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OPHIOCELAENO SELLNICKI, A NEW GENUS AND SPECIES OF DIPLOGYNIIDAE ASSOCIATED WITH SNAKES (Acari-Mesostigmata) (1)

Donald E. JOHNSTON (2) and Alex FAIN (3)

The mesostigmatid mites of the superfamily Celaenopsoidea (currently comprised of the families Celaenopsidae, Euzerconidae, Diplogyniidae, and Schizogyniidae) are typically associated with arthropods or free-living, as adults. A prominent exception to this ecological generalization is the schizogyniid, *Indogynium lindbergi* Sellnick, 1950, which was described from specimens collected from three genera of snakes in the Palni Mts. of southern India. The association of *Indogynium* with a reptile has been questioned by Strandtmann and Wharton (1958) who correctly point out that such an instance runs counter to what we know of the Celaenopsoidea. It must be admitted, however, that not much is really known about celaenopsoid mites and, further, there is a parallel (and in this instance, undoubted) case in the Antennophoroidea in which a single genus, *Ophiomegistus,* is a parasite of snakes and

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(1) Based on work supported, in part, by National Science Foundation Grant G. 19325.
(2) Institute of Acarology, Ohio Agricultural Experiment Station, Wooster, Ohio, U.S.A.
(3) Institut de Médecine Tropicale, Anvers, Belgique.

lizards although all other genera are associates of arthropods. This question of true vertebrate- association is again opened for the Celaenopsoidea by the appearance of a second lot of specimens associated with snakes. This material consists of 114 adult males and females, representing a new genus and species of Diplogyniidae, taken from *Typhlops* sp. in Bougainville. The specimens were among a large lot of Acari received recently from Dr. H.W. Levi of the Museum of Comparative Zoology, Harvard University, and we are most grateful to Dr. Levi for this interesting material.

DIPLOGYNIIDAE

Ophiocelaeno n.gen. (4)

Idiosoma broadest at level of region between coxae III and IV; narrowed in region of opisthosoma; not acute posteriorly. Dorsal shield markedly heterotrichous; with all interior setae reduced. Marginal dorsal setae short, spine-like laterally (10 pairs); elongate posteriorly (5 pairs). With 3 pairs of elongate submarginals. No dorsal neotrichy. Sternal shield of female relatively long and with sternal setae II close together; sternals I and III well separated; all sternal setae at separate levels. Latigynial shields not excavated anteriorly; with 2 pairs of setae. Ventral and anal shields fused; no ventral neotrichy. Chelicerae with digits relatively narrow; with many small, closely-set teeth. Male with laterally flattened, spoon-shaped process on fixed digit and horn-like process on disti-ventral margin of cheliceral base. Tectum with median rib reduced in anterior half. All legs relatively short, stout.

Type species: *Ophiocelaeno sellnicki* n.sp.

Ophiocelaeno sellnicki n.sp. (5)

FEMALE. Idiosoma rounded anteriorly, with moderate shoulders; widest at level between coxae III and IV and narrowed posteriorly. Length of idiosoma 789-853 μ in 11 specimens measured.

(4) Because of the lack of comparative studies in the Diplogyniidae, this and all previous generic diagnoses should not be taken too seriously.
(5) This species is named for our friend and colleague, Dr. Max Sellnick (Deutschland).

