

Issued



by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 103

Washington: 1953

No. 3312

TWO NEW SCALE-MITE PARASITES OF LIZARDS

By R. F. LAWRENCE¹

Dr. G. W. Wharton, of Duke University, Durham, N. C., has kindly submitted to me for identification a number of scale mites from lizards of the families Gekkonidae and Iguanidae. The material, from the Philippine Islands, consists of one series taken from a lizard at Fort McKinley, Rizal, and another from the gecko *Hemidactylus frenatus* in a house at Manila. Both series consist of two quite different species of *Geckobia*. These are described in this paper as new and both of them have been taken at the two localities mentioned above. There is thus good reason for assuming that the hosts of the two series are the same and that the "lizard" of Fort McKinley is identical with the gecko *H. frenatus* from which scale mites were taken at Manila. All these parasites were collected by Dr. H. L. Keegan, Third General Medical Laboratory, at Fort McKinley, Rizal, Philippine Islands.

A further series, consisting of a large number of adults and larvae, were collected from the iguanid lizard *Sceloporus undulatus*, at Durham, N. C., by Dr. A. S. Pearse; these have been identified as Banks' New World pterygosomid *Geckobiella texana*.

Several species of the scale mite parasite *Geckobia* may live on the same host; Hirst (1925, p. 173) has already pointed this out, saying, "When more than one form of *Geckobia* is found on the same host, one lives beneath the ventral scales and is flattened, being considerably wider than long and having scales instead of hairs on the venter. The second form occurring on the same host is usually to be discovered between the claw and pad of the toes, between the laminae of the pad, or between the toes themselves; this form is practically spherical in shape and has hairs instead of scales on the venter." Although there

¹ Natal Museum, Pietermaritzburg, Union of South Africa.

is no definitive information that the two strikingly different species of *Geckobia* here described actually illustrate Hirst's observation, it will probably be found that the two forms live on different parts of the body of the same host.

Family PTERYGOSOMIDAE

Genus *Geckobia* Mégnin, 1873

Geckobia keegani, new species

FIGURES 2, 3

Material examined.—Three females, cotypes, from a lizard, Fort McKinley, Rizal, Philippine Islands, collected by H. L. Keegan, October 1948, USNM 1931; also nine females bearing same locality data



FIGURE 2.—*Geckobia keegani*, new species, dorsal surface.

