J. Med. Ent. Vol. 10, no. 6: 552–555 30 December 1973

ECHIMYOPUS DASYPUS, N. SP., A HYPOPUS FROM *DASYPUS NOVEMCINCTUS* IN PANAMA (GLYCYPHAGIDAE, ECHIMYOPINAE: SARCOPTIFORMES)

By **A. Fain[1], F. S. Lukoschus[2], J. M. W. Louppen[2] and E. Méndez[3]**

Abstract: Echimyopus dasypus, a new hypopus obtained from *Dasypus novemcinctus*, is described. Line drawings and scanning electron microscope photographs are presented.

The new species of *Echimyopus* described in this paper is known only from the hypopial stage and was found on specimens of the nine-banded armadillo, *Dasypus novemcinctus* Linnaeus, in Panama. This edentate has a wide distribution; it is presently found from northern Argentina to Kansas, United States of America (Cabrera 1957, 1961).

This new species is distinguished from the previously known species of the genus (*E. brasiliensis* Fain, 1967a, *E. boliviensis* Fain, 1967a, *E. nyctomys* Fain, 1967b, and *E. caparti* Fain, 1969) by the following features: (1) The presence of a distinct network on the dorsal shield, the latter being surrounded by a deep groove (FIG. 2); (2) the vestigial character of the membranous lobes around the genital orifice and (3) the great size of the internal genital suckers.

This new species exhibits 2 pairs of palposomal hairs. This character also exists in the other known species, except in *E. brasiliensis* where we have found only 1 pair. The 2nd pair is very small and difficult to see; as a result, it was overlooked in the original descriptions of these species. In *E. boliviensis* this pair is located on the ventrolateral part of the palposoma. In *E. nyctomys* and *E. caparti* it is situated on the dorsolateral portion of the palposoma and is clearly visible only in crushed specimens.

It is interesting to note that the species described below is a parasite of the skin, while the 4 other known species are inhabitants of the hair follicles.

Echimyopus dasypus, n. sp. FIG. 1–6

Type data: Holotype and numerous paratypes ex young *Dasypus novemcinctus* Linnaeus, Caimitillo, Chilibre, Province of Panama, Republic of Panama, 28.VIII.1972, Gregorio Madrid, Jr.; a large series of paratypes ex young specimen of the same host species, Mendoza, Province of Panama, 19.X.1972 (found dead on road by Dr Carl M. Johnson). Some specimens of the latter material have been used for rearing experiments.

Holotype in the collection of the Institut Royal des Sciences Naturelles de Belgique. Paratypes in the British Museum (Natural History), London; National Museum of Natural History, Washington; Bernice P. Bishop Museum, Honolulu; Field Museum of Natural History, Chicago; Rocky Mountain Laboratory, Hamilton; Zoologisches Institut und Museum, Hamburg; Institute of Parasitology, Prague; Rijksmuseum van Natuurlijke Historie, Leiden; Gorgas Memorial Laboratory, Panama, and in collections of the authors.

Description of hypopus: Dorsal surface (FIG. 2, 3, 4, 5). Dorsal shield with regular cobblestone-like sculpture (FIG. 3, 5) and provided with short (less than 10 μ) unbarbed setae *sc i*, *sc e*, d_1–d_5, l_1–l_5, h. Transverse groove [sejugal furrow (*trg*)] very slightly but regularly marked by sculpture lines and shoal incisions. Dorsal shield surrounded by distinct groove (*gr*) and thick wall which is elevated above level of shield (FIG. 3, 4, 5). Setae *vi* and *scx* located on anterior surface of wall (FIG. 3).

