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NEW AND INTERESTING MITES FROM THE GENEVA MUSEUM LXXVII. FIVE NEW SCUTACARID SPECIES FROM MADAGASCAR (ACARI: TARSONEMINA)

BY

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ABSTRACT

Descriptions of five new species (*Pygmodispus* (*P.*) *nosybe* sp. n., *P.* (*P.*) *helleri* sp. n., *Diversipes undulatus* sp. n. *Heterodispus andasibe* sp. n., *Scutacarus lokobe* sp. n.) of the family *Scutacaridae* from Madagascar.

RÉSUMÉ

Description de cinq espèces nouvelles (*Pygmodispus* (*P.*) *nosybe* sp. n., *P.* (*P.*) *helleri*, sp. n., *Diversipes undulatus* sp. n., *Heterodispus andasibe* sp. n., *Scutacarus lokobe* sp. n.) de la famille des Scutacaridés de Madagascar.

INTRODUCTION

The Tarsonemina (Acari: Heterostigmata) of Madagascar - like the other mites of this island - are hardly known. Only two contributions to the knowledge of this group in Madagascar has been published (SUSKI 1971, MAHUNKA 1982).

The study of the Tarsonemina mites is a part of a joint research project[1] with the Arthropod Department of the Geneva Natural History Museum on soil mites (Oribatida) in this region (MAHUNKA 1993).

The extremely rich material collected by the Geneva Expedition to Madagascar in 1989 (Dr. B. Hauser & Dr. C. Lienhard) contains a great number of interesting Tarsonemina species from which we discuss on this occasion 5 species belonging to the family *Scutacaridae*. All of them proved to be new to science.

In the description of the species we apply, with some minor modifications, LINDQUIST's terminology (1986). The measurement data represent the smallest and greatest measurements taken on the series studied.

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[1] A research program sponsored also by the Hungarian National Scientific Research Foundation (OTKA 3165).

LIST OF LOCALITIES

Mad-89/3: MADAGASCAR: (Prov. Tamatave: Sous-préf. Morsamanga): Réserve spéciale "Analamazoatra" (anciennement Perinet) près d'Andasibe, forêt primaire, prélèvement de sol au pied de *Ravensara* sp. (*Lauraceae*), 1020 m, extraction par appareil Berlese, 21.XI.1989, leg. B. Hauser.

Mad-89/7: MADAGASCAR: (Prov. Antsiranana [anciennement Diego-Suarez]: Sous-préf. Antsiranana): Parc National "Montagne d'Ambre" (= Ambohitra), près de la "Petite Cascade", forêt primaire, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre, 985 m, extraction par appareil Berlese, 23.XI.1989, leg. B. Hauser.

Mad-89/34: MADAGASCAR: (Prov. Antsiranana [anciennement Diego-Suarez]: Sous-préf. Andoany [anciennement Hell-Ville]): Ile de Nosy Be, Réserve naturelle intégrale "Lokobe", forêt primaire près d'Ampasindava, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre en décomposition mais encore debout, 80 m, extraction par appareil Berlese, 30.XI.1989, leg. B. Hauser.

DESCRIPTIONS

Pygmodispus (P.) nosybe sp. n.

M e a s u r e m e n t s . - Length: 159-228 µm, width: 145-209 µm.

D o r s a l s i d e : Clypeus large, its margin wide. No essential difference among the dorsal setae, seta c_2 longest of all (Fig. 1). All setae simple and roughened or smooth. Distal part of peritrema well dilated (Fig. 7), divided into two tubes. Mediolateral bothridial spines twice longer than the equally spiniform bothridial seta (Fig. 6).

V e n t r a l s i d e : This species belongs to the nominate subgenus, its posterior sternal plate is divided laterally. Apodemes well developed, apodemes IV run nearly transversally (Fig. 3). All epimeral setae - except *2b* - setiform, setae *3a* and *3b* standing far from each other and the distance between setae *3b* hardly smaller than that between setae *4b*. Both pairs of setae *4a* and *4b* long, *4b* arising hardly behind *4a*, both reaching over the vulva.

