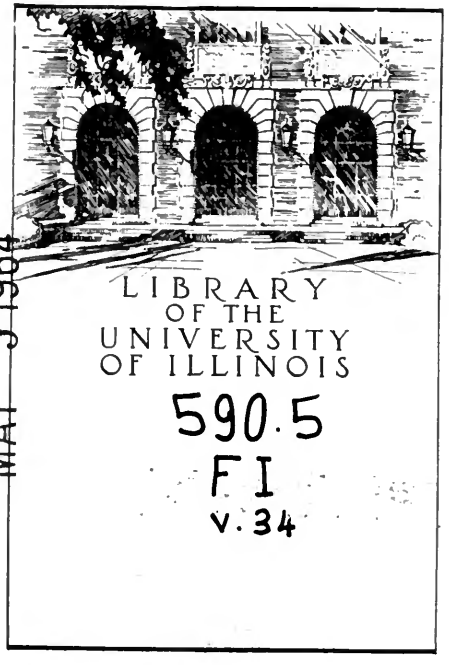

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SOME MITES OF YEMEN

Collected by the Medical Mission of the United States Naval Medical Research Unit No. 3

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INTRODUCTION

The parasitic mites herein described were collected during the United States Naval Medical Mission to the Yemen, 1951, by Harry Hoogstraal and Kenneth L. Knight. I wish to record my indebtedness to the United States Naval Medical Research Unit No. 3 for the opportunity to study and report on this collection.

Previous work on Arabian mites is summed up in the descriptions of a few odd specimens (Hirst, 1913, 1916). Our knowledge of the acarine fauna of Arabia is therefore very meager and I was glad of the opportunity afforded by the arrival of the present material.

Although the number of specimens per host animal is small, the collection is rich in new species. It includes a new species of the genus *Neotrombicula*, four new species of the genus *Trombicula*, a new species in the genus *Neoschongastia*, a new species in the genus *Acomatacarus*, and a new species in the genus *Endotrombicula*. An interesting find, taken from the wing membranes of a bat, is a larval mite which differs from all known genera of Trombiculinae. It is considered necessary to establish a new genus and species to accommodate it. For reasons which will become obvious in the description and figures, this should be placed in the subfamily Leeuwenhoekiinae Womersley, 1944, near *Comatacarus* Ewing, 1942.

The collection also contains a new species of the genus *Haemolaelaps* Berlese, 1910. The present species differs from all others in this genus by the separation of the anal scutum from the other ventral scuta in the male.

Holotypes, allotypes, and paratypes of new species are deposited in the collections of the following institutions and individuals:

BM British Museum (Natural History)
CG Mr. C. E. M. Gunther, Bulolo, New Guinea
CNHM Chicago Natural History Museum
CR Dr. Charles D. Radford, private collection
EJ Dr. E. W. Jameson, Jr., University of California
GW Dr. George W. Wharton, University of Maryland
HH Mr. Harry Hoogstraal, United States Naval Medical Research Unit No. 3, Cairo, Egypt
HW Dr. Herbert Womersley, South Australian Museum, Adelaide
MNHN Museum National d'Histoire Naturelle, Paris
MS Professor Manaba Sasa, University of Tokyo
PB Professor P. A. Buxton, London School of Hygiene and Tropical Medicine
RML Rocky Mountain Laboratory, Hamilton, Montana
RT Lieutenant Colonel Robert Traub, United States Army Medical Service Graduate School, Washington, D.C.
UK University of Kansas

All measurements are in microns unless otherwise indicated.

Genus **NEOTROMBICULA** Hirst, 1925

Neotrombicula saperoi sp. nov.

Differs from other species in shape of scutum and standard data.

Dorsal scutum (fig. 47) pentagon-shaped. Antero-median seta placed on a slight median projection of scutum; antero-lateral setae placed close to lateral edge of scutum, but some distance from its anterior edge; postero-lateral setae placed in posterior angles of scutum. Sensory setae long, flagelliform, and with five lateral barbs on their distal half, their bases wide apart and situated about midway between anterior and posterior edges of scutum. Two prominent brows or ridges lying anterior to bases of sensory setae. Anterior edge of scutum with two slight concavities, one on each side of antero-median seta; posterior edge of scutum wider than the anterior and extended posteriorly; surface of scutum pitted. Flanking the dorsal scutum are eye-plates level with postero-lateral setae, each plate with two eyes, the anterior eye the larger.

Dorsal setae about 40 in number, arranged in transverse rows of 2, 8, 8, 6, 6, 4, 4, 2. Some 62 setae on venter, two pairs lying between coxae and the others in irregularly arranged rows posterior to coxae.

Palpal claw tridentate. Palpal setae i, ii, iii, and iv barbed. Chelicera with a tricuspid cap.

All tarsi with two claws and a long, simple empodium. On the tarsus of leg iii there is a long, tactile seta (mastitarsala). Each coxa with one seta.

Standard data.—AW 65; PW 80; SB 20; ASB 30; PSB 30; A-P 30; AM 33; AL 34; PL 40; Sens 70; DS 40; SD 60.

Holotype.—From Ta'izz, Yemen. Collected by Harry Hoogstraal. Host: *Rattus rattus rattus* L., a rat. Deposited in United States National Museum.

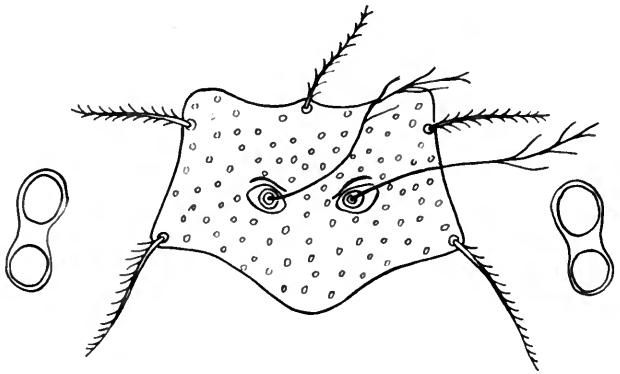

FIG. 47. *Neotrombicula saperoi* sp. nov., dorsal scutum.

