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**HOFFMANACARUS VIRGINIANUS GEN. N., SP. N. AND
SOME OTHER MOSS MITES FROM VIRGINIA, USA
(ACARI: ORIBATIDA)**

(New and interesting mites from the Geneva Museum LIII)

P 919408

BY

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(Ms soumis le 15.6.1994, accepté le 20.9.1994)

ABSTRACT

Hoffmanacarus virginianus gen. n., sp. n. and some other moss mites from Virginia, USA (Acari: Oribatida). – The following new taxa are described: *Hoffmanacarus* gen. n., with the type species *H. virginianus* sp. n. (*Achipteriidae*), *Kalyptrazetes americanus* sp. n. (*Microzetidae*). Contributions to the knowledge of some other Oribatida species from soil on Big Walker Mountain, Virginia (USA), are given.

INTRODUCTION

In 1981, Prof. R.L. Hoffman (formerly Radford University) collected some soil samples in different parts of Virginia and sent them to Dr. B. Hauser, Head of the Arthropoda Department of the Muséum d'Histoire naturelle, Geneva. In 1982 I studied this material and planned to describe or redescribe some of the Oribatida species which appeared to be particularly interesting. However, these results have never been published.

The material is rich in species, in particular it contains a very interesting species of *Achipteriidae* which has to be considered as representing a new genus.

In the following the new genus is described, together with a new species of *Kalyptrazetes* Balogh, 1972, and some other oribatids are listed or discussed. The material examined originates from a unique sample collected on the Big Walker Mountain.

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LOCALITY

USA (Virginia: Bland County): W side Big Walker Mountain, 1500 m, ca 6 km E of Sharon springs, northern hardwoods, 9.V.1981, leg. R.L. Hoffman (extraction by Berlese apparatus).

LIST OF IDENTIFIED SPECIES

Eniochthoniidae Grandjean, 1947

Eniochthonius minutissimus (Berlese, 1903)

Parhypochthoniidae Grandjean, 1932

Parhypochthonius cf. *octofilamentis* Jacot, 1938

Phthiracaridae Perty, 1841

Atropacarus terrapene (Jacot, 1937)

Euphthiracaridae Jacot, 1930

Euphthiracarus flavus (Ewing, 1908)

Euphthiracarus humeralis Norton et Metz, 1977

Microtrititia paeneminima (Walker, 1965)