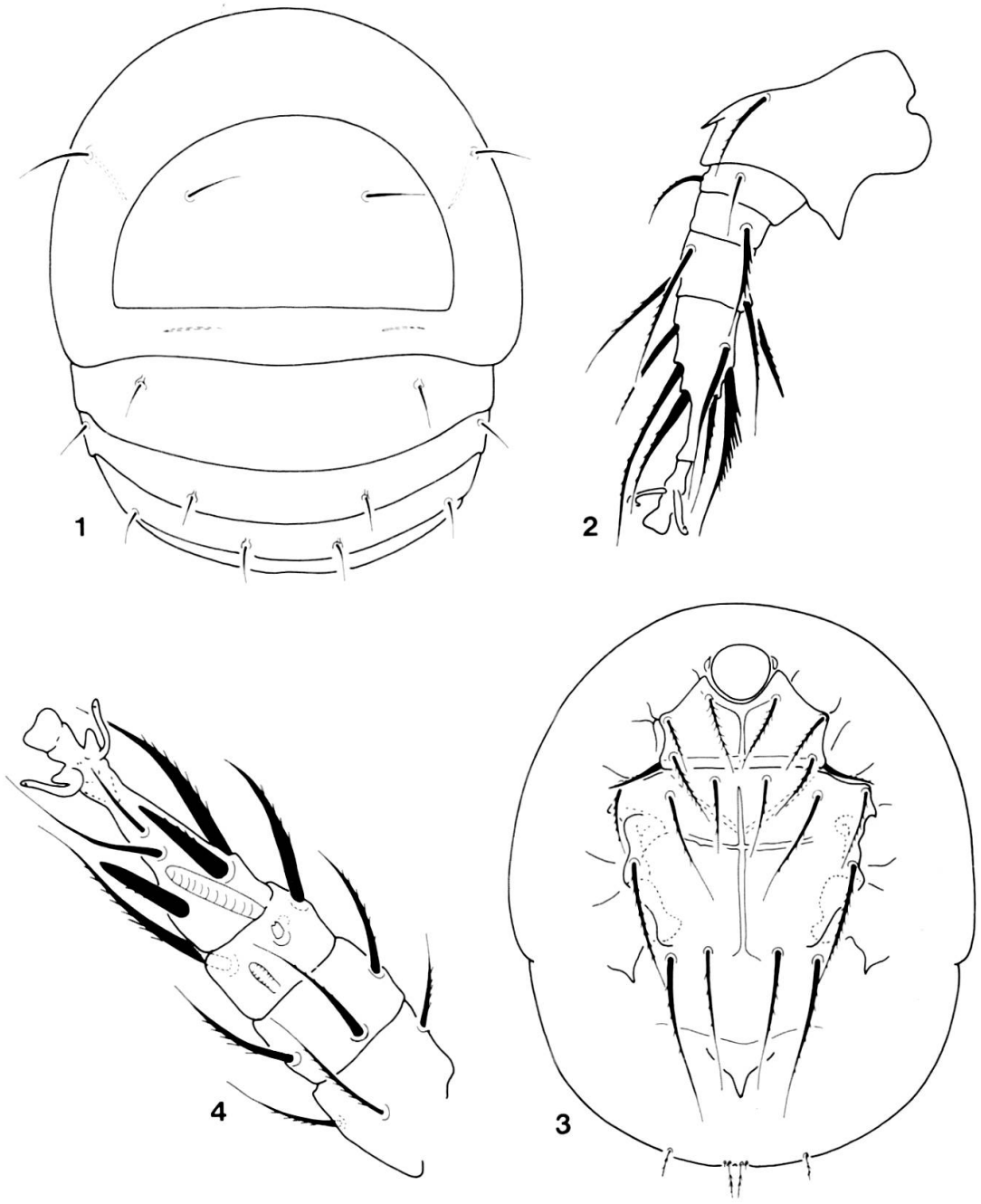
L e g s : Tibiotarsus of leg I (Fig. 5) much dilated; claw very large, with its dilated and strongly modified spines *(s)* forming a pincers-like structure. All solenidia spindle-shaped, short, ω_1 only slightly longer than the protuberance of setae *d*. Solenidium of tarsus II (Fig. 4) thick, not longer than seta id_2". Femur of leg IV (Fig. 2) very wide, its anteroventral spur triangular.

M a t e r i a l e x a m i n e d : Holotypus: Mad-89/34, 14 paratypes from the same sample. Holotypus and 9 paratypes: MHNG[2] and 5 paratypes (1425-PT-1990): HNHM[3].

R e m a r k s : See the differential diagnosis after the next *Pygmodispus* species.