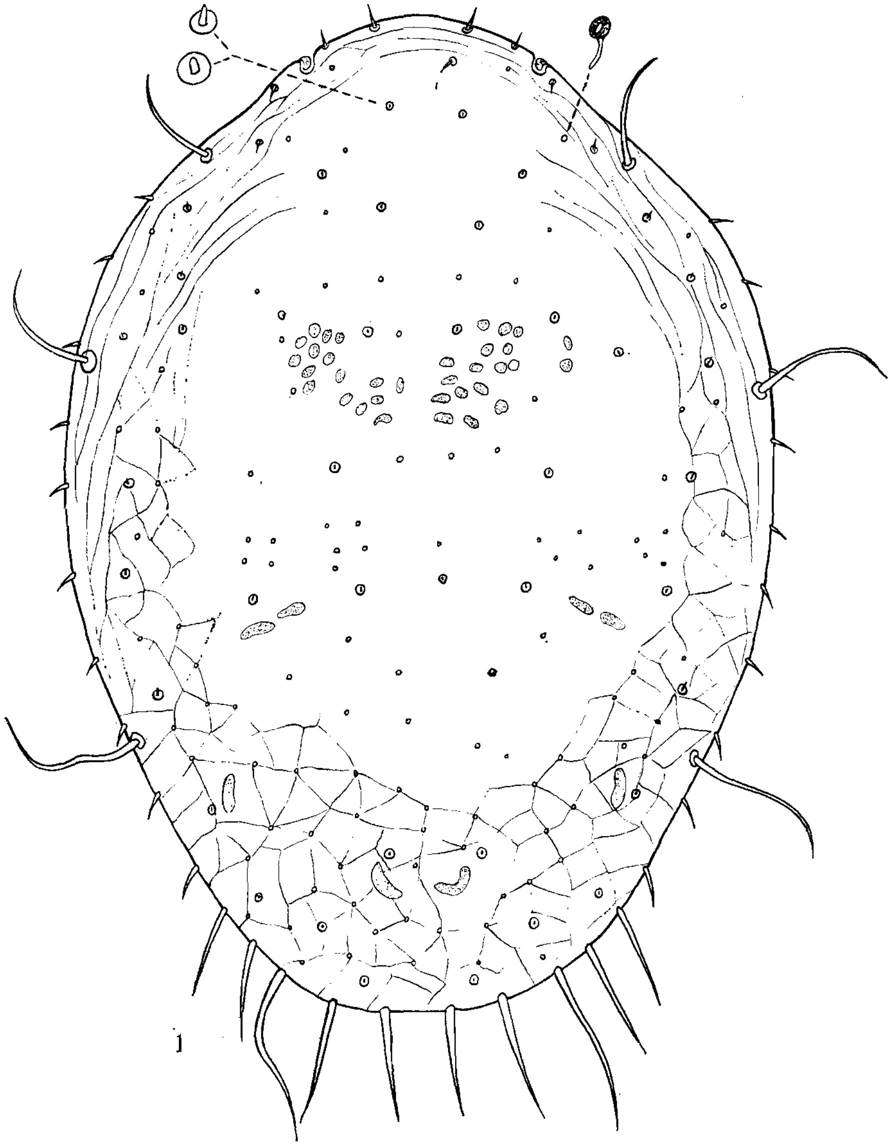

FIG. 1. — Dorsal view of idiosoma of female.