Carabodidae C.L. Koch, 1837

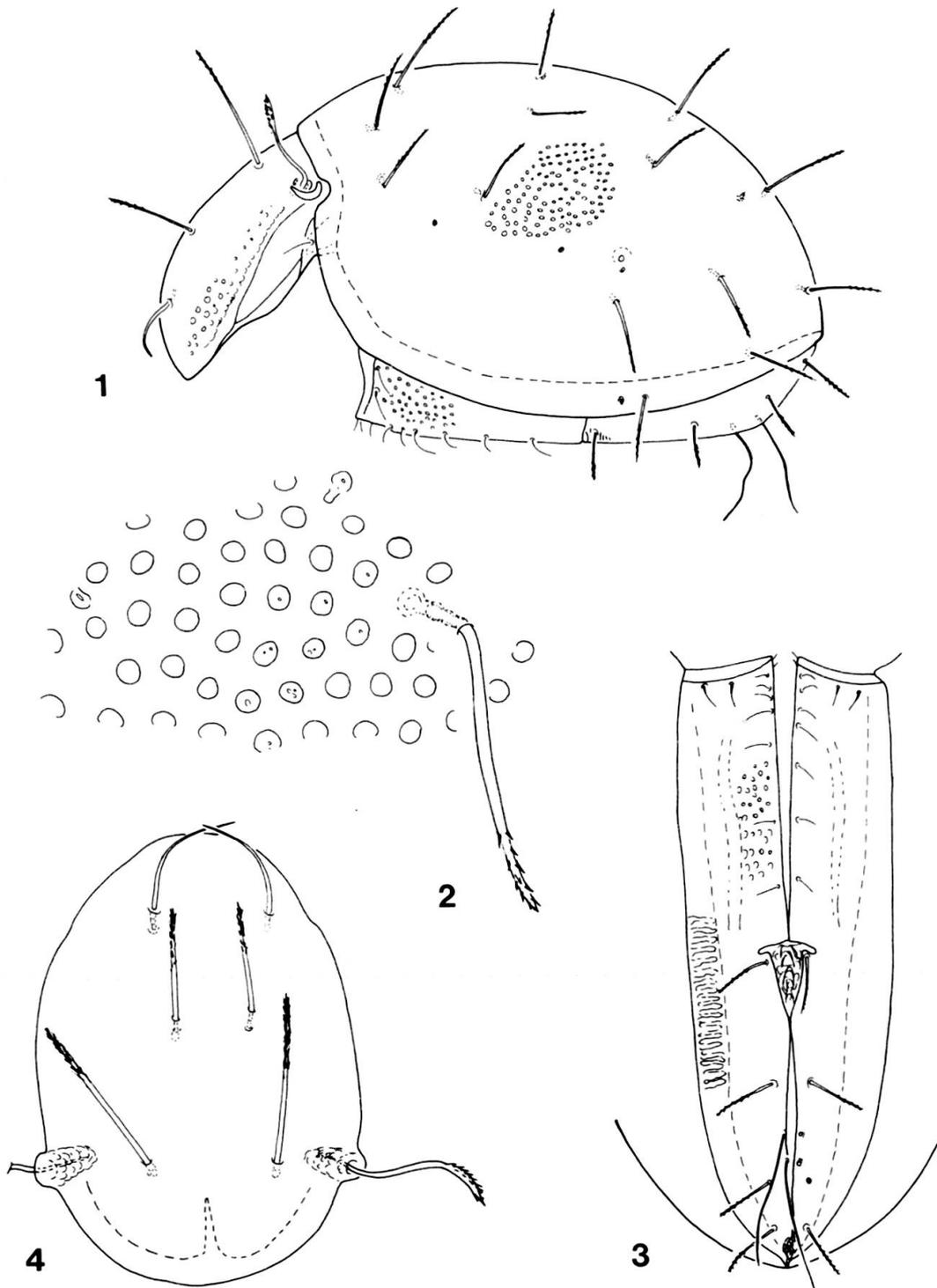
Odontocephus cf. *oblongus* (Banks, 1895)

Microzetidae Grandjean, 1936

Kalyptrazetes americanus sp. n.

Achipteriidae Thor, 1929

Hoffmanacarus virginianus gen. n., sp. n.



FIGS 1-4

Euphthiracarus flavus (Ewing, 1908) - 1: lateral aspect, 2: sculpture of notogaster, 3: anogenital region, 4: aspis.

DESCRIPTIONS AND DISCUSSIONS

Euphthiracarus flavus (Ewing, 1908)

This is the type species of the genus *Euphthiracarus* on which JACOT (1930) based the family *Euphthiracaridae*. The newly studied specimens are well identifiable with the original description and the redescription by JACOT (1930). In spite of this, owing to the taxonomical importance of the species, I give here some drawings for verification (Figs 1-4).

Kalyptrazetes americanus sp. n.

M e a s u r e m e n t s . - Length of body: 257-286 μm , width of body: 194-208 μm .

P r o d o r s u m : Rostrum with pointed apex, behind it an arched teeth on each side. Rostrum covered by the very wide lamellae (in dorsal aspect), which are overlapping anteriorly and connected basally (Fig. 5). Their outer cusps very long, converging inwards, inner cusps much smaller (Fig. 8). Surface of the lamellae with transversal rugae basally and longitudinal rugae on margin. Basal part of prodorsum free of lamellae, this region angulate, the very short interlamellar setae arising here. Rostral and lamellar setae long, setiform, the rostral ones arising on small tubercles. Sensillus (Fig. 7) clavate, directed anterolaterally, its head with sharp spines distally.