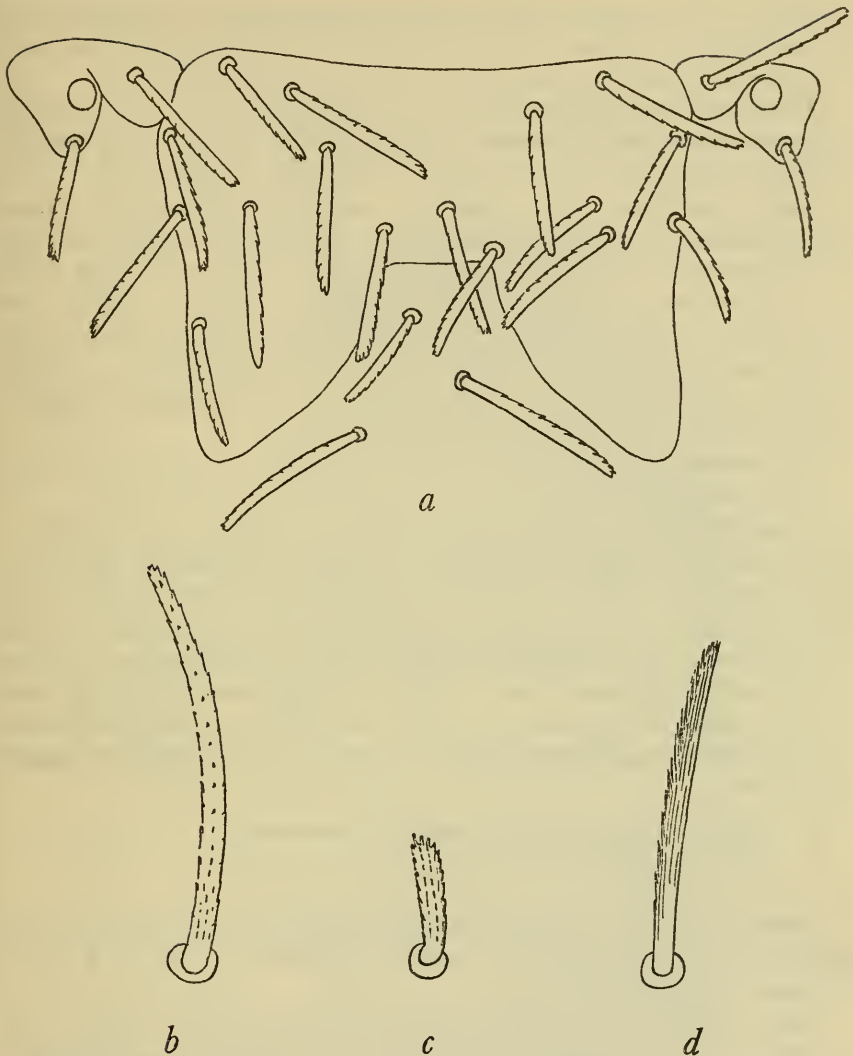


FIGURE 3.—*Geckobia keegani*, new species: *a*, Dorsal scute; *b*, peripheral dorsal hair; *c*, anterior ventral hair; *d*, posterior ventral hair.

as the cotypes, and five females from *Hemidactylus frenatus*, from Manila, Philippine Islands.

Body almost circular; dorsal surface as in figure 2, with fairly long, almost parallel-sided hairs differing very little in length, but posteriormost slightly longer than anteriormost. Dorsal scute well defined, with about 20 hairs differing very little in general appearance and size from the remaining dorsal hairs, though a little shorter than the longest of these.

Ventral surface with a density of hairs similar to that of the dorsal surface but reaching further back, almost to the anal field; the dis-

crepancy in the length of these hairs far greater than in those of the dorsal surface, anteriormost a little less than half as long as posteriormost, latter a little shorter than the longest dorsal hairs.

Mouth parts normal, pedipalps short and stout, both second and third segments above with a setiform hair, that of the second weakly barbed and only a little stouter than that of the third, which is smooth.

Legs equal-sized, rather small in proportion to the body. Posterior common coxa differing from most species of *Geckobia* in having two spurlike hairs on its anterior and only two, one, or even none on its posterior margin; usually only three or four hairs, instead of the normal five, are found on this coxa and these are comparatively small and weak. The basal segments of the legs without spurlike hairs ventrally; but the second segment in all legs with a rather long, slender, and weakly barbed hair above.

Dimensions.—Width of body 0.603 mm., length (including mouth parts), 0.632 mm.

Remarks.—The species closely resembles *Geckobia simplex* Hirst, 1926, described from *Hemidactylus leschenaulti*, Madras, India, in the shape of the hairs of the dorsal surface and in the form of the dorsal scute. It differs from this species in having only about half the number of hairs on the dorsal scute, these being also more similar to the remaining body hairs in length and thickness than is the case in *G. simplex*. It further differs in there being very little difference in the shape of the dorsal hairs of the second and third palpal segments.

Geckobia philippinensis, new species

FIGURES 4, 5

Material examined.—Two females, cotypes, from a lizard, Fort McKinley, Rizal, Philippine Islands, collected by H. L. Keegan, October 1948, USNM 1932.

Body much wider than long, dorsal surface as in figure 4, with 9 or 10 large, wide hairs in the area usually occupied by the dorsal scute, those in the middle of the body much smaller, while towards the periphery posteriorly and laterally, the hairs become progressively more elongate and pointed. A single pair of centrally situated hairs much longer than the predominantly short hairs by which they are surrounded. Dorsal scute not defined.

Ventral surface as in figure 5, *a*, which represents a section in the middle line of the body extending from its anterior to its posterior margin; the transition from the small type of cylindrical hair to scales of lanceolate form, sudden and without intermediate types of hair; the scales toward the posterior periphery becoming progressively more elongate and narrow.