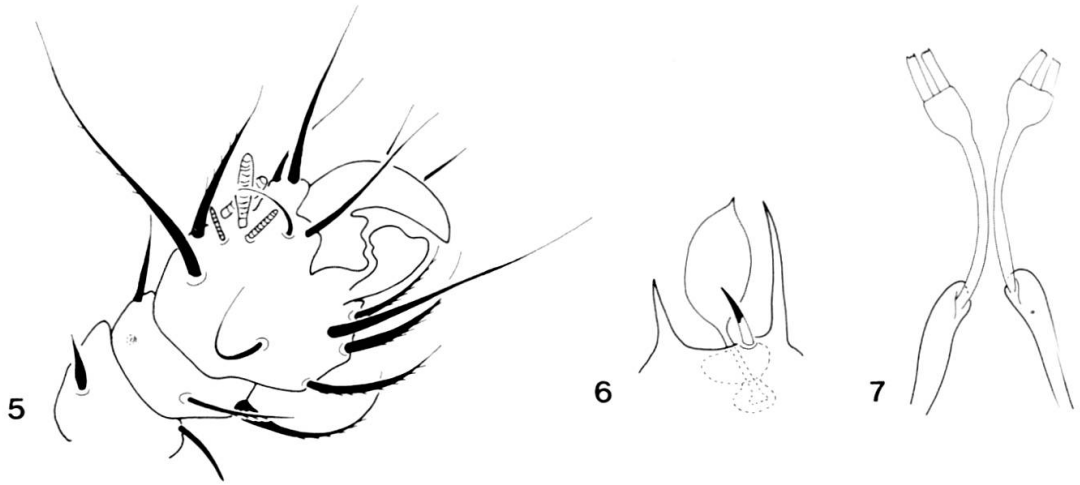
2 MHNG = deposited in the Muséum d'Histoire naturelle, Genève.

3 HNHM = deposited in the Hungarian Natural History Museum, Budapest, with the identification number of the specimens in the Collection of Arachnida.



FIGS 1-4.

Pygmodispus (*P.*) *nosybe* sp. n. - 1: body in dorsal view, 2: leg IV, 3: body in ventral view, 4: leg II.



FIGS 5-7.

Pygmodispus (*P.*) *nosybe* sp. n. - 5: leg I, 6: trichobothrium, 7: peritremes.

Pygmodispus (P.) helleri sp. n.

M e a s u r e m e n t s . – Length: 188-242 µm, width: 174-204 µm.

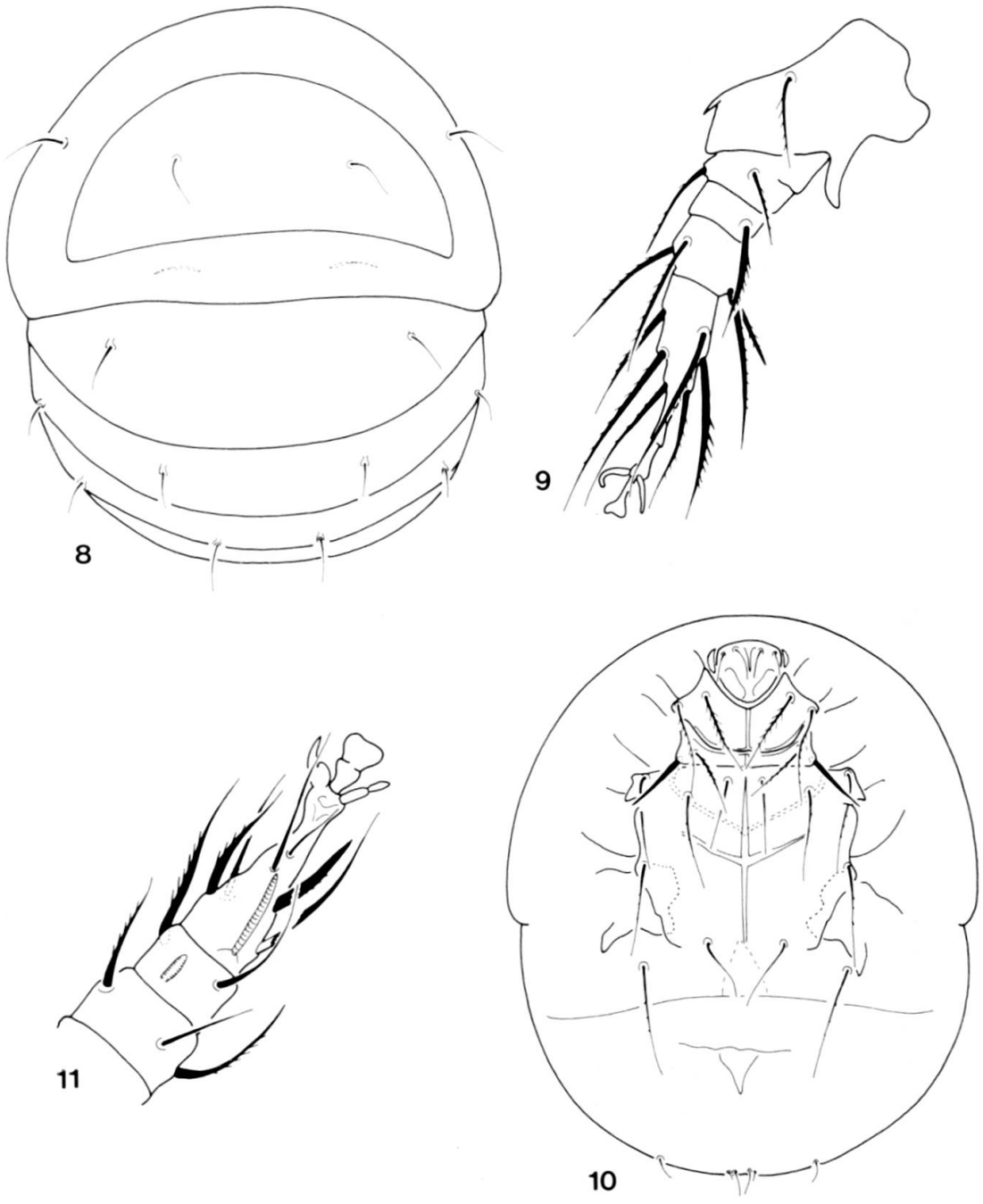
D o r s a l s i d e : Clypeus very large, larger than all other dorsal segments together (Fig. 8); also its margin very wide. All dorsal setae simple, smooth or finely roughened, setae c_2 slightly longer than the others. Peritrema gradually broadened anteriorly, but its distal part undivided (Fg. 14). No essential difference among the bothridial spines (Fig. 13).