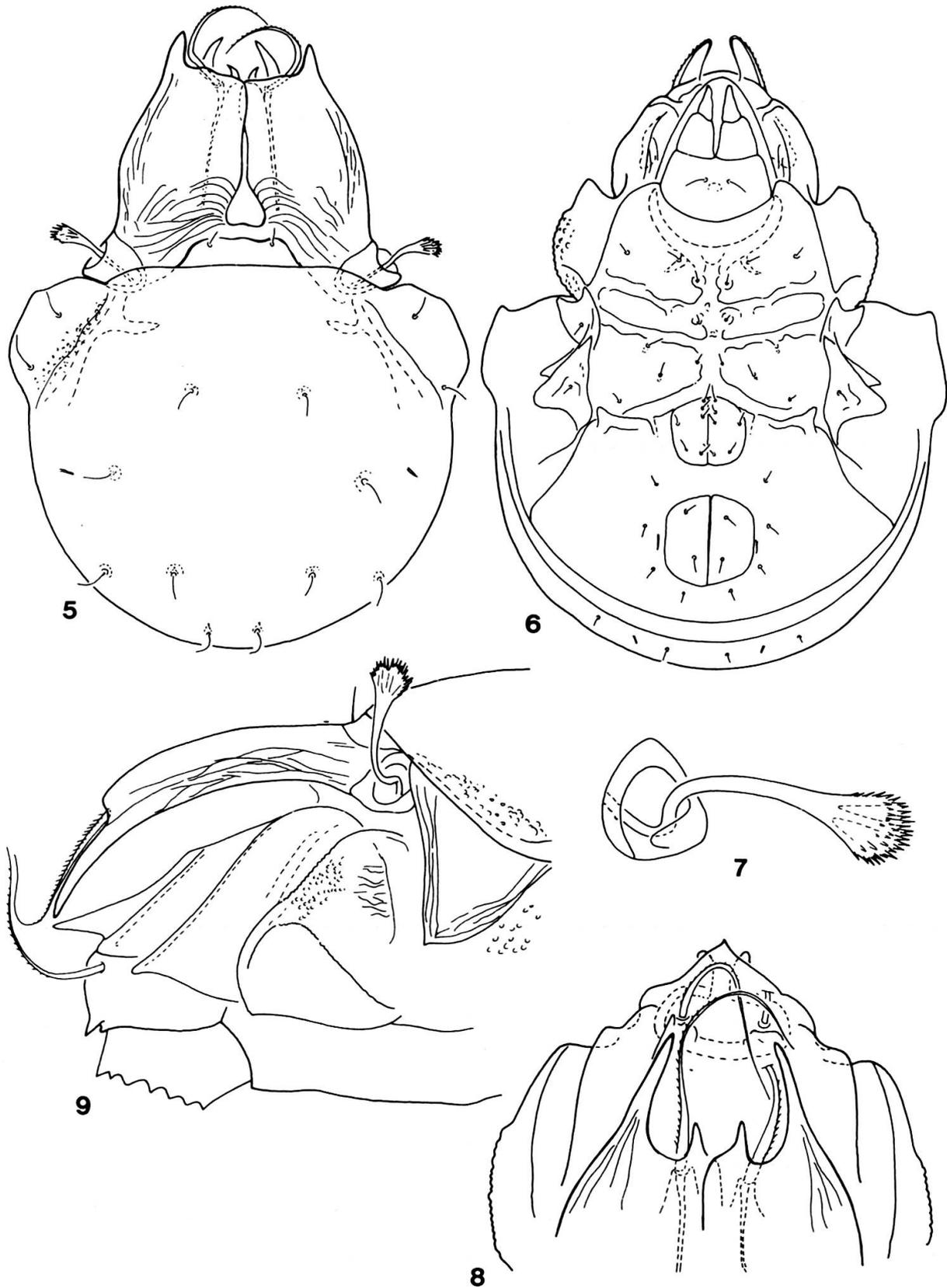
L a t e r a l p a r t o f p o d o s o m a : The sharp cuspides of the turtorium well developed, visible laterally (Fig. 9). Pedotecta 1 very large, their anterior margin granulate.

N o t o g a s t e r : Pteromorpha well developed, nearly triangular, with pointed distal tip (Fig. 9), its margin rugose. Some small cerotegument granules observable on its basal part. Nine pairs of simple notogastral setae present, seven pairs of them much longer than the others in posteromarginal position.