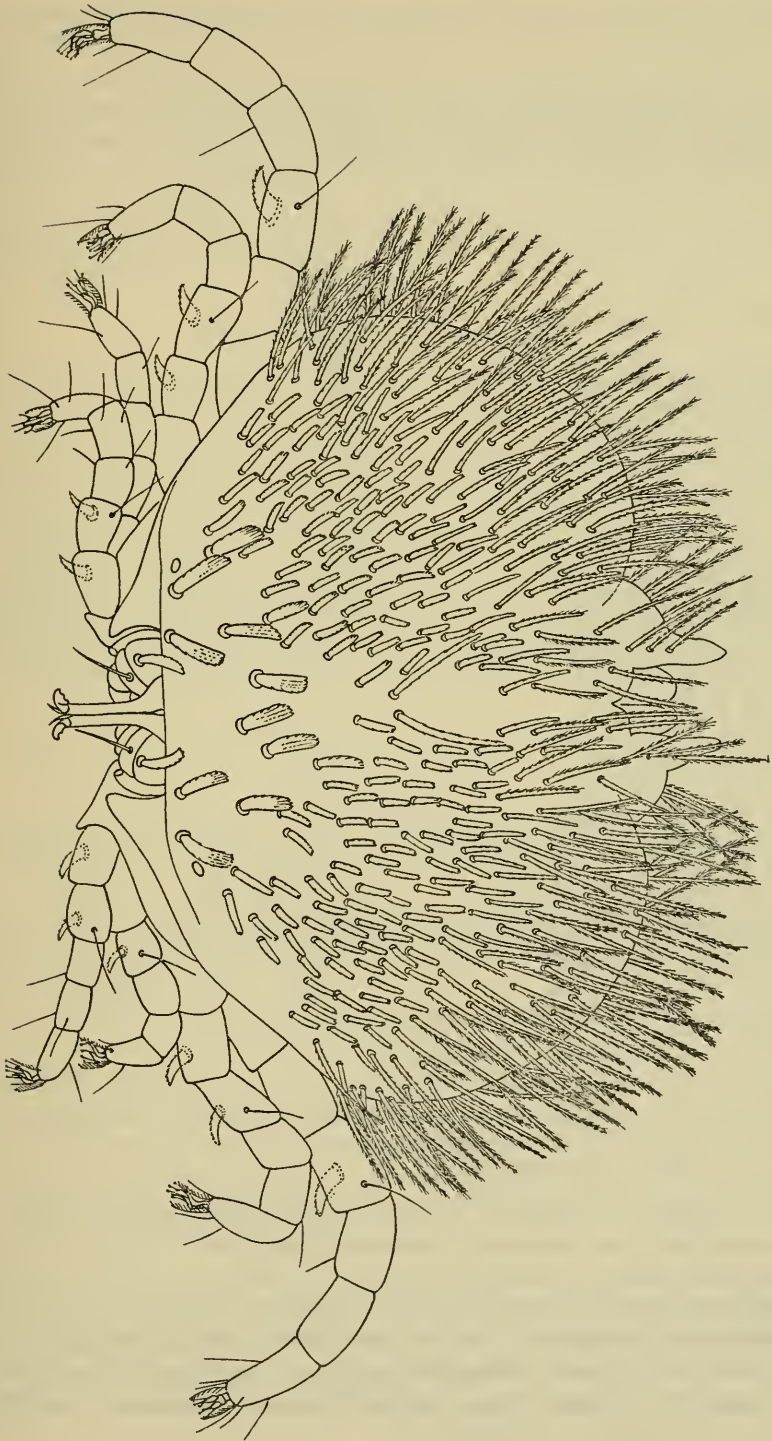


FIGURE 4.—*Geckobia philippinensis*, new species, dorsal surface.

Mouth parts normal, pedipalps short, with rounded segments, second segment above with a stout plumose hair several times thicker than that of the third segment, which is smooth and setiform.

Leg IV distinctly longer and a little stouter than the remaining ones; posterior common coxa as in figure 5, *e*, with five very large and distinct conical spurlike hairs; all legs with a fairly stout