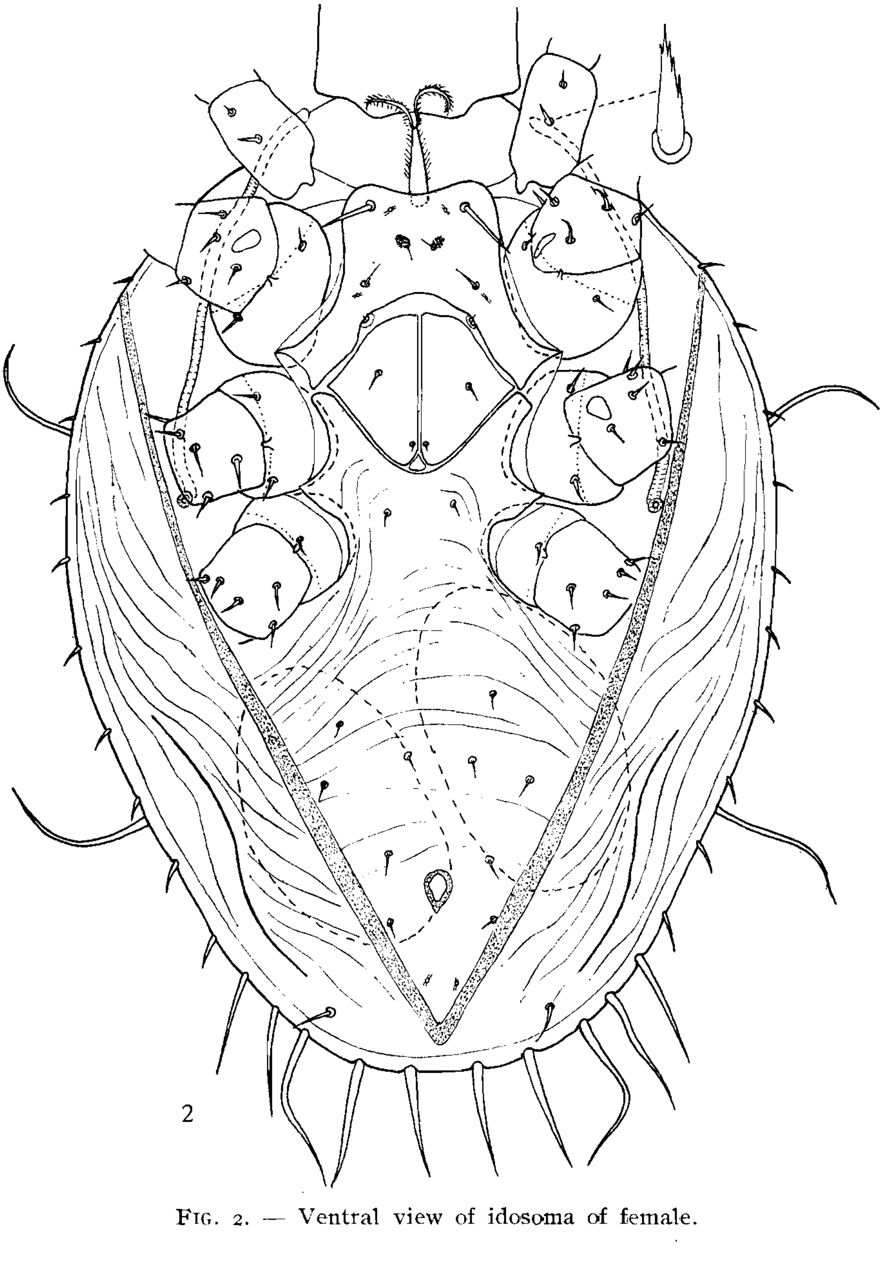

FIG. 2. — Ventral view of idosoma of female.

Dorsum. (Figure 1) Dorsal shield markedly heterotrichous and with complex porotaxy. Forty-two pairs of dorsal setae present in addition to 1 unpaired (and often assymetrically placed) seta posterior to i_1. Setal complement consisting of 24 pairs of short

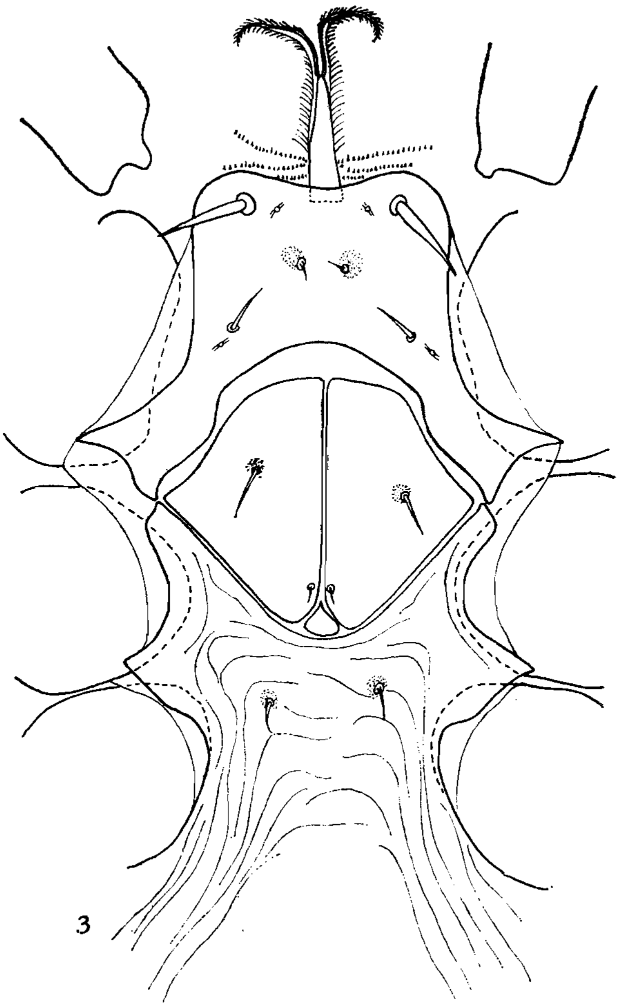

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FIG. 3. — Sterni-genital region of female.

or vestigial setae; 3 pairs of long, curved submarginal setae; 15 pairs of marginal setae of which posterior 5 pairs are enlarged.