Paratypes.—Same data as the holotype. Deposited in the following collections: CNHM, CR, MNHN, UK, RT, HW, GW, HH, CG, BM, and EJ.

Genus **TROMBICULA** Berlese, 1905

Trombicula hoogstraali sp. nov.

Differs from *T. batui* Philip and Traub, 1950, in shape of scutum.

Dorsal scutum (fig. 48) square, anterior edge with two concavities, one on each side of antero-median seta; lateral edge almost straight; posterior edge slightly extended medially. Median seta longer than antero-lateral setae, and placed on a projection of the scutum; antero-lateral setae some distance from anterior angles of scutum; postero-lateral setae in posterior angles of scutum and longer than the others. Sensory setae long and flagelliform with only a single lateral barb. Sensory setal bases widely separated.

Dorsal setae about 32 and arranged in transverse rows of 2, 4, 4, 6, 4, 6, 2, 2, 2. Ventral setae about 24, arranged in rows of 2, 2, 4, 6, 4, 4, 2.

Palpal claw tridentate. Palpal setae i and ii barbed; palpal setae iii and iv nude; galeal seta nude.

All tarsi with two claws and a long, simple empodium. Each coxa with one seta.

Standard data.—AW 40; PW 50; SB 20; ASB 20; PSB 28; A-P 30; AM 26; AL 18; PL 30; Sens 29; DS 28; SD 50.

Holotype.—From Ta'izz, Yemen. Collected by Harry Hoogstraal. Host: *Rattus rattus rattus* L., a rat. Deposited in the United States National Museum.

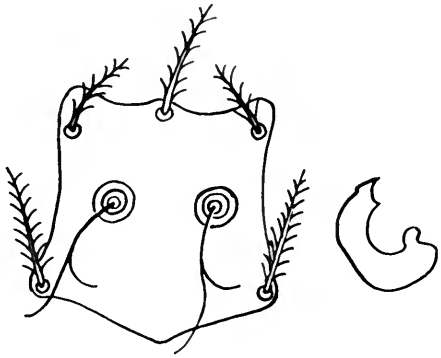

FIG. 48. *Trombicula hoogstraali* sp. nov., dorsal scutum.

Paratypes.—Same data as the holotype. Deposited in the following collections: CNHM, CR, MNHN, RML, RT, PB, HW, GW, CG, and BM.

Trombicula knighti sp. nov.

Differs from *T. melvini* (Traub and Evans, 1950) in shape of scutum and sensory spines.

Dorsal scutum (fig. 49, *a*) square, anterior edge with two concavities, one each side of antero-median seta; lateral edge concave; postero-lateral angles broadly rounded; posterior edge with a slight median concavity. Antero-median seta slightly below level of antero-lateral setae; postero-lateral setae longer than anterior setae but placed some distance from scutum. Sensory setae long and flagelliform with short stiff barbs on the proximal third, and with five to six barbs on each side in the distal two-thirds. Bases of sensory setae about equidistant from one another and from edge of scutum. Scutum surrounded on its lateral and posterior edges by cuticular striations, which clearly separate it from postero-lateral setae. Level with anterior edge of scutum but widely separated from it is a single eye on each side.

Dorsal setae about 48, arranged in transverse rows of 2, 6, 8, 8, 8, 6, 4, 4, 2. Ventral setae about 64; two pairs lying between coxae and the others in irregular transverse rows posterior to legs.

Palpal claw tridentate. Palpal setae as shown (fig. 49, *b*). Galeal seta nude. Chelicera with a tricuspid cap.

All tarsi with two claws and a long, simple empodium. Each coxa with one seta.

Holotype.—From Ta'izz, Yemen. Collected by Harry Hoogstraal. Host: *Rhinolophus clivosus acrotis* Heuglin, a horseshoe bat. Deposited in United States National Museum.

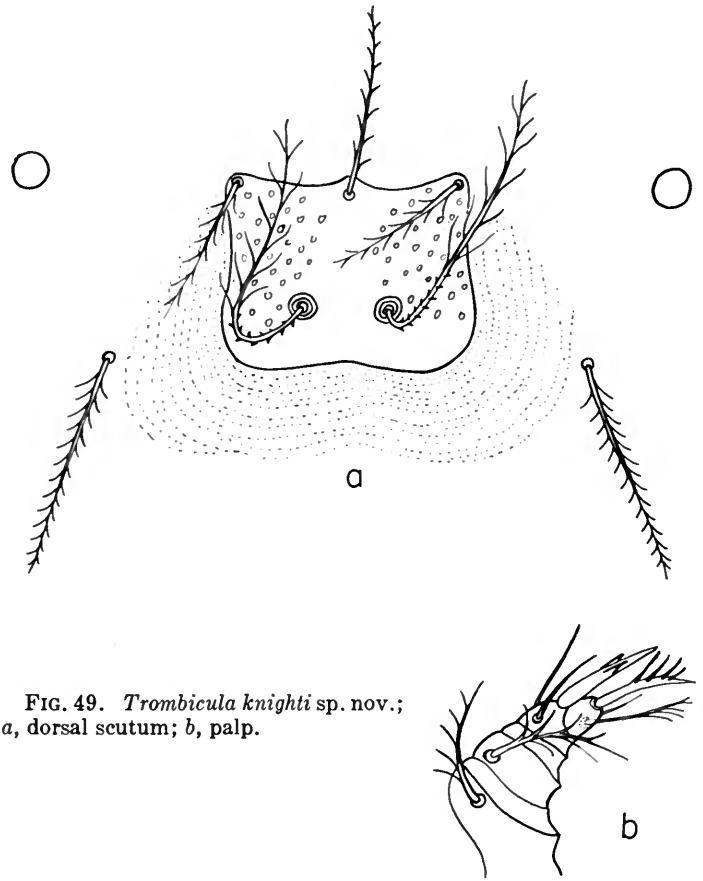

FIG. 49. *Trombicula knighti* sp. nov.; *a*, dorsal scutum; *b*, palp.

