments and chaetotaxy are normal for the genus.

MALE (fig. 15)

Dimensions :

Length, 2 260-2 270 μm ; breadth, 1 500-1 510 μm ; leg I, 800-810 μm ; leg IV, 800-815 μm ; sternal setae, 40-50 μm ; opisthogastric setae, 115-308 μm ; para-anal setae, 120 μm ; length of dorsal shield, 1 900-1 910 μm ; breadth, 1 061-1 071 μm ; dorsal setae, 201-212 μm ; marginal shield, 173 μm ; infra-marginal setae, 115-288 μm ; vertical setae, 86 μm ; setae J5, 288 μm .

The dorsum is similar to that of the female. The male genital shield is situated between coxae IV. The anterior shield of this opening bears one pair of simple setae, and the peri-genital shield reaches anteriorly as far as the anterior margin of coxae II. The stigmata, peritremes, podal shields, gnathosoma, chelicerae and legs are similar to those of the female.

MATERIAL STUDIED

♀ holotype, 3 ♀ paratypes, 5 ♂ allotypes and paratypes collected from compost in Potchefstroom, RSA, by D. VAN DRIEL during June 1971.

***Neodiscopoma potchefstroomensis* spec. nov.**

(figs. 16-24)

FEMALE (figs. 16-24)

Dimensions :

Length, 2 648-2 658 μm ; breadth (between coxae IV), 2 031-2 041 μm ; leg I, 860-871 μm ;