V e n t r a l r e g i o n s : Epimeral surface smooth, apodemes well developed, epimeres closed. Epimeral and anogenital setae short and simple (Fig. 6). Epimeral setal formula: 3-1-3-3. Anogenital setal formula: 6 -1-2-3.

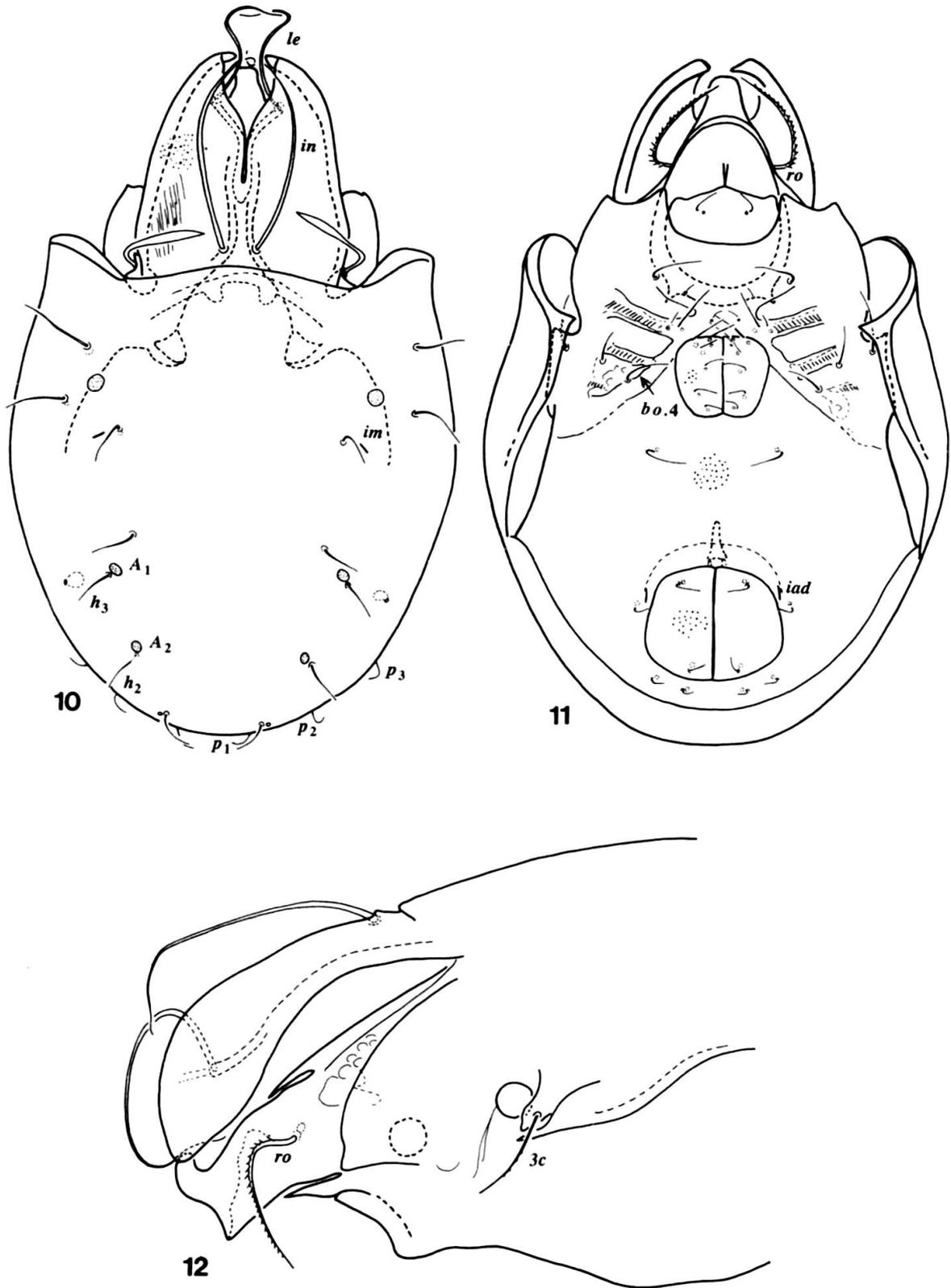
M a t e r i a l e x a m i n e d : Holotype: USA (Virginia: Bland County): W side Big Walker Mountain, 1500 m, ca 6 km E of Sharon Springs, northern hardwoods, 9.V.1981, leg. R.L. Hoffman (extraction by Berlese apparatus). 52 paratypes from the same sample. Holotype and 30 paratypes deposited in the Muséum d'Histoire naturelle, Geneva, 16 paratypes (1486-PO-94) in the Hungarian Natural History Museum, Budapest, 2 paratypes in the collection of Dr. R.L. Hoffman, Martinsville, VA, USA, 2 paratypes in Dr. R.A. Norton's private collection, Syracuse, NY, USA and 2 paratypes in the Canadian National Collection (Ottawa, Ontario - Dr. V.M. Behan-Pelletier).