V e n t r a l s i d e : Both sternal plates bearing the characters of the nominate subgenus, lateral margin of the posterior sternal plate divided into two parts, its anterior corner acute. All apodemes normaly developed, apodeme IV directed anteriorad (Fig. 10), like the sejugal apodemes. All epimeral setae - except setae *2b* - thin and comparatively short, the distance between setae *3a* and *3b* short, that between setae *4b* much greater than the distance between setae *3b*. All setae finely ciliate or somewhat roughened.

L e g s : Tibiotarsus of leg I elongate, claw small, spine *s* typical (Fig. 12) normal. Solenidium ω_2 tubiform, very long, much longer than the basal protuberance of seta *d*. Solenidium of tarsus II (Fig. 11) conspicuously thin and long. Femur of leg IV with a bent, but not wide, anteroventral spur (Fig. 9).

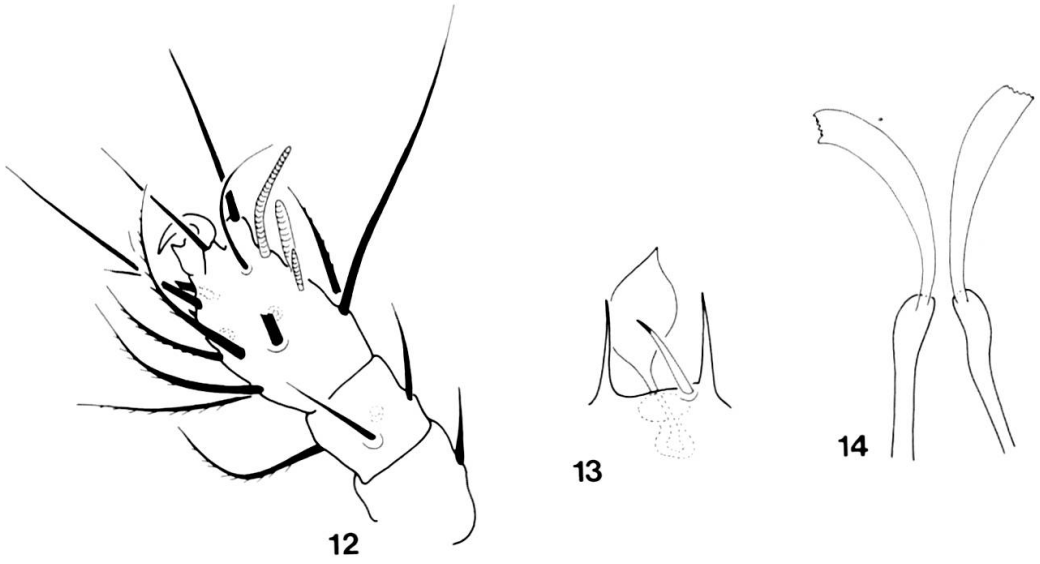
M a t e r i a l e x a m i n e d : Holotypus: Mad-89/34, 8 paratypes from the same sample. Holotypus and 5 paratypes: MHNG, 3 paratypes (1426-PT-1992): HNHM.