Venter. (Figures 2 and 3) Tritosternum normal; with 2 spinose laciniae. Sternal shield with thickened anterior margin. Sternal setae I long, spine-like; reaching to level of sternal setae II. Sternals II small; in center of sternal shield; about one-third as far apart as sternals I. Sternals III short; about the same distance apart as sternals I. Metasternal shields free; setae very small. Latigynial shields with antero-lateral margins concave, not incised; with 2 pairs of setae. Latigynials I approximately in center of shield; latigynials 2 on median margin just anterior to the small, triangular mesogynial shield. Ventral shield fused with peritremal-parapodal complex and with anal shield; V-shaped, with slightly convex sides; reaching almost to posterior margin of opisthosoma. Ventral shield bearing 4 pairs of ventral and 2 pairs of paranal setae. Ventri-lateral shields each with long, sigmoid ridge in the posterior half; a pair of setae at the hind margin. Anus surrounded by a group of branched integumentary (? glandular) canals.

Gnathosoma (6). (Figures 4 and 5) Tectum triangular in outline; sides smooth and gently concave; extending almost to distal end of palp femur; median rib restricted to basal half. Subcapitulum large; well sclerotized. Hypotome well developed, reaching past level of palp trochanter; distally expanded and bifurcate. « Hypopharyngeal » processes filamentous, smooth, centrally ribbed; long, reaching past level of palp genu. Hypostomal processes present, originating just mediad of corniculi; reaching almost to level of tip of corniculus. Corniculi heavy, saber-like; reaching to or slightly beyond level of distal margin of palp trochanter. Hypostomal setae in oblique row; lightly serrate; decreasing slightly in length from anterior to posterior pair. Subcapitular setae serrate; subequal in length with posterior hypostomals. « Deuterosternal » column with (modal) 3 finetooth files. Labrum (epipharynx of Gorirossi) finely spinose dorsally; smooth ventrally. Cheliceral digits (Figure 5) relatively long, thin; with many small, closely-set teeth in addition to basal locking teeth. Pilis dentilis vestigal. Dorsal seta of chelicera not observed. Movable digit with 2 tree-like excresences and a single saber-like excresence with small setules. Chaetotaxy of palp trochanter, femur, genu and tibia: 2-5-7-15. Pretarsus with 2 claws.

Legs relatively short; II-IV quite stout. Pretarsus present on

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(6) The terminology applied to the gnathosoma follows, in general, that of Gorirossi (1955).