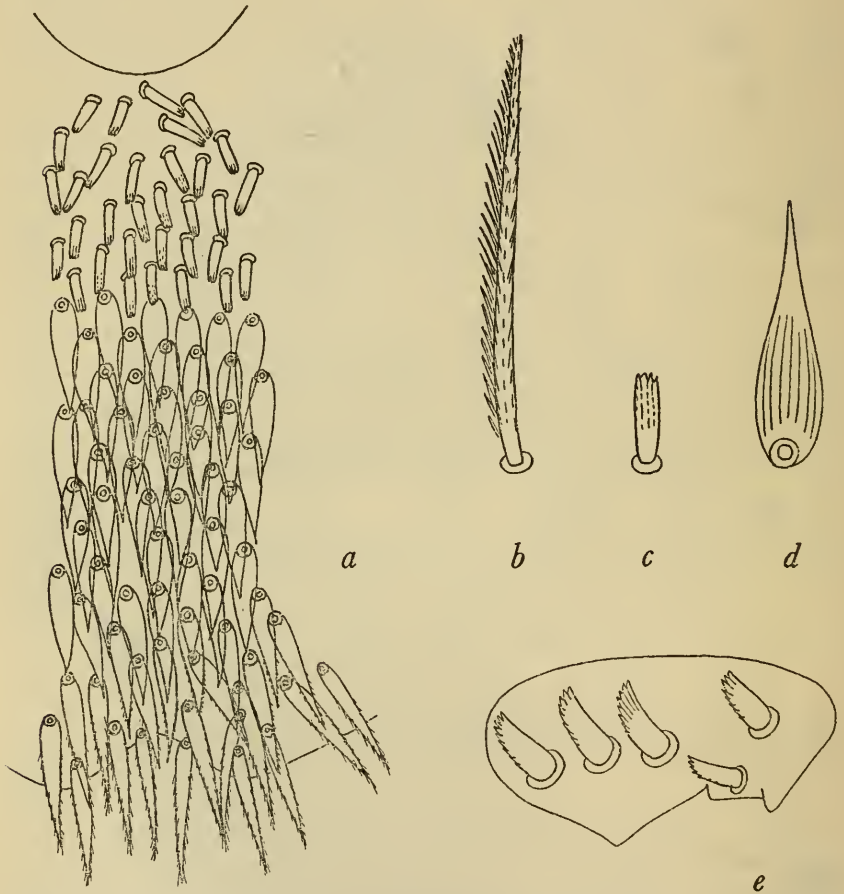


FIGURE 5.—*Geckobia philippinensis*, new species: *a*, Hairs of ventral surface in midline of body; *b*, peripheral dorsal hair; *c*, small hair from middle of dorsum; *d*, a scalelike ventral hair; *e*, posterior common coxa.

plumose hair on the ventral surface of segments 2 and 3 and a long setose hair on the dorsal surface of segment 3, that of leg IV weakly plumose.

Additional material examined.—Two females from the same host and locality as the types. Dr. Wharton sent with his material the lizard host from which the Manila specimens were taken. From the body scales of this gecko, *Hemidactylus frenatus*, I obtained a single female of the species described above.

Dimensions.—Width of body 0.400 mm., length (including mouth parts), 0.287 mm.

According to Hirst's key (1925, p. 174), this species would be bracketed with *Geckobia australis* Hirst, 1926, but in width of body and general form of dorsal hairs and ventral scales, it seems to resemble more closely *G. hindustanica* Hirst, 1926, described from *Hemidactylus leschenaulti*, Madras, India. It differs from *G. hindustanica* in the complete absence of a dorsal scute and in the relatively larger size of leg IV, as well as in other details.

Genus *Geckobiella* Hirst, 1917

This genus was erected by Hirst (1917, p. 138) for the scale mites of Iguanid lizards, and thus far its members have been found to occur only on species of the genus *Sceloporus*. It would be of great interest to know what types of scale mites occur on the other numerous genera of the family Iguanidae in the New World.

The eyes, which are not mentioned in the description of the genus, consist of a single pair situated in much the same position as those of *Geckobia* and *Zonurobia*, Lawrence, 1935, being located anteriorly near the lateral margin of the body. They are small, only a little larger than the ringlike sockets of the dorsal hairs (fig. 6, *b*).

Geckobiella texana (Banks), 1905

FIGURES 6, 7

Geckobia texana Banks, Proc. Ent. Soc. Washington, vol. 8, p. 134, 1905.

Geckobiella texana (Banks), Hirst, Ann. Mag. Nat. Hist., ser. 8, vol. 19, p. 138, 1917.

Material examined.—Numerous adults and larvae of this species collected by A. S. Pearse from *Sceloporus undulatus* at Durham, N. C., in January 1950.

Adult female.—Hirst (1925, p. 200, fig. 19) figured only the ventral surface of this species, and the opportunity is now taken to give an illustration of the dorsal surface (fig. 6). The dorsal hairs are much more numerous in some specimens than in others, there being probably a certain amount of variation in this respect.