Paratypes.—Same data as the holotype. Deposited in the following collections: CNHM, CR, MNHN, RML, UK, RT, PB, HW, GW, HH, MS, CG, BM, and EJ.

Trombicula filamentosa sp. nov.

Differs from all other species in shape of scutum and the nude antero-median seta.

Dorsal scutum (fig. 50, *a*) wider than long; anterior edge slightly concave; lateral edges concave; posterior edge almost straight. Antero-median seta longer

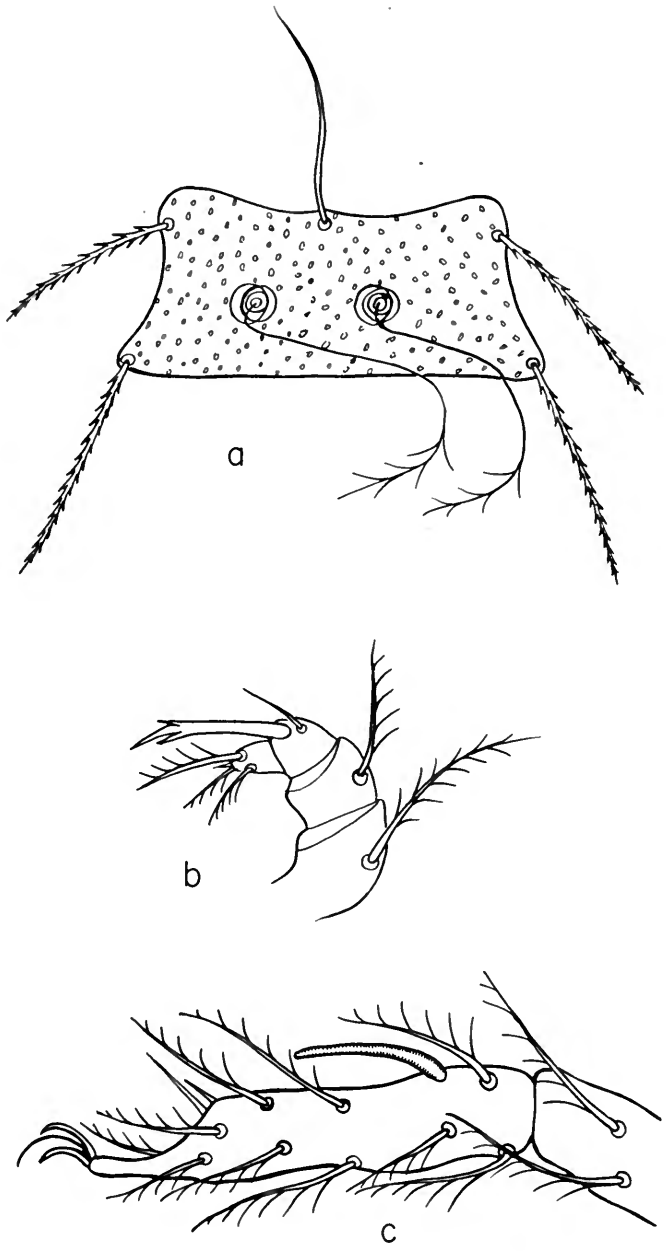

FIG. 50. *Trombicula filamentosa* sp. nov.; *a*, dorsal scutum; *b*, palp; *c*, tarsus i.

than the other scutal setae and nude. Antero-lateral setae shorter than the antero-median and with lateral barbs; placed close to lateral edge of scutum, but well back from anterior angle. Postero-lateral setae longer than antero-laterals and barbed; placed in posterior angles of scutum. Dorsal scutum pitted. Sensory setae long and filiform, with three lateral barbs on each side of distal third. Bases of sensory setae about equidistant from each other and from lateral edges of scutum.

Dorsal setae about 44, in transverse rows of 4 (humerals), 6, 4, 6, 6, 6, 6, 6, 4, 4, 2. Ventral setae about 52, one pair between coxae i, two pairs between coxae iii, the remainder in rows of 6, 6, 4, 6, 6, 6, 6, 4, 2 posterior to third coxae.

Palpal claw tridentate (fig. 50, *b*). Palpal setae i and ii barbed, iii and iv nude. Galeal seta branched.

All tarsi with two claws and a simple empodium. Tarsus i (fig. 50, *c*) with a long spur. Each coxa with one seta.

Standard data.—AW 90; PW 1100; SB 30; ASB 20; PSB 20; A-P 20; AM 65; AL 50; PL 60; Sens 1100; DS 40; SD 50.

Holotype.—From Ta'izz, Yemen. Collected by Harry Hoogstraal. Host: *Rhinolophus clivosus acrotis* Heuglin, a bat. Deposited in United States National Museum.

Trombicula brevitarsa sp. nov.

Differs from other species by expanded sensory spines and standard data.

Dorsal scutum (fig. 51, *a*) wider than long; anterior edge with a concavity on each side of antero-median seta; lateral edge concave; posterior edge slightly rounded. Antero-median seta longer than the other scutal setae and barbed. Antero-lateral setae barbed, shorter than antero-median, and anterior to it. Postero-lateral setae barbed, and placed in posterior angles of scutum. Sensory setae long, stout and barbed throughout their length; their bases placed about equidistant from one another and from lateral edges of scutum.

Dorsal setae about 34, in transverse rows of 2, 8, 6, 6, 6, 4, 2. Ventral setae about 42, two pairs between the coxae, the remaining thirty-eight in irregular rows.

Palpal claw tridentate. Palpal setae i, ii and iii barbed. Galeal seta nude.