R e m a r k s : The new species fits well into the genus *Kalyptrazetes* Balogh, 1972 (discussion in: MARSHALL, REEVES & NORTON 1987). This genus was herefore known only by its type species (*Allozetes harpezus* Higgins, 1965). On the basis of the form of



FIGS 5-9

Kalyptrazetes americanus sp. n. - 5: dorsal aspect, 6: ventral aspect, 7: sensillus, 8: rostral part of prodorsum, 9: prodorsum in lateral aspect.



FIGS 10-12

Hoffmanacarus virginianus gen. n., sp. n. — 10: dorsal aspect, 11: ventral aspect, 12: lateral aspect.

the lamellar apices, the form of the sensillus, the presence of transversal rugae on the lamellae (absent in *K. harpezus*) and the absence of the longitudinal striation of the notogaster (present in *K. harpezus*), the new species is well distinguishable from *K. harpezus*.

Hoffmanacarus gen. n.

D i a g n o s i s : Family *Achipteriidae*. Habitus like that of *Anachipteria* Grandjean (cf. GRANDJEAN 1932). Pteromorpha without a long process, but well protruding anteriorly, its anterior margin dilated, rounded. Rostrum horn-shaped, arched upwards. Lamellae very wide, bent downwards anteriorly, partly covering the lateral part of the prodorsum. Lamellar setae arising on well sclerotised tubercles from the ventral surface of lamellae. Tutorium with free cuspis. Notogaster with four pairs of porose areas and ten pairs of notogastral setae. Gnathosoma with typical anarthric morphology, chelicera normal. Epimeral setal formula: 3-1-3-3. Anogenital setal formula: 6-1-2-3. Solenidium of palpal tarsus partly attached to eupathidium *acm*. All legs tridactylous and heterodactylous with typical chaetotaxy of the family.

T y p e s p e c i e s : *Hoffmanacarus virginianus* sp. n.

R e m a r k s : On the basis of the 4 pairs of porose areas on the notogaster and the absence of the pteromorph process, the new genus – together with *Adoribatella* Woolley (cf. WOOLLEY 1967) – belongs to the relationship of the genus *Anachipteria* Grandjean, 1932. It is distinguished from both genera by the peculiar form of the rostrum and the insertion of the lamellar setae (they arise on the anterior margin in *Anachipteria* and *Adoribatella*).

