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SOME ORIBATEI FROM GHANA. III. TWO NEW SPECIES OF THE GENUS **ALLONOTHRUS** (VAN DER HAMMEN)

BY

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**Allonothrus** (van der Hammen 1953).

This genus was described from specimens collected in New Guinea and neighbouring islands, with *A. schuilingi* as the type (van der Hammen 1953, 1955). It is related to some members of the Camisiidae although differences in chaetotaxy establish it as a distinct genus which may, in fact, be more correctly placed in the Trhypochthoniidae. The adults are unideficient (*t* is lacking), and the numbers of adanal, anal, genital, and aggenital hairs are 3, 2, 7, and 0, respectively. The rostrum is without incision, and the sensillus resembles that of *Nothrus*. Dr. van der Hammen also considers the tridactyly of the legs of *A. schuilingi* to be a generic character.

I have collected representatives of *Allonothrus* in Ghana which can be divided into two distinct specific groups. Both these groups differ from van der Hammen's description of the type, and they are herein described as new species. The localities from which these specimens were collected are listed at the end of the description. A more detailed list of the localities has been given in the first paper in this series.

**Allonothrus monodactylus** n. sp. (Figs. 1-3).

This species can be distinguished immediately from *A. schuilingi* by the monodactyous condition of the legs.

Average length : 504.7 μ (range : 468.6 μ — 546.7 μ).
Average width : 271.0 μ (range : 248.5 μ — 291.1 μ).

Collected in Ghana : 15 adults, 1 deutonymph.

Although the size ranges, particularly the length, are rather large, they fall outside the measurements given for *A. schuilingi* which is a smaller species. The

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features of the prodorsum and notogaster are practically identical in the two species.

*A. monodactylus* is covered with a gummy cerategument to which adheres a large amount of organic and inorganic debris, obscuring the details of the dorsal surface. Much of this debris can be removed if the mite is heated gently for several hours in concentrated lactic acid, before being mounted temporarily in this medium on a microscope slide. Carefully directed pressure on the cover slip will cause the detritus particles to become detached, and can be washed out of the preparation. Some of the adults were newly emerged specimens and did not require this treatment.

![Diagram](image)

**Fig. 1.** — *Allonothrus monodactylus* n. sp. Adult.

Lateral view. rosth. = rostral hair; lamh. = lamellar hair; sens. = sensillus; exb. = insertion of exobothridial hair; c0, c1, f0, f1, h0, h1, ps0, ps1, ps2 = notogastral hairs; ia, im, ih, = fissures; gla. = aperture of lateral abdominal gland; ad1, ad2, ad3 = adanal hairs; an1, an2 = anal hairs.

Colour is yellowish-brown, newly emerged adults much paler. The lamellar, interlamellar, and notogastral hairs have the characteristic fan-shaped structure (Fig. 1) seen in *A. schuilingi* (this is a generic feature). The exobothridial hair is lacking, but a chitinised depression, resembling its insertion, is present immediately antero-lateral to the pseudostigmata. The insertion is usually obscured by accumulations of debris in this region, but it can be seen if this is removed. It is clearly visible in the newly emerged adult, particularly in lateral view (Fig. 1). Features of the dorsum resembling those of *A. schuilingi* include the arrangement of the central and lateral ridges on the aspis, the form of the pseudostigmata and sensillus, the pattern of reticulations on the notogaster, and the size and arran-
gement of the fanshaped notogastral hairs. The lateral margins of the aspis are toothed, but only one tooth on each side was noted. Fissures (ia) and (im) and the aperture of the lateral abdominal gland are clearly seen in lateral view (Fig. 1); fissure (ih) is also present, but (ip) was not seen.

The palp and gnathosoma are of the usual type; palpal setal formula is 0-1-1-2-10; the ventral surface of the gnathosoma has a hypostome; the median hair (m) on the maxillicoxa is relatively longer than in A. schneltingi. The two

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Allonothrus monodactylus n. sp. Adult.

Fig. 2. — Genito-anal region. ian = anal fissure; iad = adanal fissure; ips = fissure; an = anal hairs; ad = adanal hairs.