R e m a r k s : On the basis of the form of the posterior sternal plate, both of these new *Pygmodispus* species belong to the nominate subgenus, but on the basis of the shape of claws they belong to different species groups. It is not impossible, that the two forms represent a phoretic and a nonphoretic stage. However, this fact can be excluded, because the position of the epimeral setae and the form of the solenidia of leg II and femur IV show considerable differences between the two species; *P.* (*P.*) *helleri* probably related to *P.* (*P.*) *indicus* Mahunka, 1971, but the anteroventral spur of the



FIGS 8-11.

Pygmodispus (*P.*) *helleri* sp. n. - 8: body in dorsal view, 9: leg IV, 10: body in ventral view, 11: leg II.



FIGS 12-14.

Pygmodispus (*P.*) *helleri* sp. n. - 12: leg I, 13: trichobothrium, 14: peritremes.

latter is wider than in the new species. *P.* (*P.*) *nosybe* stands nearest to *P.* (*P.*) *calcaratus* Paoli, 1911; however, the two species differ by differences concerning the shape of tarsus I and Femur IV.

In the taxonomy of the family *Scutacaridae* the form of the peritremes has not yet been taken into consideration. Both new species exhibit a very characteristic shape of these structures and it would probably be interesting to undertake a comparative study of them concerning the whole family.

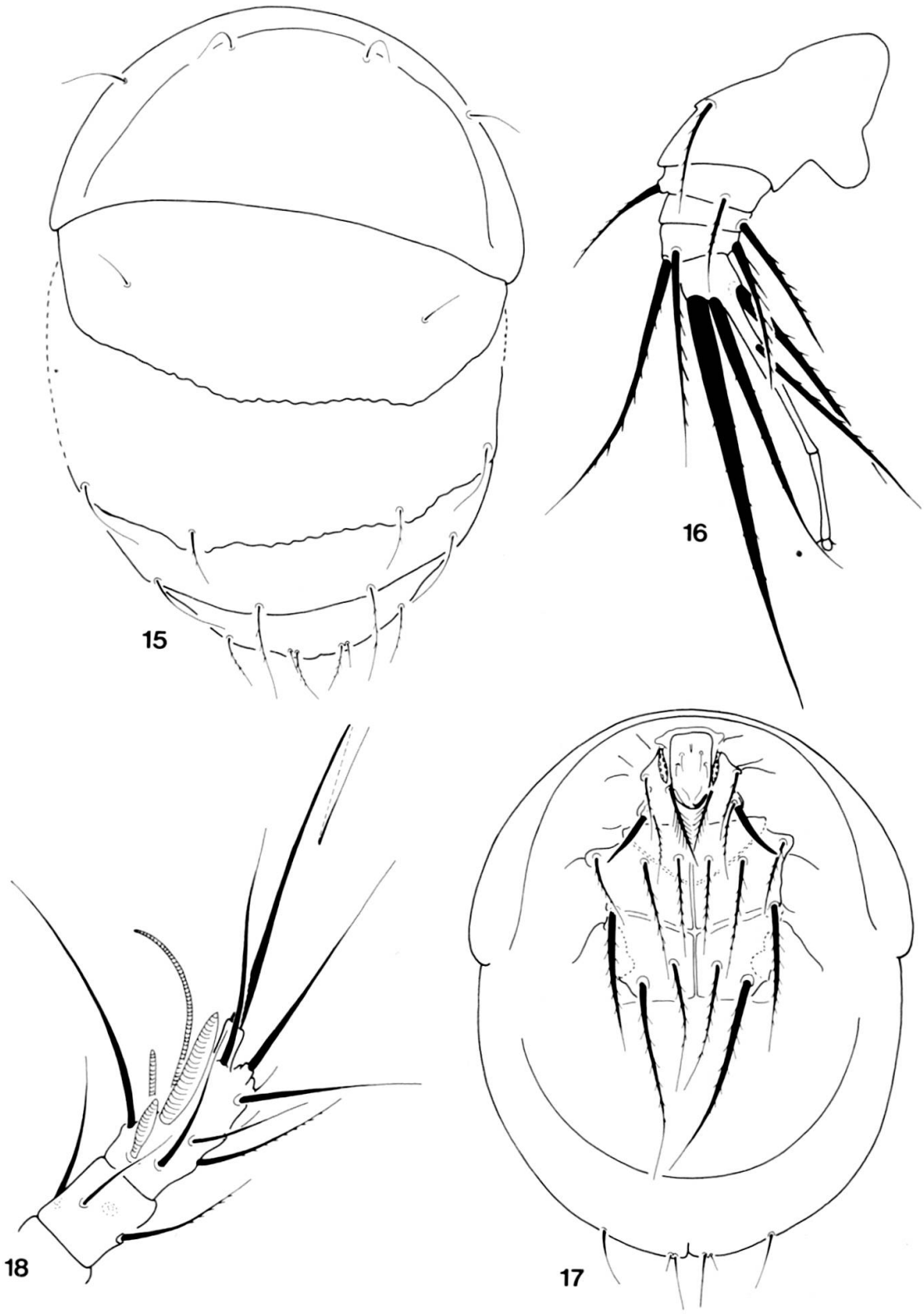
I dedicate this new species to Max Heller, chargé d'affaires of the Swiss Embassy in Antananarivo, who contributed decisively to the success of the Geneva Expedition by his invaluable help.