Ventral surface (FIG. 1). Epimera I–II as in other species of the genus. Epimerites II small and only poorly sclerotized. Epimera III strongly reduced. Palposoma represented by triangular sclerotized plate ending anteriorly in 2 strong triangular processes separated by 15 μ. Palposoma bearing solenidia alpha which are 37 μ long, 2 pairs of short palposomal setae and 1 pair of paramedian light spots. Setae *vi* on bulb (*b*) between palposoma and surrounding wall. Genital orifice 43 μ long, with sclerotized lips and vestigial membranes in addition to very large genital suckers. Setae *cx I* setiform; setae *cx III* and *cx IV* dilated basally and very thin distally. Setae *ga* at level with epimera IV; setae *gm* on lips of genital orifice. Cuticle behind genital orifice bearing 2 pairs of small, sclerotized, pointed processes (*pr*) which arise from ventral surface (FIG. 4). Legs resembling those of other species of the genus. Legs I and II with 4 free segments (tibia and tarsus fused, fusion line slightly marked) (FIG. 5); legs III and IV with femur ventrally and genu also fused. Strongly curved claws inserted extremely to highly reduced pretarsus (*PTa*) (FIG. 6). These claws are oriented posteriorly on legs I and II and anteriorly on legs III and IV. Soft parts of venter wrinkled, perhaps enabling enlargement as occurs in free hypopi of Hypodectidae (Fain 1967c) or in *Lophioglyphus liciosus* Volgin, 1964 [= *Apodemopus apodemi* (Fain, 1965), ***new synonymy***] (see also Lukoschus et al. 1972).

Measurements (in μ): Total length of holotype 215, width 168. In 15 paratypes total length is 219 (190–250); the width, 182 (160–190).

Remarks: Unlike other species of the genus, hypopi of this new species were not found within hair follicles, but rather within small epidermal

[1]Institut de Médecine Tropicale, Antwerpen, Belgium.
[2]Zoologisch Laboratorium, Katholieke Universiteit, Nijmegen, The Netherlands.
[3]Gorgas Memorial Laboratory, P. O. Box 2016, Balboa Heights, Panamá Canal Zone.

