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INTRODUCTION.

The previous paper in this series (WALLWORK, 1963) contained descriptions of three new species of the genus Liodes. The second genus belonging to the family Liodidae represented in my collections from Ghana is Teleioliodes. A single specimen collected from forest litter differs in several important respects from T. madininensis Grandj., 1934. It is described below as a new species, T. ghannensis.

Teleioliodes Grandj., 1934.

This genus is readily distinguished from others in the family by the presence of lamellar setae, the possession of only 2 pairs of anal setae, the development of a pair of long notogastral setae inserted on a bifid tubercle which is located posteriorly on the notogaster and by certain characters associated with the respiratory system (GRANDJEAN, 1934, pp. 142-144). The type species is T. madininensis Grandj., 1934, from Martinique. T. zikani (Selln., 1930) has also been described from Brazil.

Teleioliodes ghanensis n. sp. (fig. 1-10).

Collected in Ghana : 1 adult (holotype).
Type locality : Essuboni Forest Reserve, Ghana.

Description of holotype. — Length of ventral surface : 831.6 μ; maximum width of ventral surface : 508.2 μ; length of notogaster (excluding bifid tubercle and posterior setae) : 646.8 μ; maximum width of notogaster : 585.2 μ; maximum height of notogaster : 354.2 μ. The scalps of the immature stages were retained.

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intact on the dorsum. These and the adult notogaster were detached for detailed examination of the various regions of the body. The body and legs are rich red-brown in colour; the cerotegumental secretion is well developed.

**Prodorsum.** — Details of this region (fig. 1) are very similar to those of *T. madiniensis*. Rostrum is broadly rounded anteriorly; rostral setae are curved

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**Fig. 1-5.** — *Teleiotiodes ghanensis* n. sp. Holotype, adult.

1: Prodorsum, dorsal view. 2: Notogaster (immature scalps removed), dorsal view. 3: Notogastral microsculpture. 4: Notogastral setae. 5: Notogaster (immature scalps removed), lateral view. *ro* = rostral setae; *la* = lamellar setae; *in* = interlamellar setae; *ex* = exopseudostigmatic setae; *ss* = sensillus; *ia, im, ih, ip, ips* = notogastral fissures; *gl* = aperture of lateral abdominal gland.
ventrad, smooth or with minutely roughened surface, inserted on anterior rostral margin. Lamellar setae are shorter than rostrals and are thicker and more distinctly granular in appearance; these setae are inserted on prominent tubercles on the transverse parts of a pair of angular ridges which are conspicuous features of the prodorsum. Interlamellar setae are short and thick, rising erect from the dorsal surface; they are inserted in a pair of chitinised plates located in the intersuprostigmatic region; the setae have minutely roughened surfaces. Each pseudostigma is large, with aperture directed laterad. Sensillus is \(110\mu\) (measured from rim of pseudostigma to tip of sensillus), with a slender granular club-shaped head. Lateral to each pseudostigma is a thickened exopseudostigmatic seta; this resembles the lamellar seta. The microsculpture of the prodorsum consists of well defined polygonal reticulations, the distribution of which is shown in fig. 1.

The scalps. — The main features of these are shown in figs. 6 & 7. The larval scalp (fig. 6) is detached easily from the three nymphal scalps (fig. 7). Larval scalp bears 7 pairs of setae of which 4 pairs are inserted centro-dorsally, and three pairs laterally. The centro-dorsal setae are markedly foliate and become progressively longer towards the posterior end of the notogaster; lateral setae are also foliate, but much smaller than the centro-dorsals. Posterior tubercle is not well developed on the larval scalp in this species. The arrangement of chitinised ridges appears to be very similar to that of \(T.\) madinis:nensis. The progressive development of the posterior tubercle and the posterior notogastral setae inserted thereon is clearly shown in the proto-, deuto- and trito-nymphal scalps, as they lie one above the other (fig. 7). No other notogastral setae were noted on the nymphal scalps.

Notogaster. — The general shape and microsculpture pattern is very similar to that described for \(T.\) madinis:nensis. The dorsal shield has a central elevated part which is faintly ridged. On each side of this central zone the dorso-lateral flanks are concave and the surface of this region is densely granular (fig. 2). Dispersed among the granulations are micropores (fig. 3). The central elevated part of the notogaster broadens posteriorally at the highest elevation. The bifid tubercle is well developed; the long notogastral setae (one pair) inserted on this tubercle are about \(230\mu\) long, with granular surface. The remaining notogastral setae (3 pairs) are inserted at lower levels on the postero-lateral rim of the notogaster; these setae are straight and stiff (fig. 4) and are longer than the corresponding setae in \(T.\) madinis:nensis. The relative positions of notogastral setae, the fissures and the aperture of the lateral abdominal gland are shown in lateral view (fig. 5). The aperture of the lateral abdominal gland is small and surrounded by a densely granular region.