All tarsi with two claws and a long, simple empodium. On tarsus i (fig. 51, *b*) there is a long sensory spur. Each coxa with one seta.

Standard data.—AW 70; PW 90; SB 20; ASB 30; PSB 20; A-P 40; AM 50; AL 50; PL 56; Sens 62; DS 45; SD 50.

Holotype.—From Ta'izz, Yemen. Collected by Harry Hoogstraal. Host: *Rhinolophus clivosus acrotis* Heuglin, a bat. Deposited in United States National Museum.

Paratypes.—Same data as the holotype. Deposited in the following collections: CNHM, CR, MNHN, RML, UK, and RT.

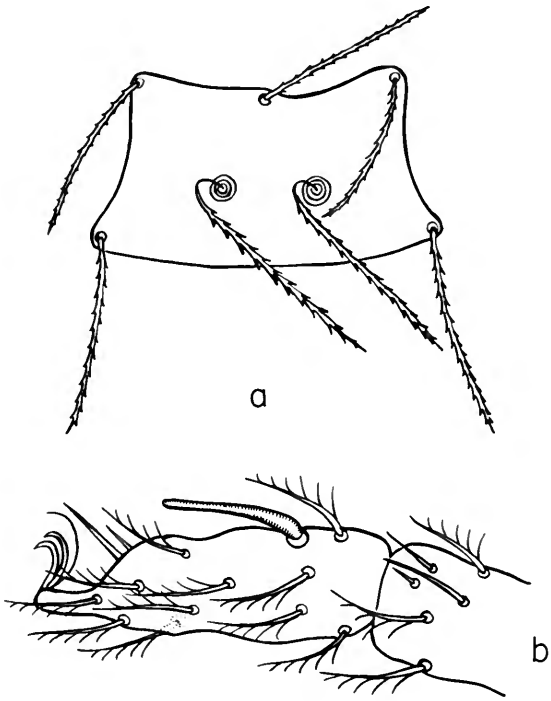

FIG. 51. *Trombicula brevitarsa* sp. nov.; *a*, dorsal scutum; *b*, tarsus i.

Genus **BRENNANELLA** gen. nov.

Brennan (1946) established the genus *Chatia* for the single species (*setosa*) which is parasitic on squirrels in the United States. The new genus herein described differs from *Chatia* in that it possesses an empodium on all tarsi (which is lacking in *Chatia*), has only a single seta on coxa iii (*Chatia* has five to seven setae on coxa iii), and has only four prongs on the palpal claw (*Chatia* has seven).

All legs with seven segments. All tarsi with a pair of claws and a long, simple empodium. Coxa i with a pair of setae; coxae ii and iii each with but one seta.

Dorsal scutum wider than long, without an antero-median projection, with six scutal setae (excluding the sensillae); an antero-median pair; antero-laterals and postero-laterals with small lateral barbs. Sensory setae long, simple, flagelliform. Eyes present.

Palpal claw with a main prong and three shorter prongs about halfway from its distal end. Palpal setae i and ii barbed, palpal seta iii very stout and with lateral barbs; an almost identical seta on the palpal tarsus.

Stigma lying between capitulum and coxa i, with trachea running down body as in Brennan's figure of *Acomatacarus arizonensis*.

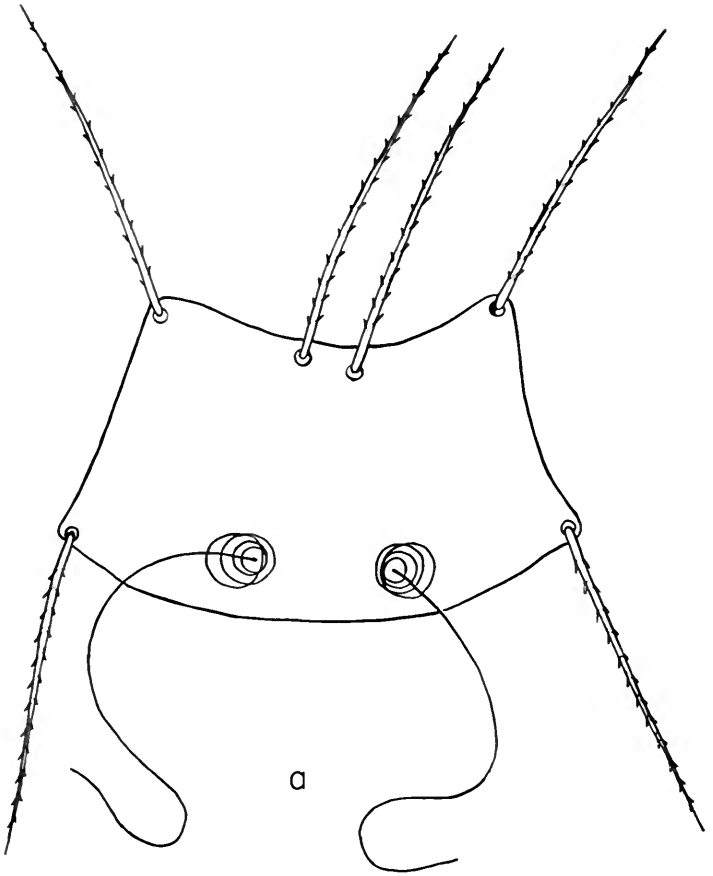

FIG. 52, *a*. *Brennanella longispina* gen. and sp. nov., dorsal scutum.

Systematic position: In the subfamily Leeuwenhoekiinae Womersley, 1944.

Genotype.—*Brennanella longispina* gen. and sp. nov.

Remarks.—I name the new genus *Brennanella* with the single species *B. longispina* as genotype, in recognition of the contributions to our knowledge of larval Trombiculinae made by Dr. James M. Brennan, Senior Medical Entomologist, Rocky Mountain Laboratory, Hamilton, Montana.

Brennanella longispina sp. nov.