The mouth parts are longer and more robust than in most genera of Pterygosomidae; the free portion of the peritremes reach to the distal end of the second palpal segment; the second palpal segment with a fairly long slender hair of equal thickness throughout, not pointed at the apex, with fine barbs; dorsal hair of the third palpal segment longer, pointed apically and smooth or almost so; fourth palpal segment with a single seta above, claw stout, conical, and somewhat curved.

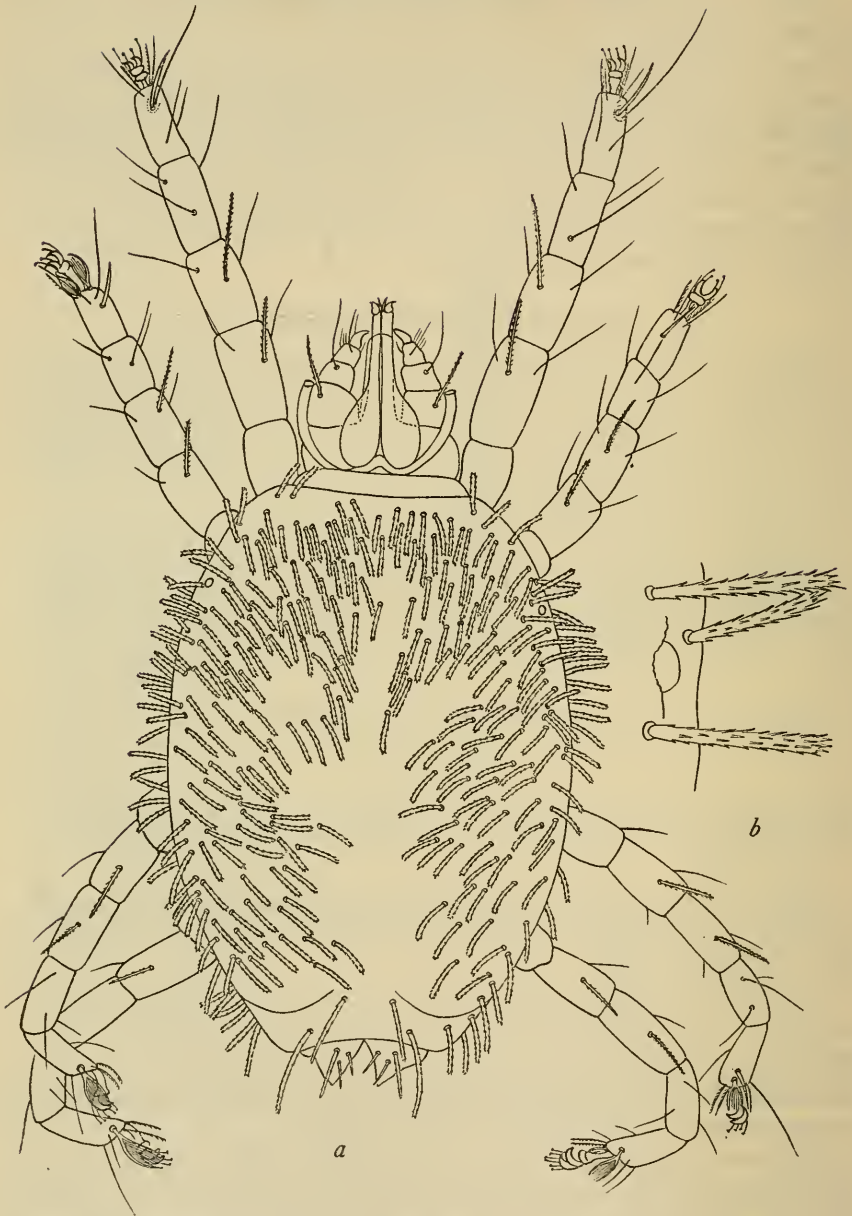


FIGURE 6.—*Geckobiella texana* (Banks): a, Dorsal surface of female; b, eye.

Leg I only a little longer than IV, distinctly stouter than the remaining legs; segments 2 and 3 of all legs with a setiform hair above, finely barbed.