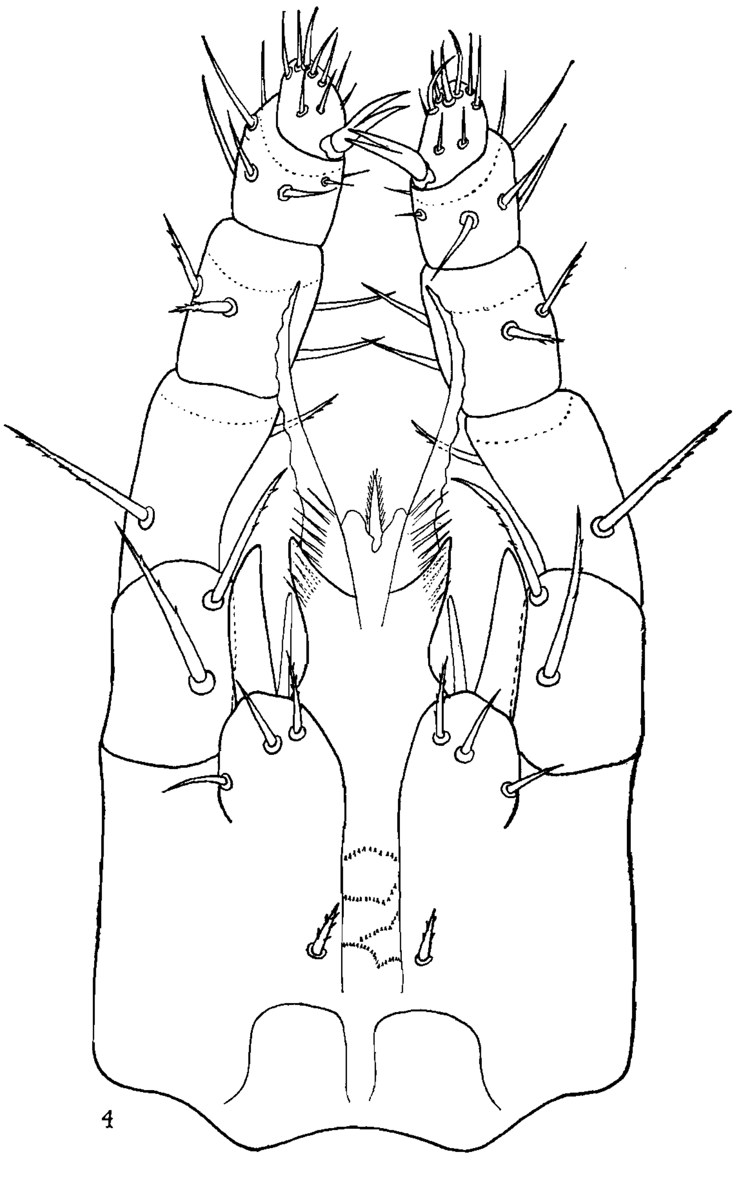

FIG. 4. — Ventral view of gnathosoma of female.

legs II-IV ; lacking on leg I. Chaetotaxy of legs as follows (using the system of Evans, 1963) :

	I	II	III	IV
COXA	2	2	2	1
TROCH	1-1/3-1	5	5	5
FEMUR	1-2/1 ; 2/3-1	2-2/1 ; 2/2-1*	1-2/1 ; 2/1-0	1-2/1 ; 2/1-1
GENU	1-3/1 ; 2/1-1	1-3/1 ; 2/1-1	1-2/1 ; 2/1-1	1-2/1 ; 3/1-1**
TIBIA	2-3/2 ; 2/2-2	1-1/1 ; 2/1-1	1-1/1 ; 2/1-1	1-1/2 ; 2/1-1***
TARSUS****	—	19	19	20

* AL_2 and PV_2 on basifemur.
** PD_1 is a mastiseta.
*** PV is stout, heart-shaped.
**** Count includes « prorals ».

Females contained a maximum of 4 eggs.

Measurements of holotype female. Length of idiosoma 821 μ. Maximum width of idiosoma 581 μ. Distance between centers of bases of sternal setae I 88 μ ; sternals II 28 μ ; sternals III 93 μ. Length of sternal shield along median line 73 μ. Maximum length of latigynial shield 118 μ ; maximum width 83 μ. Length of tarsus I 131 μ.

MALE. Length of idiosoma 736-853 μ in 8 specimens measured. Dorsum as in female.

Venter (Figure 8) normal. Genital aperture at anterior margin of sternal shield. « Glandular » porose area in center of sternal shield behind genital aperture. Peritremal, parapodal, sternal, ventral, and anal shields fused ; separated by oblique suture from ventri-lateral shields. Six pairs of sterni-genital setae present (ST I-IV ; G 1-2) and 4 pairs of ventrals (V 1-4) and 2 pairs of paranals (PA 1-2) ; total complement as in female.

Gnathosoma similar to that of female except in following features : Corniculi (Figure 7) long, curved, setiform ; reaching past tip of hypostome. Second hypostomal process present ; arising antero-mediad of more lateral process. Chelicerae (Figure 6) with but a single, distally bifurcate treelike excresence and with a blunt, laterally compressed, spoon-shaped process on fixed digit. Distal portion of cheliceral base with ventral, horn-like, hyaline process.

Legs similar to those of female except that trochanter IV bears a prominent, semi-circular, scale-like process (present but less developed on trochanters II and III).