Dorsal scutum (fig. 52, *a*) wider than long, anterior edge deeply concave, without an antero-median projection; lateral edge slightly concave; posterior edge wider

than the anterior and slightly rounded. All scutal setae long, stout and barbed. Antero-median setae placed some little distance back from edge of scutum, well below level of antero-lateral setae; antero-lateral setae placed in anterior angles of scutum; postero-lateral setae placed in posterior angles of scutum. Sensory setae long, simple, and without lateral barbs. Bases of sensory setae wide apart and equidistant from one another and from lateral edges of scutum, well below level of postero-lateral setae. Paired eyes level with postero-lateral setae.

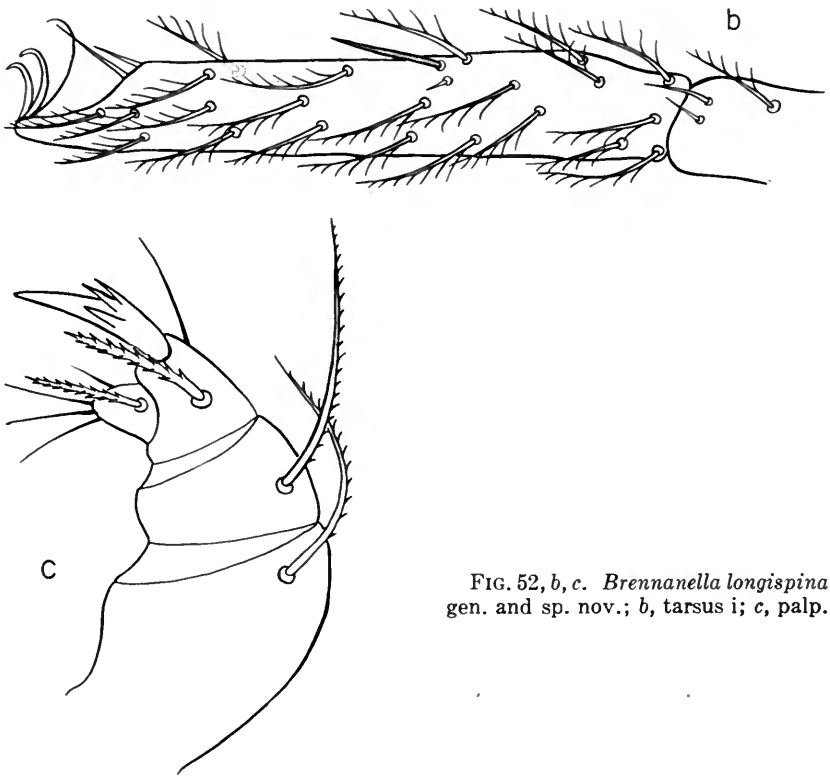

FIG. 52, *b, c*. *Brennanella longispina* gen. and sp. nov.; *b*, tarsus i; *c*, palp.

Dorsal setae about 70, irregularly arranged. Ventral setae about 80, not in regular rows, some eight or nine pairs anterior to third pair of legs, close to lateral edge of venter.

Palpal claw with a very stout main prong or claw, with three accessory prongs about halfway from its distal end (fig. 52, *c*). Palpal setae i and ii barbed; palpal seta iii stout and with lateral barbs; palpal setae iv and v nude. On the palpal tarsus there is a stout, laterally barbed seta. Galeal seta barbed. Chelicera not visible.

Legs exceptionally long and slender, each composed of seven segments; all tarsi with two claws and a simple empodium. Tarsus i (fig. 52, *b*) shows its great length in comparison with tarsi of other larvae; sensory spur short and with an

accessory spur beside it. Coxa i with a pair of setae, coxae ii and iii each having a single seta.

Standard data.—AW 90; PW 130; SB 33; ASB 70; PSB 15; A-P 60; AM 95; AL 90; PL 90; Sens 160; DS 55; SD 85.

Holotype.—From Ta'izz, Yemen. Collected by Harry Hoogstraal. Taken on the wing membranes of the host (*Rhinolophus clivosus acrotis* Heuglin, a bat). Deposited in the United States National Museum.

Paratypes.—Same data as the holotype. Deposited in the following collections: CNHM and CR.

Genus **NEOSCHONGASTIA** Ewing, 1929

Neoschongastia yemenensis sp. nov.

Differs from other species by standard data.

Dorsal scutum (fig. 53) wider than long, posterior edge longer than anterior. Anterior edge with two concavities, one on each side of antero-median seta;

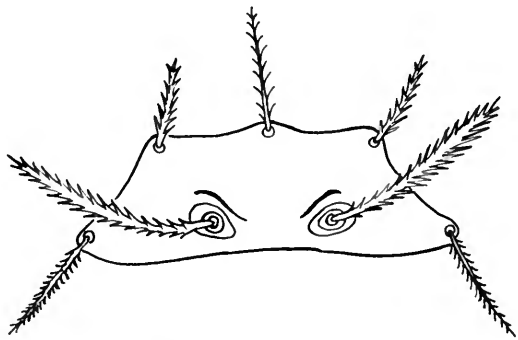

FIG. 53. *Neoschongastia yemenensis* sp. nov., dorsal scutum.

lateral edge concave, posterior edge slightly concave. Antero-median seta longer than antero-lateral setae and closer to anterior edge of scutum; postero-lateral setae of equal length to the antero-median and placed in posterior angles of scutum. Sensory setae spatulate, with lateral barbs throughout the greater part of their length. Bases of sensory setae placed wide apart, about equidistant from one another and from lateral edges of scutum; slightly in advance of a line drawn between postero-lateral setae. A dorsal ridge lies anterior to bases of sensory setae.

Dorsal setae about 30, in transverse rows of 2, 6, 6, 4, 6, 4, 2. Ventral setae about 18, in rows of 2, 2, 4, 4, 4, 2.