Adult male.—The single specimen which appears to be an adult male is considerably smaller than the female and with far fewer hairs

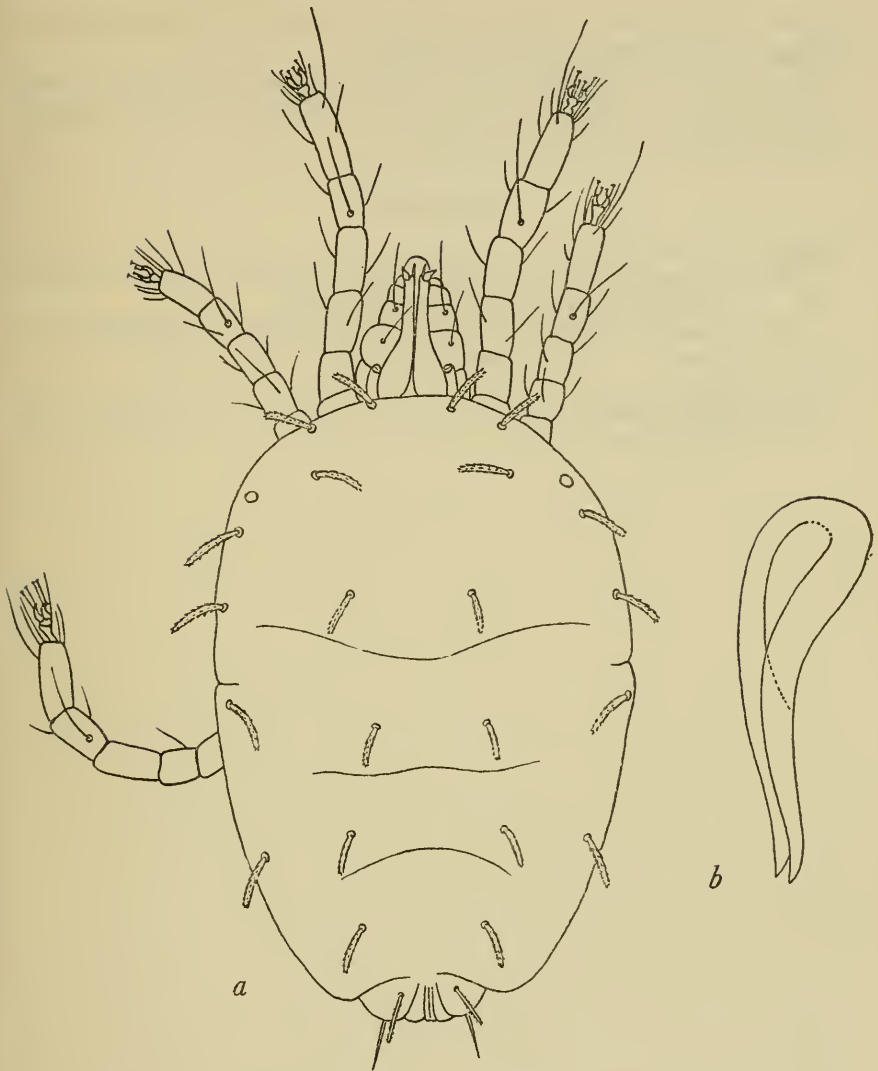


FIGURE 7.—*Geckobiella texana* (Banks): *a*, Dorsal surface of larva; *b*, penis (?).

on the dorsal surface; otherwise it does not differ from the female; the chitinous genital structures are rather ill-defined, the large penis (?) (fig. 7,*b*), projecting slightly from the genital aperture at the posterior extremity of the body.

Larva.—Dorsal surface with very few symmetrically disposed hairs, as in figure 7, *a*. Eyes present in the same position as the adult. Ventral surface entirely without hairs or setae except for a single seta at the base of legs I and III. Mouth parts closely resembling those of the adult, but the peritremes much shorter, reaching to a little below

the base of the second palpal segment, and the claw of the palp more slender. Legs shorter than in the adult.

Dimensions.—Female: Length of body 0.913 mm.; width, 0.487 mm. Male: Length of body 0.652 mm.; width, 0.326 mm. Larva: Length of body 0.740 mm.; width, 0.413 mm.

References

HIRST, ARTHUR STANLEY

1917. On some new mites of the suborder Prostigmata living on lizards. *Ann. Mag. Nat. Hist.*, ser. 8, vol. 19, p. 136.

1925. On parasitic mites of the suborder Prostigmata (Trombidioidea), on lizards. *Journ. Linnaean Soc. London*, vol. 36, p. 173.

LAWRENCE, R. F.

1935. The prostigmatic mites of South African lizards. *Parasitology*, vol. 27, No. 1, p. 6.