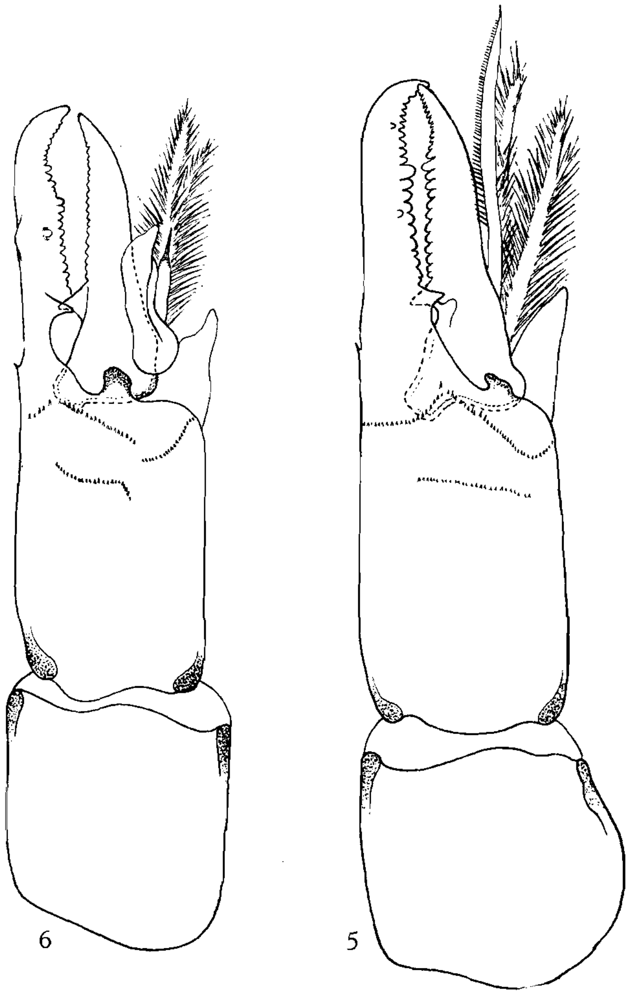

FIG. 5-6. — Chelicerae of female (5) and male (6).

Holotype female deposited in the U.S. National Museum, Washington, and bearing the following data: Ex *Typhlops* sp. (spotted type only): Solomon Islands: Bougainville Isl.: Kieta: Nov. 1960: Fred Parker. Paratype males and females (all with same data as holotype) deposited in the British Museum (Nat. Hist.), London; the U.S. National Museum; the Museum of Comparative Zoology, Cambridge; the Snow Museum, University of Kansas, Lawrence; the Musee d'Histoire Naturelle, Paris; the Institut de Medecine Tropicale, Anvers; and the Institute of Acarology, Wooster.

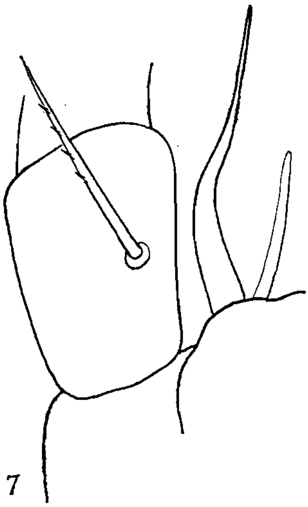
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FIG. 7. — Partial ventral view of gnathosoma of male showing corniculus.

DISCUSSION

In addition to those cited in Baker and Wharton, 1952 (whose list is based on the partial monograph of Trägårdh, 1950), the following genera have been referred to the Diplogyniidae: *Neolobogynium* Hicks, 1957 (type species: *N. americana* (Banks, 1906)=*lateriseta* Hicks, 1957; see Johnston 1960); *Lobogyniella* Krantz, 1958 (type species: *L. tragardhi* Krantz, 1958); *Monodiplogynium* Womersley, 1958 (type species: *M. carabi* Womersley, 1958); *Paradiplogynium* Womersley, 1958 (type species: *P. panesthia* Womersley, 1958); and *Crenamargo* Hicks, 1958 (type species: *C. binuseta* Hicks, 1958). There are also recent short papers on Diplogyniidae by Samsinak, 1957; Fox, 1957; and Hicks, 1959.