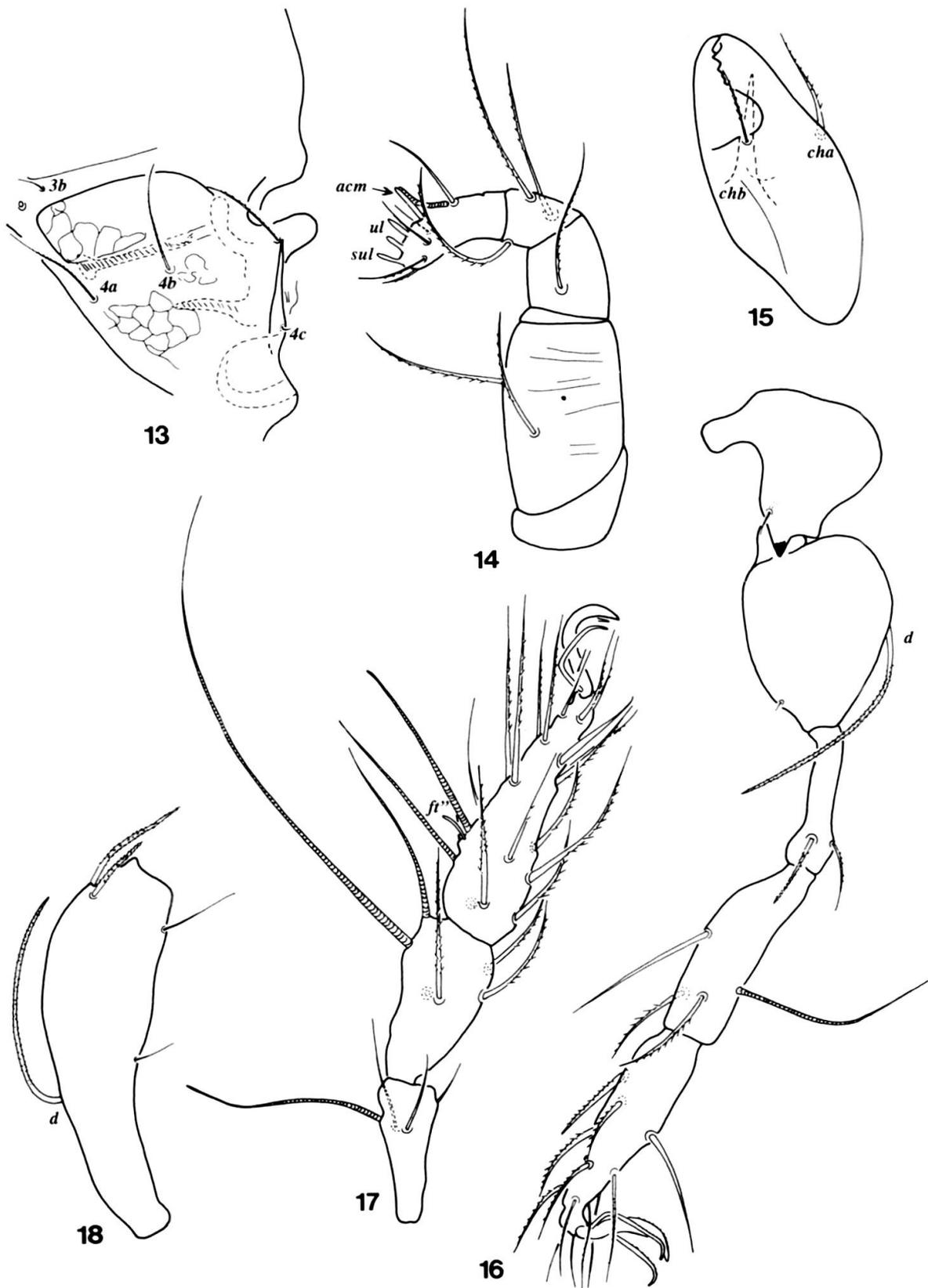
I dedicate the new genus to the collector of this material, Prof. Dr. R.L. Hoffman (Curator of the Virginia Museum of Natural History, Martinsville), the world famous diplopodologist and soil zoologist.

Hoffmanacarus virginianus sp. n.

M e a s u r e m e n t s . - Length of body: 462-517 μm , width of body: 331-354 μm .

P r o d o r s u m : Rostrum bluntly protruding anteriorly in dorsal aspect (Fig. 10), horn-shaped in lateral aspect (Fig. 12). Lamellae widely fused from their median part basally, and diverging distally. Lamellar setae (*le*) arising on their ventral surface at the distal end of an arched lath, which runs from the median margin. Interlamellar setae (*in*) long, reaching to the distal end of the lamellae. Lamellar and interlamellar setae smooth. Rostral setae (*ro*) arising from the lateral surface of the prodorsum, far from the rostrum, they are well ciliate. Sensillus bent strongly inwards, its head slightly asymmetric, with pointed tip.