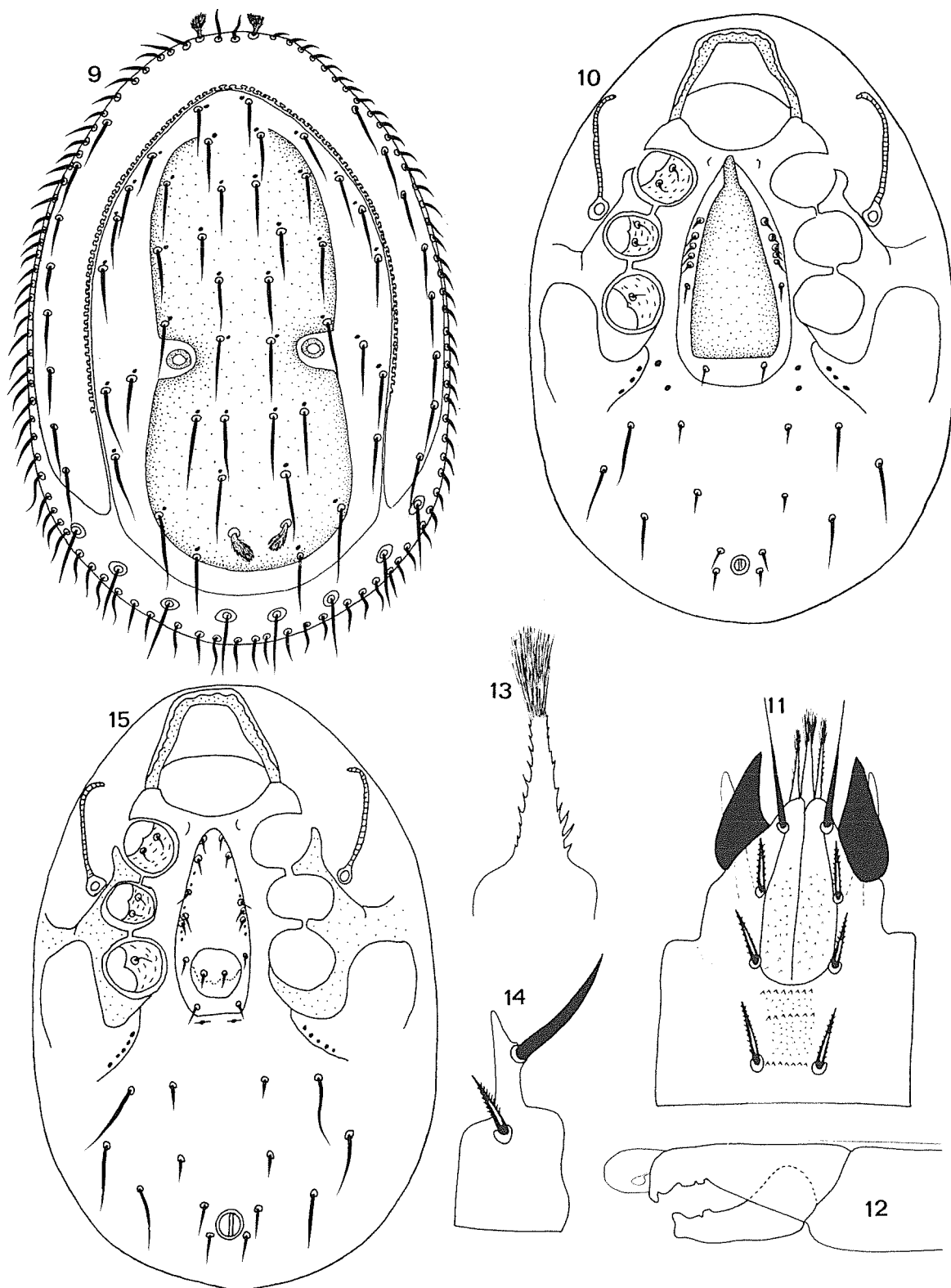


FIG. 9-15 : *Neodiscopoma crenulatum* spec. nov.

9. — Dorsum, female ; 10. — Venter, female ; 11. — Gnathosoma, female ; 12. — Chelicera ; 13. — Tectum, female ; 14. — Palp trochanter, female ; 15. — Venter, male.

leg IV, 861-872 μm ; length of genital shield, 423-433 μm ; sternal setae, 80-89 μm ; opisthogastric setae, 100-210 μm ; para-anal setae, 98 μm ; length of dorsal shield, 1 974-1 984 μm ; breadth, 1 107-1 117 μm ; dorsal setae, 202-209 μm ; marginal shield, 337 μm ; infra-marginal setae, 170-202 μm ; vertical setae, 190 μm ; setae Z5, 209 μm .

DORSUM (figs. 16-17)

The oval-shaped idiosoma is provided with a dorsal shield which is well sclerotized and the central area conspicuously bulged. The margin of the bulged area is undulated and contains relatively deep incisions on the level of the setae R1. One pair of pores is present in each of these incisions. Twenty-one pairs of more or less ribbon-shaped setae (fig. 17) are borne on the dorsal shield. The chaetotaxy of these setae is as follows: setae j1, 2, 3, 5, z4; s3, 4, 5; r2, 4, 5; J1, 3; Z2, 5; S1, 2, 5; R2, 4, 5. All these setae, except the infra-marginal setae, are situated on the dorsal shield.

The marginal shield is relatively broad (337 μm) and contains two rows of simple setae. The marginal shield terminates on the level of setae R5 and the cuticle posterior to the dorsal shield bears four pairs of scutellas each provided with a simple seta.

VENTER (figs. 18-19)

The lateral shields of the camerostome are fused anteriorly. The form of the tritosternum is illustrated by fig. 19. A reticulated genital shield reaches from a level between coxae II to the level of the posterior margins of coxae IV. The perigenital shield is fused with the sternal shield anteriorly, and to the ventro-anal shield posteriorly. Four pairs of simple setae are situated on the perigenital shield. The podal shields are continuous between coxae II and III, and III and IV. The stigmata and peritremes resemble those of *N. crenulatum*. Eight pairs of simple setae are present on the ventro-anal shield, viz. setae Jv1, 2, 4, 5; Zv2, 4; Lv3, 4. Seventeen pairs of UR setae are situated on the opisthogastric cuticle.

GNATHOSOMA (figs. 20-23)

The corniculi, internal malae and labrum-epipharynx resemble those of *N. elegans* and the deutosternal groove bears no denticles, but is conspicuously punctated. The area posterior to the groove is also densely punctated. The fixed digit of the chelicera bears a number of relatively small teeth, while the movable digit contains four teeth. The gnathotectum is depicted by fig. 22. The palptrochanter (fig. 23) is similar to that of *N. elegans*.

LEGS (fig. 24)

The leg chaetotaxy is normal for the genus, and the ventral surfaces of the segments are characterized by the presence of knob-like processes (fig. 24).

MATERIAL STUDIED

♀ holotype and 4 ♀ paratypes collected from compost by D. VAN DRIEL during March 1971.