Palpal claw tridentate. Palpal setae i and ii barbed; palpal setae iii and iv nude. Galeal seta nude. Chelicera with a tricuspid cap.

All tarsi with two claws and a long, simple empodium. Each coxa with one seta. On the tarsus of leg iii there is a long, tactile seta (mastitarsala).

Standard data.—AW 58; PW 95; SB 32; ASB 25; PSB 10; A-P 23; AM 35; AL 27; PL 35; Sens 55; DS 38; SD 35.

Holotype.—From Ta'izz, Yemen. Collected by Harry Hoogstraal. Host: *Meriones rex buryi* Thomas, a jird. Deposited in United States National Museum.

Genus ACOMATACARUS Ewing, 1942

Acomatacarus arabicus sp. nov.

Differs from the other species by the shape of the scutum and the scutal setae.

Dorsal scutum (fig. 54, *a*) oblong, with broadly rounded angles and an antero-median projection; surface of scutum with some punctations. Antero-median

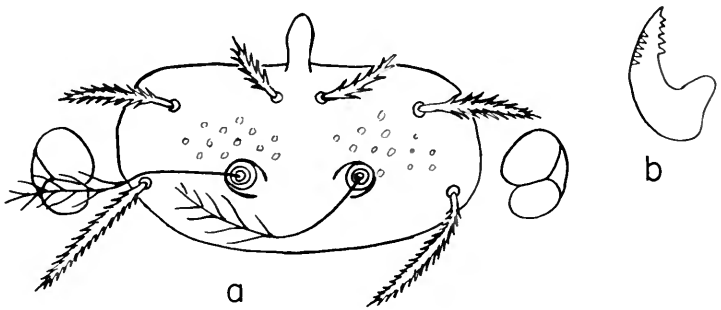

FIG. 54. *Acomatacarus arabicus* sp. nov.; *a*, dorsal scutum; *b*, chelicera.

setae well back from anterior edge of scutum, almost on a line with antero-lateral setae; antero-lateral setae longer than antero-median, some distance in from lateral edge of scutum; postero-lateral setae longer than the other two pairs and wider apart than antero-laterals. All scutal setae and body setae spatulate in shape. Sensory setae long and flagelliform, with lateral barbs on their distal half. Eye-plates close to dorsal scutum, the inner edge indistinct but the outer edge well developed. Each plate with a pair of eyes, the anterior eye the larger.

Dorsal setae about 44, in transverse rows of 2, 6, 6, 6, 6, 6, 6, 4, 2. Ventral setae about 32, in rows of 2, 8, 4, 2, 8, 4, 4.

Palpal claw tridentate. Palpal setae i, ii, iii and iv nude. Galeal seta nude. Chelicera with dorsal and ventral teeth on distal end of blade as shown (fig. 54, *b*).

All tarsi with two claws and a long, simple empodium. Two setae on coxa i; one seta on coxae ii and iii.

Standard data.—AW 63; PW 82; SB 32; ASB 30; PSB 20; A-P 22; AM 22; AL 34; PL 40; Sens 62; DS 30; SD 50.

Holotype.—Collected near Hodeida, Yemen, by Harry Hoogstraal. Host: *Stenodactylus pulcher* Anderson, a gecko. Deposited in United States National Museum.

Paratypes.—Same data as the holotype. Deposited in the following collections: CNHM, CR, MNHN, RML, UK, RT, PB, HW, GW, HH, MS, CG, and BM.

Genus **ENDOTROMBICULA** Ewing, 1931

The genus *Endotrombicula* was established by Ewing in the year 1931 to accommodate the single species *penetrans*, found on a frog, *Arthroleptis minutus* Boulenger, taken at Mount Sagalla, Kenya. Ewing illustrated the dorsal scutum of the genotype (*E. penetrans*) and showed the sensory setae as short, nude, simple spines, the antero-median seta as nude, the dorsal scutum as weakly chitinized, and the cheliceral blade with three recurved teeth.

It seems strange that despite the intensive study which this subfamily of mites has received since the termination of World War II no further species have been added to this genus.

Ewing (1949) stated that his original description of the genus was based on specimens in which the sensory setae were damaged. ". . .thus *Endotrombicula* has characters similar to those of certain species of *Schöngastia* and these *Schöngastia* species should be transferred to the redefined genus *Endotrombicula.*" But he does not state which species should be transferred.

Sambon (1928) described a number of larval Trombiculinae from frogs. Of these, two should be transferred to the genus *Endotrombicula* Ewing, 1931. *Schongastia pillersi* Sambon, 1928, taken on a frog *Phrynobatrachus natalensis* Smith, 1849, at Ashanti, West Africa, and *Schongastia madagascariensis* Sambon, 1928, from a frog *Mantidactylus luteus* Methuen and Hewitt, 1913, from Madagascar, are here renamed *Endotrombicula pillersi* and *Endotrombicula madagascariensis.*

Endotrombicula bufonica sp. nov.

The present species differs in that the cheliceral blade has only two teeth; the antero-median seta is barbed, whereas in the genotype species there are three cheliceral teeth and the antero-median seta is nude. The present species differs from all three known species of the genus in the shape of the scutum. In view of its close re-

semblance to *Endotrombicula* it has been considered advisable not to establish a new genus for it.