Diversipes undulatus sp. n.

M e a s u r e m e n t s . - Length: 213-247 µm, width: 164-198 µm.

D o r s a l s i d e : Clypeus normal, its margin narrow. Posterior margin of the other dorsal segments sinuous (Fig. 15). All dorsal setae thin, rarely and finely pilose. Setae h_1 longest of all, their cilia also longer than those of the other setae. Setae p_1 and p_3 equally long, setae p_2 the shortest of all.

V e n t r a l s i d e : Anterior sternal plate much narrower than the posterior one. Apodemes well developed, *ap. IV* conspicuously thick and long, reaching to lateral margin of sternal plate. Among the epimeral setae one pair (*2b*) characteristically spiniform, two pairs dilated (*4b*, *4c*), all others normal, but the cilia of setae *1a* much longer than those of the other setae (Fig. 17).



FIGS 15-18.

Diversipes undulatus sp. n. - 15: body in dorsal view, 16: leg IV, 17: body in ventral view, 18: leg I.

G n a t h o s o m a : Palpal solenidium very large, dilated medially, directed backwards (Fig. 17).

L e g s : Claw of tibiotarsus of leg I (Fig. 18) completely reduced. Solenidium ω_1 thick, narrowed anteriorly, ω_2 very long, thin, tubiform. Solenidium of tarsus II also conspicuously long, reaching over insertion of seta *d*. Form and chaetotaxy of leg IV (Fig. 16) typical for the genus.

M a t e r i a l e x a m i n e d : Holotypus: Mad-89/7, 18 paratypes from the same sample. Holotypus and 11 paratypes: MHNG, 7 paratypes (1427-PT-1990): HNHM.

R e m a r k s : The new species is well distinguishable from the other species of the genus *Diversipes* Berlese, 1903, by the undulate posterior margin of the dorsal segments and the characteristically bent and widened palpal solenidium.

Heterodispus andasibe sp. n.

M e a s u r e m e n t s . - Length: 181 µm, width: 145 µm.

D o r s a l s i d e : Form of body inverse ovoid. Clypeus much larger than the other dorsal segments together. All dorsal setae - except setae *p* - heavy, thick and distinctly pilose. Both pairs of clypeal setae arising on the clypeal margin, both longer than all other dorsal setae. Among the latter ones setae h_1 cylindrical (Fig. 19), the three pairs of setae *p* nearly equal in length.

V e n t r a l s i d e : The form of sternal plates and apodemes characteristic for the genus (Fig. 21). Epimeral setae long and heavily pilose or spinose. Setae *1a*, *1b*, *2a*, *3a*, *3b*, *4a* and *4b* setiform, but more or less thickened, all other ones blunt at tip, dagger-shaped. Setae *3b* reaching insertion of *4b*, *4a* originating behind setae *4b*. Median vein of the setae well observable.

L e g s : Tibiotarsus of leg I (Fig. 22) without claw, four setae arising on shorter or longer tubercles. Legs II, III and IV (Fig. 20) displaying the typical characteristics of the genus. Pretarsus well developed.