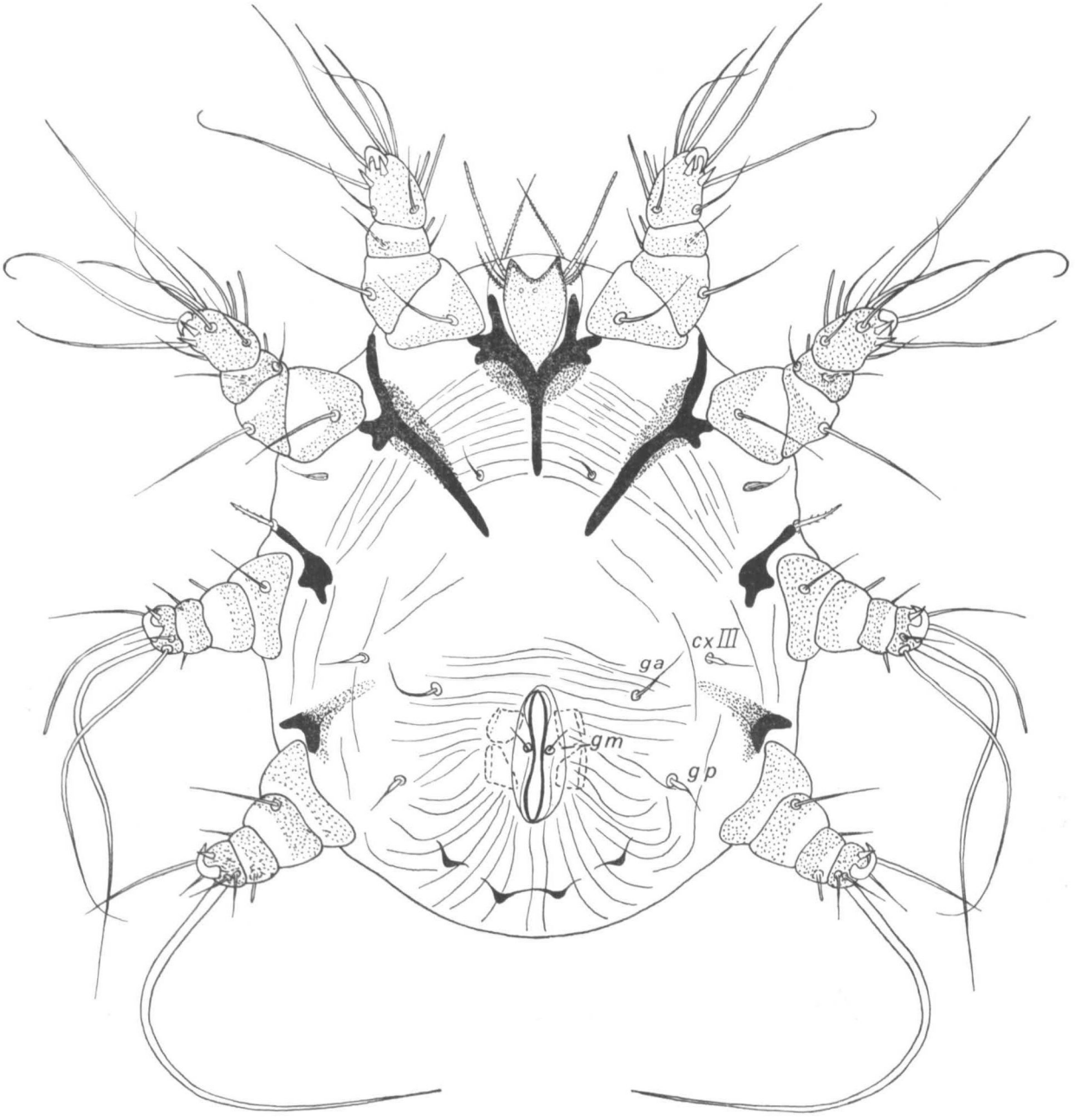

FIG. 1. *Echimyopus dasypus*, n. sp. Ventral view of hypopus.