Dorsal scutum (fig. 55, *a*) almost square, anterior and lateral edges concave, posterior edge slightly convex. Antero-median seta shorter than the other scutal

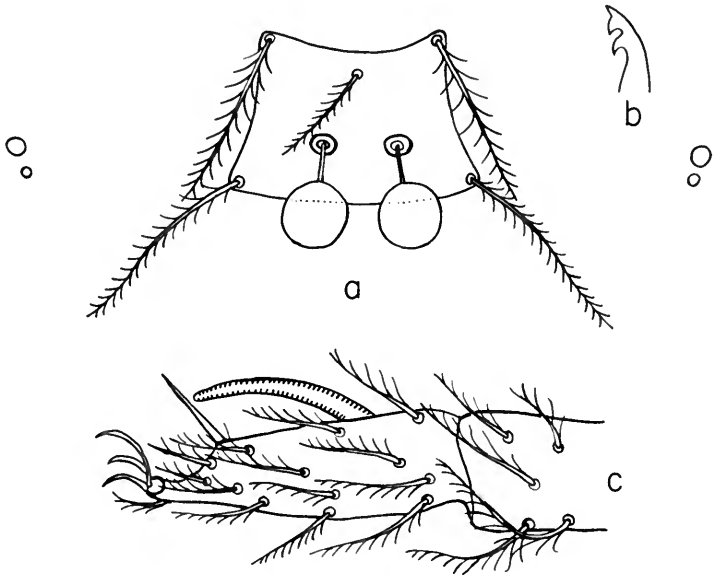

FIG. 55. *Endotrombicula bufonica* sp. nov.; *a*, dorsal scutum; *b*, chelicera; *c*, tarsus i.

setae, placed well back from edge of scutum; antero-lateral setae placed in anterior angles of scutum; postero-lateral setae longer than antero-laterals and placed in posterior angles of scutum. Sensory setae nude, globose, borne on a nude pedicle. Bases of sensory setae about equidistant from one another and from lateral edges of scutum. Paired eyes some distance from scutum; eye plates vestigial or absent. The anterior eye the larger.

Dorsal setae about 28, in transverse rows of 2, 8, 2, 4, 4, 4, 4. Ventral setae about 32, two pairs lying between the coxae, the remainder posterior to coxa iii and irregularly arranged.

Palpal claw tridentate. Palpal setae i, ii, iii and iv nude. Galeal seta nude. Chelicera with only two recurved, hook-like teeth on distal end of cheliceral blade as shown (fig. 55, *b*).

All tarsi with two claws and a long, simple empodium. Each coxa with one seta. On tarsus i there is a very long sensory spur which is almost as long as the tarsus, and a second spur (subterminala) nearer the claws (fig. 55, *c*).

Standard data.—AW 47; PW 63; SB 18; ASB 30; PSB 50; A-P 30; AM 32; AL 45; PL 52; Sens 28; DS 35; SD 45.

Holotype.—Collected February 4, 1951, forty miles east of 'Obal in Wadi Siham, Yemen, by Harry Hoogstraal. Altitude approximately 2,000 feet. Host: *Bufo orientalis* Werner, a frog. Deposited in United States National Museum.

Paratypes.—Same data as the holotype. Deposited in the following collections: CNHM, CR, MNHN, RT, HW, and HH.

Genus **LABIDOCARPUS** Trouessart, 1895

Labidocarpus nasicolus Lawrence, 1938

Two female specimens of this fur mite were taken on a horseshoe bat (*Rhinolophus clivosus acrotis* Heuglin, 1861), at Ta'izz, Yemen, by H. Hoogstraal.

Genus **ANCYSTROPUS** Kolenati, 1856

Ancystropus lateralis Kolenati, 1856

Specimens of this species were taken from a fruit bat (*Eidolon sebaeum* Anderson, 1907), at Ta'izz, Yemen, by H. Hoogstraal.

Genus **DERMANYSSUS** Duges, 1834

Dermanyssus muris Hirst, 1913

A male and a female specimen of this species were taken on a rat (*Rattus rattus rattus* L. 1758), at Ta'izz, Yemen, by K. L. Knight.

Genus **GECKOBIA** Megnin, 1878

Geckobia sp.

A number of specimens were taken on a gecko (*Hemidactylus yerburyii* Anderson, 1895), at Ta'izz, Yemen, by H. Hoogstraal.

Genus **LAELAPS** Koch, 1842

Laelaps nuttalli Hirst, 1915

Males and females of this species were taken on a rat (*Myomys fumatus yemeni* Sanborn and Hoogstraal, 1952), at Kariet Wadi Dahr, San'a, Yemen, by H. Hoogstraal.

In freshly cleared specimens a single egg is frequently seen in the body of the female. In a number of these specimens the fully developed larva can be seen inside the egg case. From this it seems conclusive that this mite produces living larval progeny.

Genus **HAEMOLAELAPS** Berlese, 1910

Haemolaelaps namrui sp. nov.

The male venter (fig. 56) shows the body with a sterno-genito-ventral scutum separated from the pear-shaped anal scutum. In this respect it differs from all other known species of this genus, in which the anal scutum is united to the sterno-genito-ventral scutum.

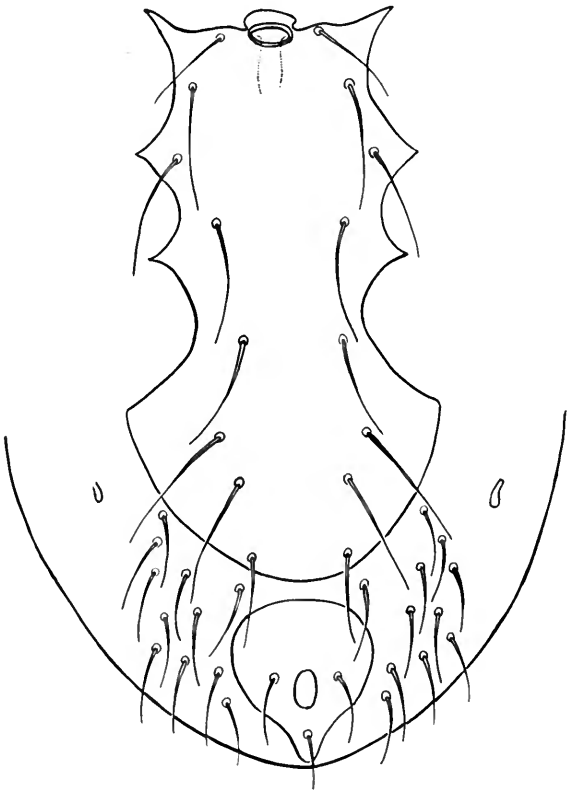

FIG. 56. *Haemolaelaps namrui* sp. nov., venter of male.