Gnathosoma. — This was not dissected for detailed examination. Hysterostomal plate has a distinct microsculpture of transversely arranged veins. There is a single pair of short thick hysterostomal setae.
Ventral region of podosoma. — The microsculpture of the coxisternal regions consists of a series of veined ridges; these aggregate to form a reticulate pattern on coxisterna I, but become more diffuse posteriorly (fig. 10). Apodemes I are short and curved, continuous with the posterior border of the camerostome. Apo-

demes II, III and IV do not reach the mid-line; the ventro-sejugal apodeme is continuous in the mid-line and the coxisternal ridge which overlies it is well developed. Coxisternal ridge IV is weakly chitinised and extends for more than half the distance from the insertion of leg IV to the genital field. The coxisternal
ridge associated with the ventro-sejugal apodeme is continuous with a chitinised ridge which surrounds the genital aperture. A sternal ridge is weakly developed between the right and left halves of coxisternal regions I and II. All coxisternal setae are thickened structures, with roughened surface. Coxisternal setal formula is (3-3-2-3), i.e. there is neotrichy on coxisternal region II; this is an important difference between this species and T. madinensis.

Genito-anal region. — Genital field is surrounded by a series of irregularly arranged ridges; a single longitudinal ridge continues posteriad, flanking the anal aperture on each side. Genital aperture is rounded anteriorly, delimited poste-
riorally by a strongly chitinised bar which overlies the preanal plate. The right genital plate is lacking in the holotype; left plate is divided unequally by a transverse suture. The plate has a well developed veined microsculpture. The 7 genital setae are arranged \((5 + 2)\), located as shown in fig. 10; these setae are slender and smooth. A single pair of aggenital setae is present, located on the postero-lateral angles of the genital field. Preanal plate is triangular in shape, with mucronate apex directed posteriorly. Anal aperture is shield-shaped; anal plates heavily chitinised, with veined microsculpture. The two anal setae, inserted paraxially on each plate, are short and thick. Adanal setae are considerably longer and thicker than anals, inserted on the chitinised ridge which flanks the anal field. The insertions of the most posterior pair of adanal setae \((ad_1)\) are located immediately posterior to the anal aperture; these setae are lacking in the holotype. The ventral plate bears several weakly chitinised longitudinal ridges. Anal and adanal fissures are located in the usual positions; they are denoted by the letters \(ian\) and \(iad\) respectively in fig. 10.

**Legs.** — The legs segments were not complete and a detailed study of the chaetotaxy could not be made. The remaining basal segments have a well developed microsculpture of polygonal reticulations (figs. 1 & 10). Femora II have well developed ventral keels. The compound webbed setae on femora I and II are distinct (figs. 1 & 8), as are the foliate setae on genu I (figs. 1 & 9).

**Distribution of *T. ghanensis*.** — Essuboni Forest Reserve (1 adult).

**Remarks.** — The species from Ghana differs in several respects from *T. madininensis*. This latter species is present in a collection of mites from Puerto Rico sent to me by Dr. J. Maldonado Capriles. *T. ghanensis* shows neotrichy on coxisternal region II; this is not shown by *T. madininensis*. Notogastral setae inserted below the bifid tubercle are straight and stiff in *ghanensis*; these setae are shorter and more foliate in *madininensis*. The bifid tubercle is more strongly developed in *madininensis* than in *ghanensis* (i.e. it is longer and the horns more widely separated); notogastral micropores are absent in the former species, present in the latter. Other differences include the form of the lamellar setae (foliate in *madininensis*; cylindrical in *ghanensis*), the length of the exopseudostigmatic setae (longer in *ghanensis*) and the more strongly developed polygonal microsculpture of the integument in *T. madininensis*.

The Ghanaian species may be more closely related to *T. zikani* (Selin.). The form of the notogastral setae appears to be similar in the two species, although the setae inserted on the notogastral tubercle are relatively shorter in *zikani*. Sellnick's description does not list the coxisternal setal formula for *zikani*. The species from Brazil is rather larger than *T. ghanensis* and the lamellar setae are more strongly foliate. Detailed comparisons between specimens from South America and West Africa are required to confirm these specific differences.
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