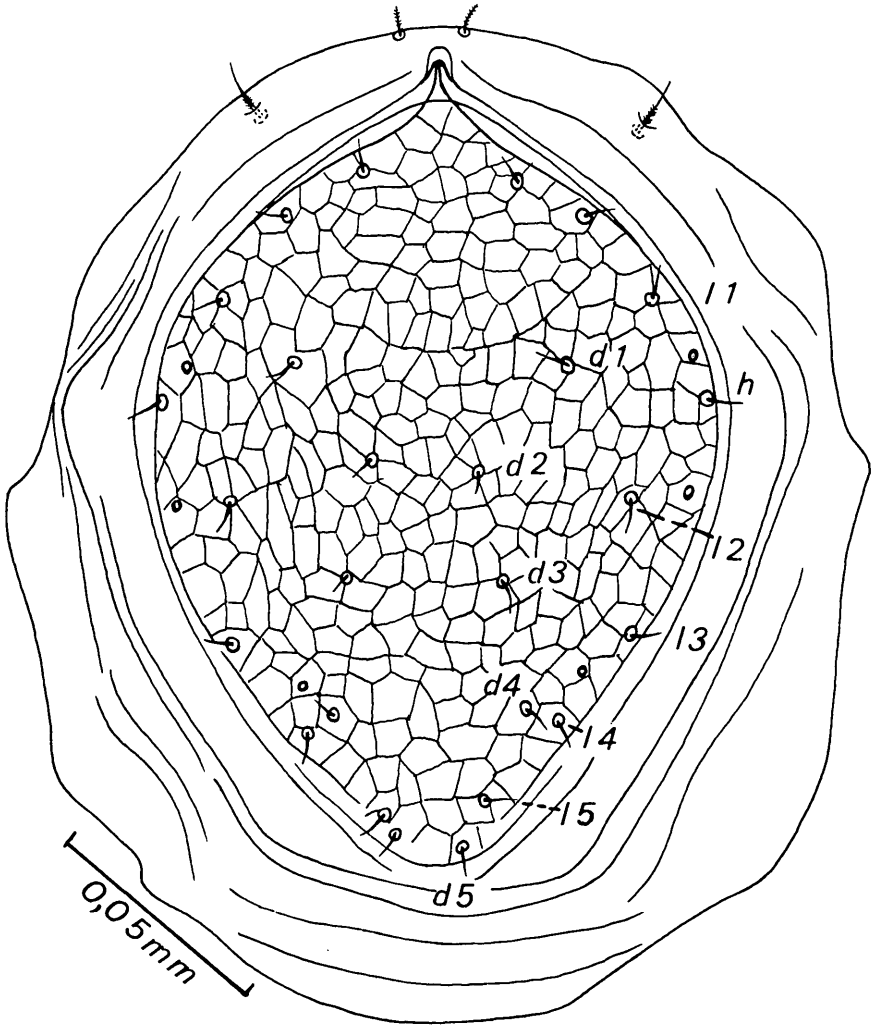

FIG. 2. *Echimyopus dasypus*, n. sp. Dorsal view of hypopus.

galls (zoocaecidia) in hairless regions of the host's venter. Every gall is inhabited by a single mite. Most of the galls show a central opening; however, some are closed by hypertrophic corneal layers. The mites are attached to corneal layers of host epidermis by their strong claws; those of the forelegs and hind legs work together as pincers. The processes posterior to the genital orifice also contribute to the attachment of the mite.

Histological sections of infested areas show hypokeratosis and hypertrophy of the epidermis around the mite. Subepidermal connective tissues are also injured by the parasite.

Rearing experiments using the methods described by Lukoschus et al. (1971) resulted in initial development of tritonymphs in only 2 specimens. These specimens died in such an early stage of sclerotization that we can only confirm with certainty the presence of free epimera I in the tritonymphs.

LITERATURE CITED

Cabrera, A. 1957, 1961. *Catálogo de los Mamíferos de América del Sur.* Rev. Mus. Argentino Cien. Nat. "Bernardino Rivadavia," *Cien. Zool.* **4,** No. 1 & 2, p. xxii + 732.

Fain, A. 1967a. Nouveaux hypopes vivant dans les follicules pileux de rongeurs américains. *Rev. Zool. Bot. Afr.* **76:** 157–62.

1967b. Diagnoses d'acariens nouveaux, parasites de rongeurs ou de singes. *Rev. Zool. Bot. Afr.* **76:** 280–84.

1967c. Les hypopes parasites des tissues cellulaires des oiseaux (Hypodectidae: Sarcoptiformes). *Bull. Inst. Roy. Sci. Nat. Belg.* **43:** 1–139.

1969. Les deutonymphes hypopiales vivant en association phoretique sur les mammiferes (Acarina: Sarcoptiformes). *Bull Inst. Roy. Sci. Nat. Belg.* **45:** 1–262.

Lukoschus, F. S., A. W. A. M. de Cock & A. Fain. 1971. Life cycle of *Melesodectes auricularis* Fain & Lukoschus (Glycyphagidae: Sarcoptiformes). *Tijdschr. Ent.* **114:** 173–83.

Lukoschus, F. S., A. Fain & F. M. Driessen. 1972. Life cycle of *Apodemopus apodemi* Fain, 1965 (Glycyphagidae: Sarcoptiformes). *Tijdschr. Ent.* **115:** 325–39, 2 pl.