N o t o g a s t e r : The sculpture consists of small pits. Anterior margin of pteromorphae dilated, like a flat ledge. There are ten pairs of notogastral setae present. Seven



FIGS 13-18

Hoffmanacarus virginianus gen. n., sp. n. - 13: lateral part of epimeral region, discidium and custodium, 14: palp, 15: chelicera, 16: leg IV, 17: genu, tibia and tarsus of leg I, 18: femur of leg I.

pairs are nearly of equal length, the posteromarginal ones p_1 - p_2 are shorter. All smooth or finely roughened. The four pairs of porose areas located everywhere near to the basis of setae (e.g. A_1 to r_3 , A_2 to r_2). It seems that the alveoli of the setae are fused with the aspiratory organ. Lyrifissures *im* located medially, *ih* and *ips* laterally.

L a t e r a l r e g i o n s o f p o d o s o m a : Tutorium with a short free cuspis, it is slightly bent down on the prodorsal surface. Along the tutorium, a part of the lateral region ornamented by a polygonal sculpture. Genal tooth well observable. Pedotecta 1 without denticle or tooth on its anterior margin, pedotecta 2-3 comparatively large, discidium narrow but the cusp of the custodium is strong, reaching over the pedotecta 2-3 (Fig. 13).

G n a t h o s o m a : Tegula on chelicera (Fig. 15) not reaching out from the basal part, seta *cha* stronger than *chb*. Solenidium of the palp long and characteristically bent upwards (Fig. 14), eupathidia *ul* and *sul* equal in size.

C o x i s t e r n a l r e g i o n : Apodemes and epimeral borders (especially *bo*. 4) well observable (Fig. 11). Some irregular spots on the epimeral surface also visible. Among the epimeral setae great differences exist: setae *1c* and *4c* minute, *2a*, *3b* short, *3a*, *4a* and *4b* very long. Setae *3a* and *3b* located conspicuously near to each other.

A n o g e n i t a l r e g i o n : Genital setae well developed, two pairs located on the anterior margin of the plates. Aggenital setae similar in size, anal and especially adanal ones much shorter. Setae *ad*₁ and *ad*₂ inserted in posteroanal position. Lyrifissures *iad* located near to the anal aperture, anteriorly.

L e g s : Legs setal formulae are typical for the family:

I: 1-5-3+1-4+2-20+2-3 (Figs 17-18)

IV: 1-2-2-3+1-12-3 (Fig. 16)

Seta *ft*" on tarsus I arising very near to solenidium ω_1 , this solenidium is not longer than ω_2 . Seta *s* on tarsus II characteristically dilated, with large spines ventrally. Seta *d* on femur IV conspicuously long and finely roughened, some other setae on genu, tibia and tarsus also with a similar structure, the remaining setae normally pilose. Genu IV bearing two setae, solenidium absent.

M a t e r i a l e x a m i n e d : Holotype: USA (Virginia: Bland County): W side Big Walker Mountain, 1500 m, ca 6 km E of Sharon springs, northern hardwoods, 9.V.1981, leg. R.L. Hoffman (extraction by Berlese apparatus). 44 paratypes from the same sample: Holotype and 25 paratypes deposited in the Muséum d'Histoire naturelle, Geneva, 13 paratypes (1487-PO-1994) in the Hungarian Natural History Museum, Budapest, 2 paratypes in the collection of Dr. R.L. Hoffman, Martinsville, VA, USA, 2 paratypes in Dr. R.A. Norton's private collection, Syracuse, NY, USA and 2 paratypes in the Canadian National Collection (Ottawa, Ontario — Dr. V.M. Behan-Pelletier).

R e m a r k s : The form of the rostral apex and the lamellae are unique in the family.

ACKNOWLEDGEMENTS

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RÉSUMÉ

Neuf espèces d'Oribates ont été identifiées, dont deux sont décrites comme nouvelles, l'une représentant un nouveau genre: *Kalyptrazetes americanus* sp. n. (*Microzetidae*) et *Hoffmanacarus virginianus* gen. n., sp. n. (*Achipteriidae*).

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