Neodiscopoma franzi spec. nov. (figs. 25-33)

FEMALE (figs. 25-32)

Dimensions:

Length, 1 251-1 261 μm ; breadth (between coxae IV), 1 059-1 069 μm ; leg I, 625 μm ; leg IV, 645 μm ; length of genital shield, 288-294 μm ; breadth (between coxae III), 144-150 μm ; sternal setae, 70-81 μm ; opisthogastric setae, 60-240 μm ; para-anal setae, 110-112 μm ; length of dorsal shield, 1 078-1 088 μm ; breadth, 770-780 μm ; dorsal setae, 202-212 μm ; marginal shield, 202-219 μm ; infra-marginal setae, 96-125 μm ; vertical setae, 115 μm .

DORSUM (fig. 25)

The anterior margin of the well-sclerotized dorsal shield is undulated and slightly incised on the level of setae R3. The dorsal shield bears sixteen and fourteen simple setae on the podonotum and opisthonotum respectively. The chaetotactic pat-

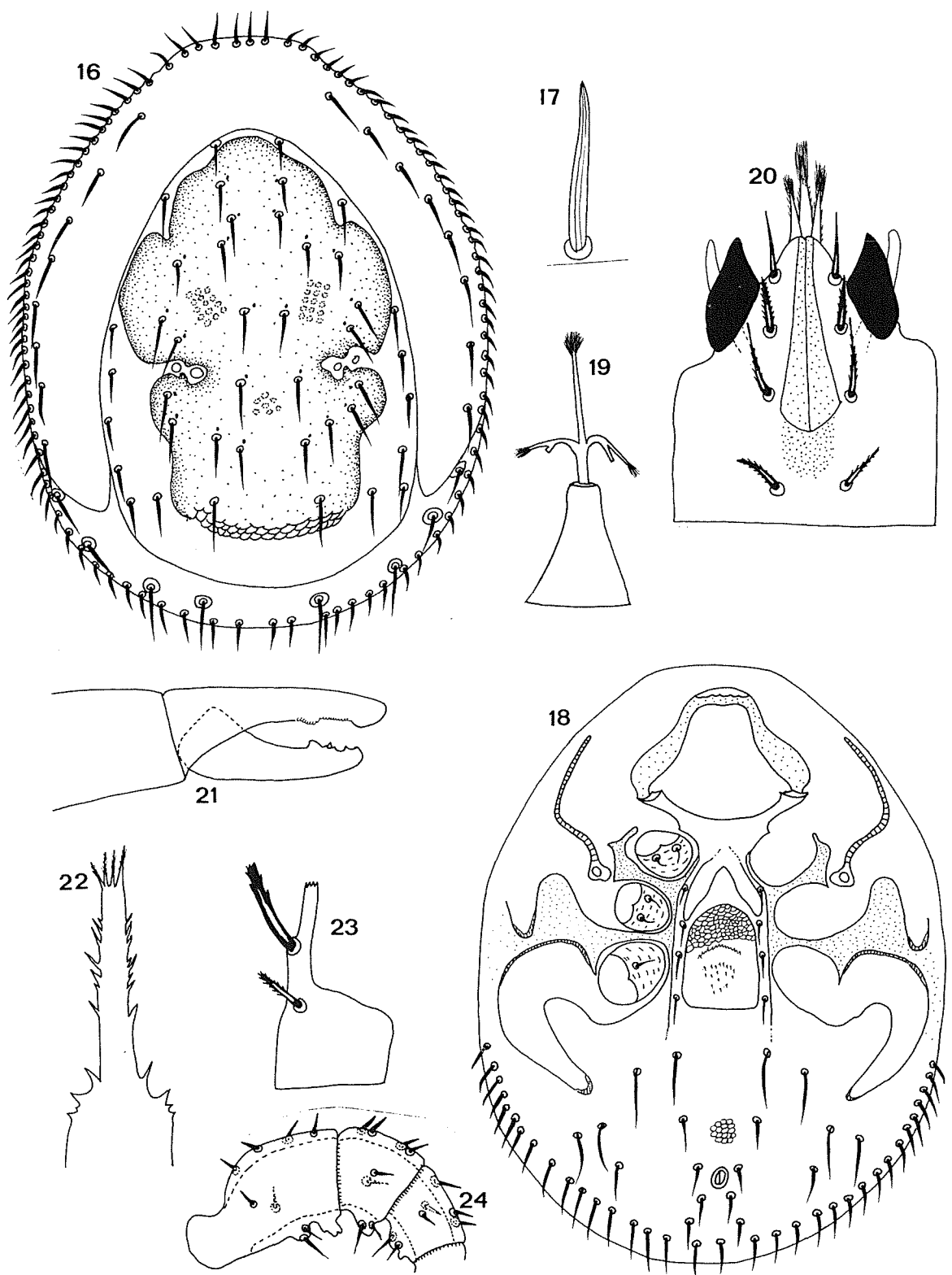


FIG. 16-24 : *Neodiscopoma potchefstroomensis* spec. nov., female.

16. — Dorsum ; 17. — Dorsal seta ; 18. — Venter ; 19. — Tritosternum ; 20. — Gnathosoma ; 21. — Chelicera ; 22. — Tectum ; 23. — Palp trochanter ; 24. — Leg I.