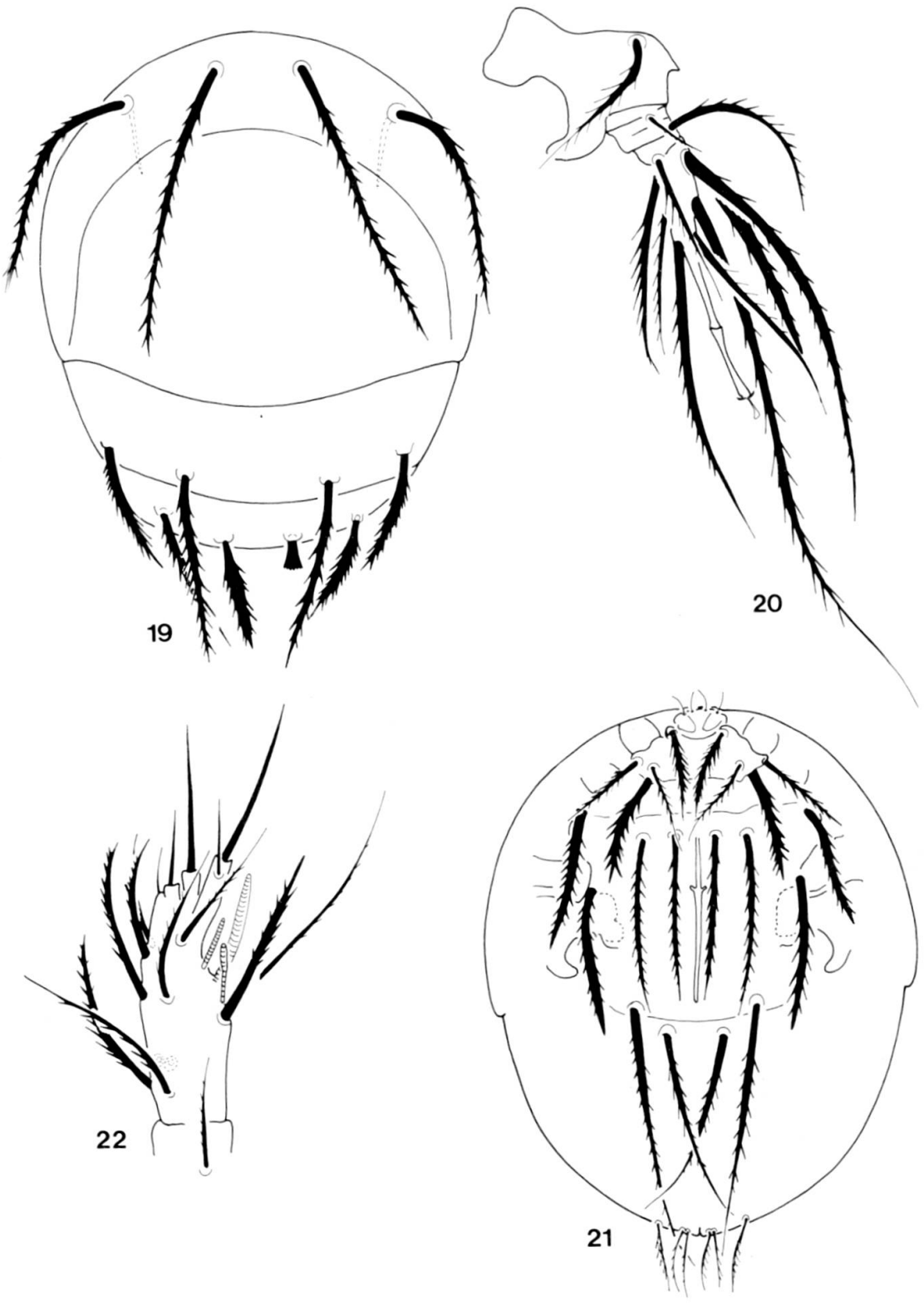
M a t e r i a l e x a m i n e d : Holotypus: Mad-89/3: MHNG.

R e m a r k s : On the basis of the very long clypeal setae and the long setae 4a and 4b the new species belongs to the relationships of *H. machadoi* Mahunka, 1964, *H. conquassatus* Mahunka, 1972 and *H. mussardi* Mahunka, 1975. However, it is distinguished from all of them, because the tibiotarsus IV of the two latters is reduced and the epimeral setae, including setae *4a* and *4b*, are much shorter in *H. machadoi* than in the new species.

Scutacarus lokobe sp. n.