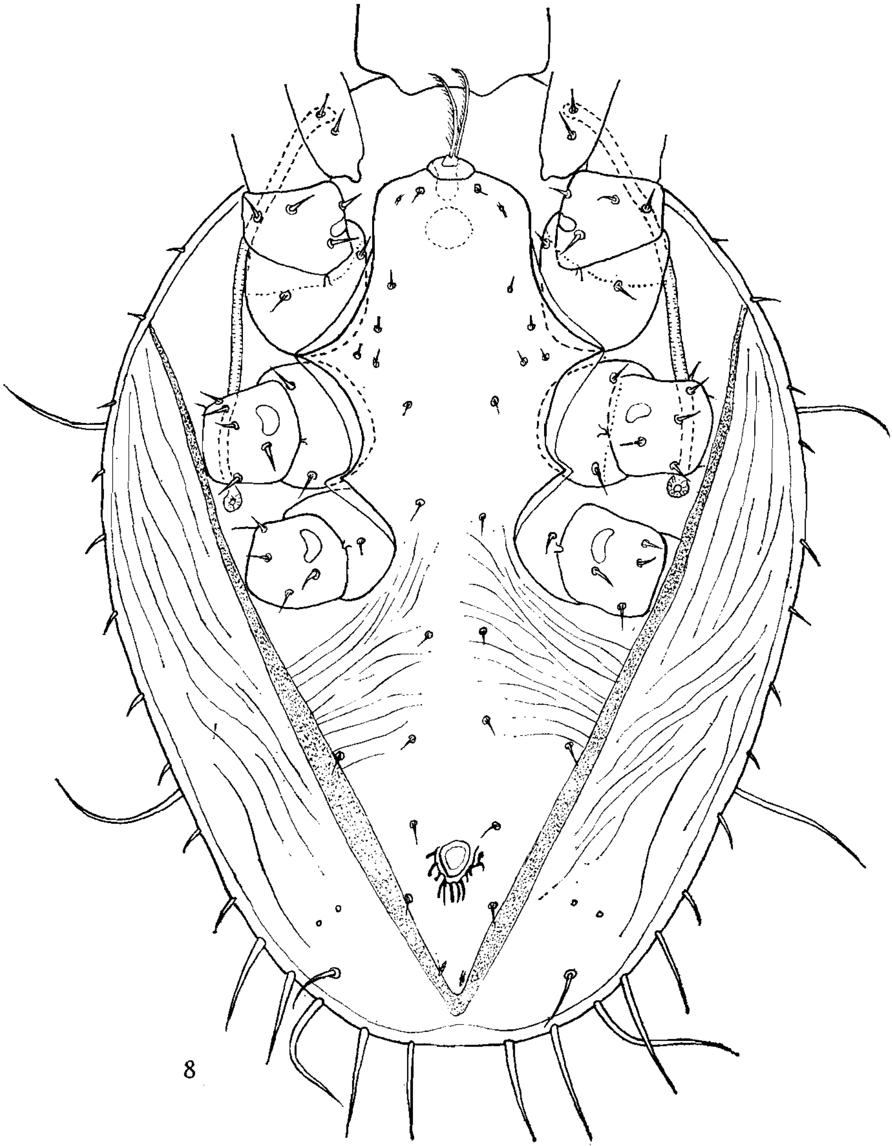

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FIG. 8. — Ventral view of idiosoma of male.

In this paper we shall make no attempt to compare *Ophiocelaeno* with other named genera of Diplogyniidae other than through the presentation in the generic diagnosis of that combination of features by which the new genus differs from all others. The family Diplogyniidae, as with other celaenopsoid groups, seems not so amenable to routine taxonomic procedures, and analysis of the group by the techniques of numerical taxonomy appears a requisite in dealing with the classification of these mites. Such an analysis is being undertaken by R. Funk and J.H. Camin of the University of Kansas.

Our study of *Ophiocelaeno sellnicki* has not revealed any features which can be interpreted with certainty as correlated with parasitism or any other type of association with the snake host. The cheliceral digits are relatively longer and narrower than in many diplogyniids and the hypostome is more elaborately developed than usual, but an interpretation of the significance of these features must await a comparative study of the family.

ADDITION TO FAIN'S (1962) LIST OF MESOSTIGMATID MITES ASSOCIATED WITH SNAKES

SCHIZOGYNIIDAE

Indogynium lindbergi Sellnick, 1954.
Ex *Platyplectrurus madurensis* Bed., *Uropeltis pulnejensis* (Bed.), and *Teretrurus rhodogaster* (Wall.) in Kodikànal, Palni Mts., India (Sellnick, 1954).

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