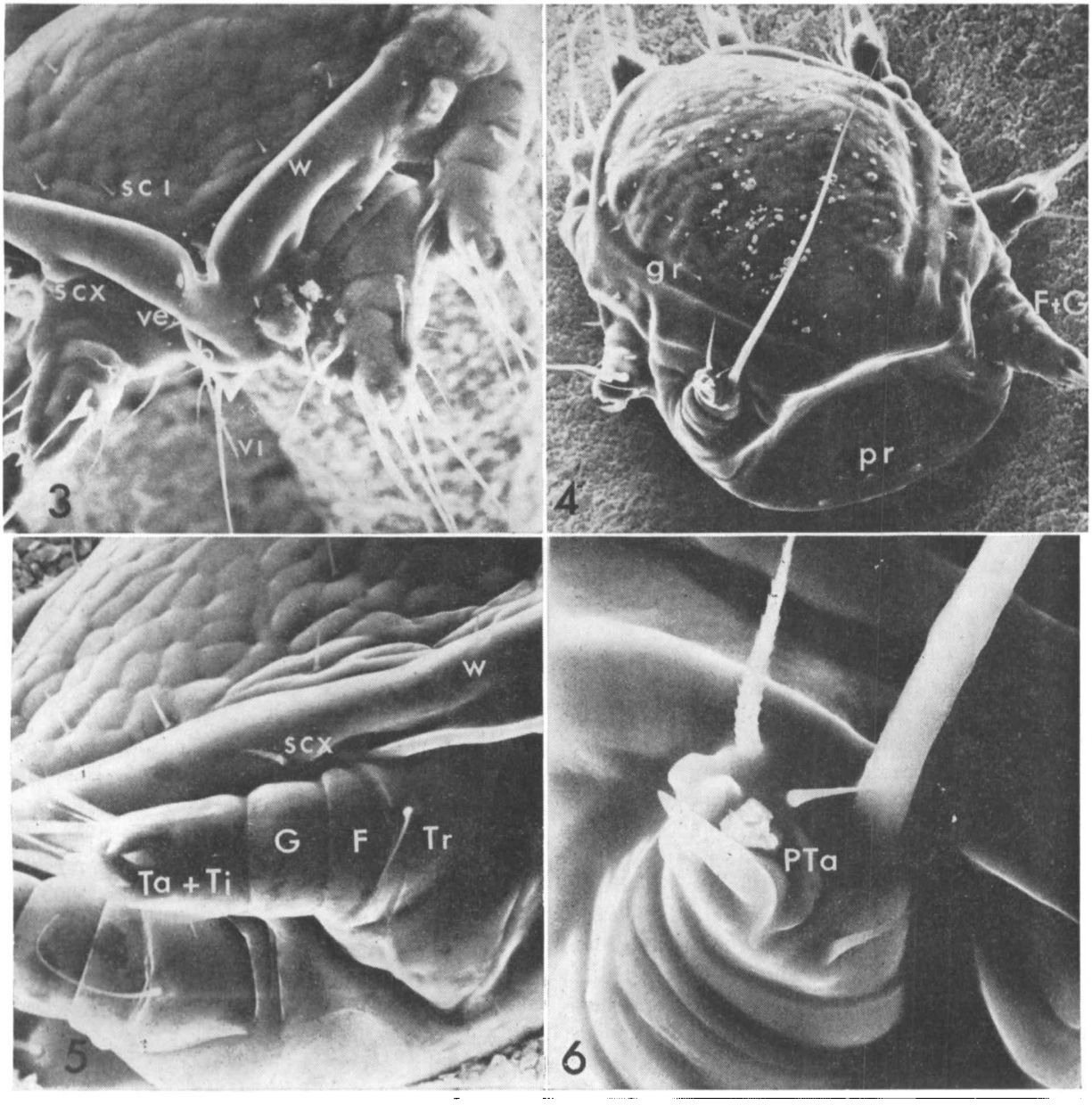

FIG. 3–6. *Echimyopus dasypus*, n. sp. Scanning microscope photographs of hypopi: (3) Frontal view of propodosoma. (4) Dorsocaudal view of hypopus. (5) Leg II. (6) Lateral view of leg IV.