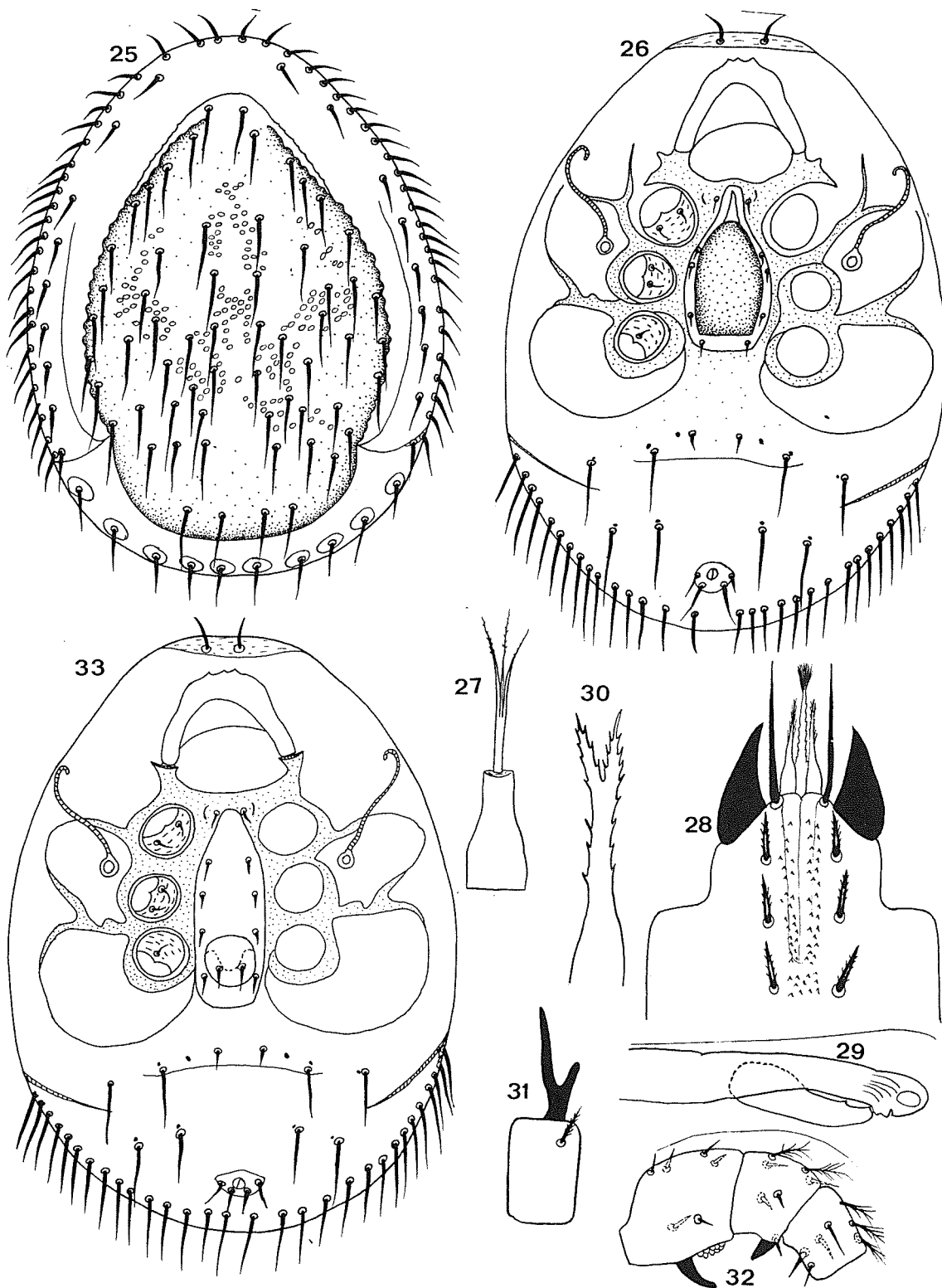


FIG. 25-33 : *Neodiscopoma franzi* spec. nov.

25. — Dorsum, female ; 26. — Venter, female ; 27. — Tritosternum, female ; 28. — Gnathosoma, female ; 29. — Chelicera, female ; 30. — Tectum, female ; 31. — Palp trochanter, female ; 32. — Leg I, female ; 33. — Venter, male.

tern is as follows : j1, 4, 5, 6 : z1, 4, 5, 6 ; s1, 5, 6 ; r2-6 ; J1-5 ; Z1, 2, 4, 5 ; S2, 4 : R1-3. Conspicuous ornamentations on dorsal shield are illustrated by fig. 25.

The marginal shield is bipartite laterally and reaches posteriorly to the level of setae R3. Five pairs of scutellas, each bearing a simple seta, are situated on the cuticle posterior to the dorsal shield.

VENTER (figs. 26-27)

The anterior end of the dorsal shield is folded downward so that it, as well as the vertical setae, is observable from a ventral view (fig. 26). The anterior margin of the fused shields is faintly dentate. The tritosternum is depicted by fig. 27. The oval-shaped, mucronated genital shield is densely punctated and terminates rectangularly at a level between coxae IV. Five pairs of sternal setae, of which setae 2-5 are situated on the sternal shield, are present. The podal shield is continuous between coxae II and III, and III and IV, but free between coxae I and II. The stigmata and peritremes resemble those of *N. potchefstroomensis*. The pedofossae are relatively shallow.

Five pairs of opisthogastric setae are present, viz. setae JV1, 3 ; Zv2, 4 ; Lv4. Setae Jv1 are relatively short (60 μ m), while the others are relatively long (240 μ m). Two pairs of para-anal setae are situated on a conspicuous anal ridge. A distinct transverse ridge is present on the ventro-anal shield. Fifteen pairs of UR setae are borne on the opisthogaster.