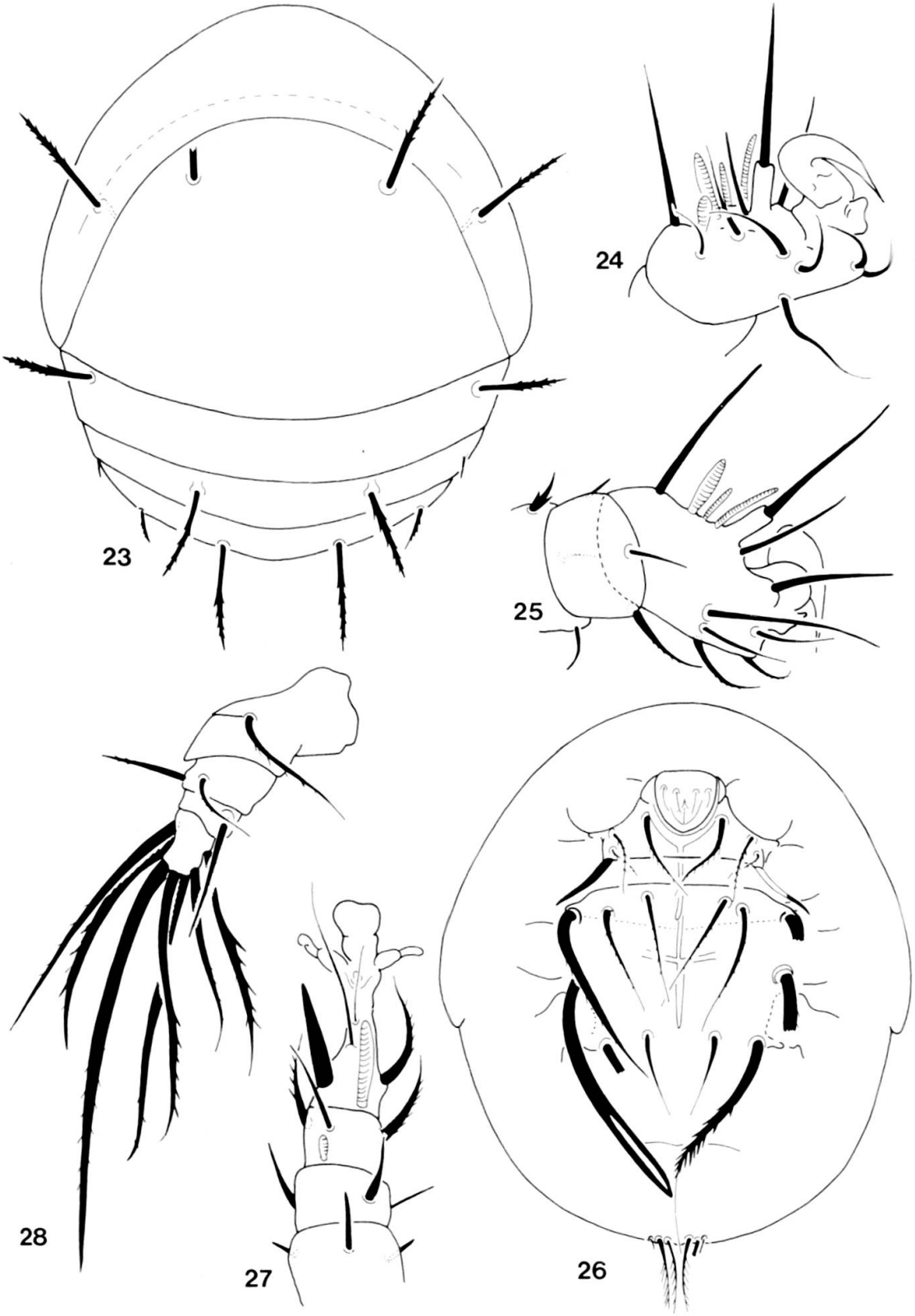
M e a s u r e m e n t s . - Length: 169 µm, width: 145 µm.

D o r s a l s i d e : Clypeus very large, much wider than the other dorsal segments (Fig. 23). Clypeal margin also wide. All dorsal setae erect, c_1 and c_2 longer than the others, d_1, *f* and h_1 nearly equal in length and shape, setae h_2 much shorter than the



FIGS 19-22.

Heterodispus andasibe sp. n. - 19: body in dorsal view, 20: leg IV, 21: body in ventral view, 22: leg I.



FIGS 23-28.

Scutacarus lokobe sp. n. - 23: body in dorsal view, 24-25: leg I, 26: body in ventral view, 27: leg II, 28: leg IV.

others, setae *f* shortest of all (Fig. 23). All three pairs of setae on segment *P* arising close to each other, setae p_1 and p_2 equal in length, the third pair minute.

V e n t r a l s i d e : Sternal plates and the apodemes without special characters; however, one pair (*4c*) of the epimeral setae strongly modified, their distal end dilated basally, with an elongated, enclosed inner structure; some setae characteristically dilated basally and only two pairs (*1b* and *2a*) normal, setiform. Setae *4a* originating before *4b*, the latter ones bearing some spines and/or cilia medially (Fig. 26).

L e g s : Tibiotarsus of leg I (Figs 24-25) dilated, claw very large, with elongated distal end and modified spine *s*. Solenidium ω_2 much longer but thinner than the ω_1. The solenidium of tarsus II (Fig. 27) large, hardly shorter than the spiniform seta ld_2". Setae of genu and femur of leg II and III short. Tibiotarsus of leg IV (Fig. 28) slightly elongated, setae *d* of femur erect, seta of genu spiniform, blunt at tip.

M a t e r i a l e x a m i n e d : Holotypus: Mad-89/34: MHNG.

R e m a r k s : The new species is well characterized by the modified setae of the sternal plates and by the erect setae of femur IV. Similarly modified sternal setae are also present in *Scutacarus elacatus* Mahunka, 1973; however, setae *4a* are simple in the new species and modified in *S. elacatus*.

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