Anterior edge of ventral scutum with a large projection around genital pore, lateral angles projected between coxae i and ii; scutum concave around coxae ii, iii and iv, broadly rounded posterior to legs iv, but distinctly separated from anal scutum. Scutum with the usual three pairs of sternal setae, metapodal setae, genital setae, and three pairs of setae on posterior part. Anal scutum broadly

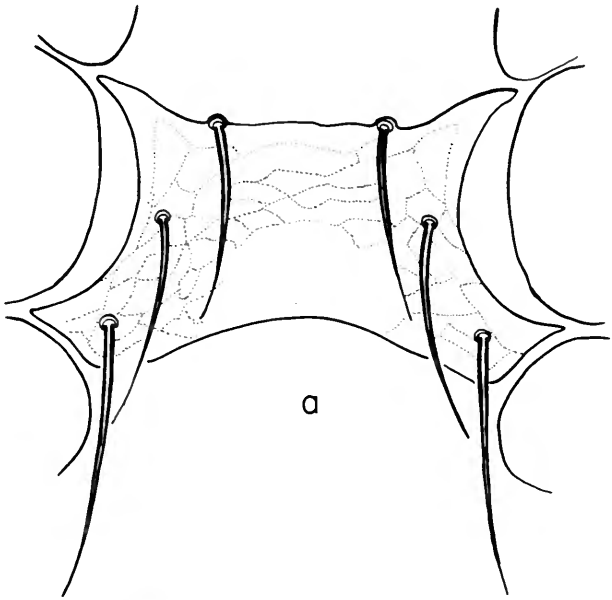

FIG. 57, *a*. *Haemolaelaps namrui* sp. nov., female, sternal scutum.

rounded anteriorly, anal pore below middle of scutum. Paired anal setae level with anterior edge of pore, unpaired seta lying well back at the beginning of narrow portion of scutum. Eleven pairs of setae on soft part of venter between scuta and lateral edges of body. Dorsal scutum of male covering most of body, leaving only a narrow strip of dorsum uncovered. Legs normal for genus and without special features. Setae of dorsal scutum simple, but of great length.

Female venter (fig. 57, *b*) with usual arrangement of three pairs of setae and two pairs of pores on sternal scutum. Anterior pair of setae well in from lateral edge of scutum; median pair of setae midway between anterior and posterior edges of scutum; posterior pair of setae situated close to postero-lateral angles of scutum. Anterior pair of setae shortest, posterior pair longest. All three pairs of sternal setae hollow. Sternal scutum crossed by wavy lines which are distinct at lateral edges but fade and become somewhat indistinct medially on posterior half of scutum.

Genito-ventral scutum narrow, flask-shaped, with only a single pair of genital setae. Metapodal plates vestigial but metapodal seta and third pore present, close to coxa ii and posterior to sternal scutum. Flanking the genito-ventral scutum are three narrow, elongated platelets on the soft integument posterior to the pair of genital setae.

Chelicera of female (fig. 57, *c*) with two large teeth plus an apical tooth on movable digit; fixed digit with three small teeth and characteristic, medially expanded seta at distal end. A stout spur at base of fixed digit, a fringe of spines at base of movable digit.

Measurements.—Male, 0.37 × 0.23 mm.; female, 0.46 × 0.29 mm.

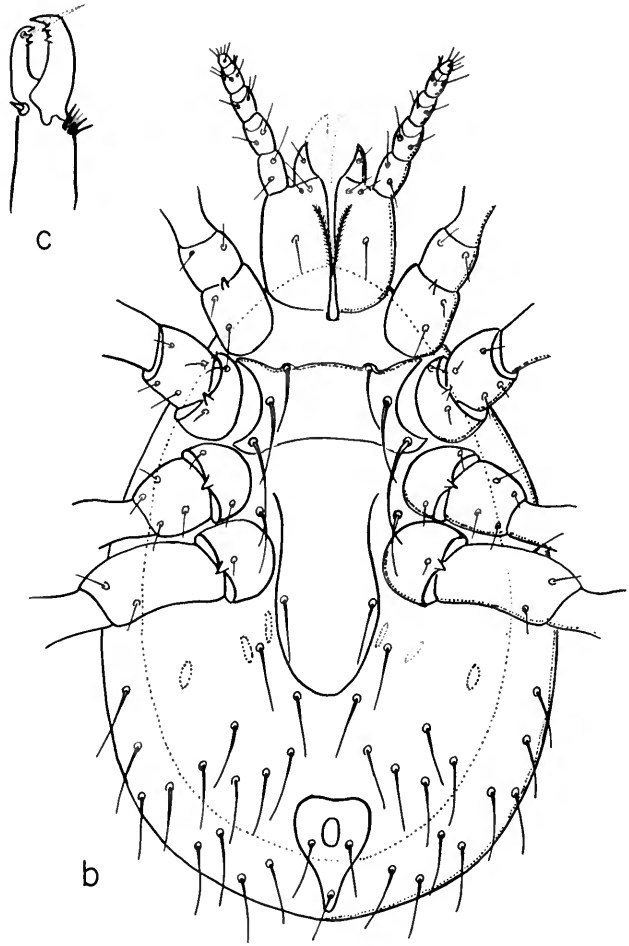

FIG. 57, *b*, *c*. *Haemolaelaps namrui* sp. nov., female; *b*, venter; *c*, chelicera.

Holotype.—A male, from Ta'izz, Yemen. Collected by Harry Hoogstraal. Host: *Meriones rex buryi* Thomas, a jird. Deposited in United States National Museum.

Allotype.—A female, same data and depository as the holotype.

Paratypes.—Same data as the holotype. Deposited in the following collections: CNHM, CR, MNHN, and RT.

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