GNATHOSOMA (figs. 28-31)

The corniculi, malae internae, labrum epipharynx and gnathosomal chaetotaxy are similar to those of *N. crenulatum*. Deutosternal denticles are present in and outside the groove. The fixed digit of the chelicera (fig. 29) is bidentate, while the free segment is monodentate. The gnathotectum (fig. 30) is long and slender, pilose and distally bipartite. The palptrochanter is depicted by fig. 31. The palp segments are normal for the genus.

LEGS (fig. 32)

The chaetotactic pattern of the leg segments is normal for the genus. Some dorsal setae of genu and tibia II-IV (fig. 32) are provided with fine lateral hairs.

MALE (fig. 33)

Dimensions : Length, 1 151-1 161 μ m ; breadth (between coxae IV), 960-980 μ m ; opisthogastric setae, 60-240 μ m ; para-anal setae, 110-112 μ m ; length of dorsal shield, 980-990 μ m ; breadth, 700-710 μ m ; dorsal setae, 210 μ m ; infra-marginal setae, 96-130 μ m ; vertical setae, 115 μ m.

The dorsum, camerostome, tritosternum, gnathosoma, gnathotectum, malae internae and chaetotactic pattern of the male resemble those of the female. The male genital opening is situated between coxae IV and the anterior shield covers the posterior one completely.

Genu I and II (fig. 32) are each provided with a spore-like seta.

MATERIAL STUDIED

♀ holotype, 1 ♀ paratype and 5 ♂ allotype and paratypes collected from forest soil on Mt. Kilimanjaro by I. H. FRANZ during February 1962.

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