Fig. 3. — Tarsus I. Antiaxial. 𝜽_1, 𝜽_2, 𝜽_3, 𝜽_4, 𝜽_5, 𝜽_6 = solenidions.
halves of the mentotectum do not overlap, but are separated by a narrow V-shaped fissure. Epimeral setal formula is 3-1-3-3, as in \textit{A. schuilingi}; hair (1a) is longer than (1d) and (1e), hair (3b) is strongly barbed and longer than (3a) and (3c), hairs (4b) and (4c) are strongly barbed and longer than (4a). The antiaxial limits of the genital and adanal plates are difficult to determine, but the hairs on these plates and on the anal plates are clearly visible. There are 7 pairs of genital hairs inserted along the inner margins of the genital plates (Fig. 2); these hairs are barbed or setose, and although there is a progressive reduction in their length from the anterior of the plate to the posterior, this is only slight, so that (g1) and (g2) are relatively much longer than in \textit{A. schuilingi}. Anal plates carry two pairs of simple hairs, the anterior pair being slightly shorter than the posterior; adanal plates with three pairs of barbed or setose hairs, as shown in Figure 2. Anal and adanal fissures are clearly visible.

All legs are monodactylyous; with the exception of this feature they are very similar to those of \textit{A. schuilingi}. The hair (Ad) of tarsus I is not present (Fig. 3).

Deutonymph. The one specimen of this stage present in my collections was rather badly damaged, and it was not studied in detail. There are 4 pairs of genital setae, the most posterior pair being shorter than the others; 3 pairs of adanal setae; no anal setae; all legs monodactylyous.

Distribution of \textit{A. monodactylus} in Ghana: Accra-Senchi Road (37 mi. NE. Accra) (8 adults, 1 deutonymph);Nsawam (2 mi. N. on Bunso Road) (3 adults); W. shore of Lake Bosumtwi (3 adults); Konongo (1 adult).

\textbf{Allonothrus russeolus} n. sp. (Figs. 4-5).

Collected in Ghana: 2 adults (one newly emerged).

The size difference between these two specimens is rather large, the length of one being 67.7 $\mu$, and the other (newly emerged) 53.5 $\mu$. For this reason it was thought that they represented adult and tritonymph respectively, until a more detailed examination indicated that both are adults.

The colour of the abdomen in the well-chitinised form is a rich reddish-brown, the propodosoma yellow-brown. The newly emerged form is pale yellow in colour. Both specimens had very little detritus adhering to the cerategument. The microsculpture of the prodorsum is composed of minute punctuations as in \textit{A. schuilingi} and \textit{A. monodactylus}; this is interrupted in several places by chitinised ridges indicated by the shaded portions in Figure 4. At the level of the insertion of the first pair of legs a pair of lateral ridges curve strongly medially, and a pair of central ridges converge towards the mid-line until their anterior extremities coalesce. These two pairs of ridges are present in \textit{A. schuilingi} and \textit{A. monodactylus}, but in both these species the lateral ridges are less strongly curved and the central ridges are separate from each other for the whole of their length. In addition to these ridges in \textit{A. russeolus}, there is an interrupted transverse ridge running across the prodorsum just behind the insertion of the interlamellar hairs;
the lateral extremities of this ridge curve sharply posteriad (Fig. 4). Punctuations on the prodorsum also interrupted in some places by irregular clear regions, particularly associated with the lateral and central ridges. The notogaster has an ornamentation of light-coloured circular or polygonal areolae surrounded by

reddish-brown ridges, as in *A. schuilingi* and *A. monodactylus*, but unlike these two species, the reticulations extend over the whole of the central and lateral portions of the notogaster in *A. russeolus*. 

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*Allonothrus russeolus* n. sp. Adult.

Fig. 4. — Dorsal view. rosth. = rostral hair; lamh. = lamellar hair; sens. = sensillus; ilh. = interlamellar hair; c₁, c₂, c₃, c₄, d₁, d₂, e₁, e₂, f₁, h₁, h₂, h₃, ps₁ = notogastral hairs; ia = fissure; gla. = gland.

Fig. 5. — Ventral view. ian, iad, ips. = fissures; an = anal plate; ad = adanal plate; h₂, ps₁, ps₂, ps₃ = notogastral hairs.
The dorsal hairs, with the exception of the rostrals which are simple barbed hairs, are of the fan-shaped type. In this species they differ from those found in *A. schuilingi* and *A. monodactylius* in some cases in being complete distally so that the tips are rounded rather than truncate. This was particularly true of the lamellar and interlamellar hairs and notogastral hairs (c₃), (h₄), (h₅), and (pₛ₁), in the specimens examined. The pseudostigmata and sensillus are also of the usual type. Fissures (ia) and (im) are visible in dorsal and lateral views on the lateral margins of the notogaster. The aperture of the lateral abdominal gland is represented by a very distinct chitinised ring near the insertion of the notogastral hair (f₃). The exobothridial hair is lacking but its insertion is present as in *A. monodactylius*.

Ventrally the gnathosoma is similar to that of *A. schuilingi* and *A. monodactylius*; the hypostome is rounded posteriorly and is minutely punctate; hypostomal hairs thickened and smooth; one pair of anterior hairs (a) and one pair of median hairs (m) present on the maxillicoxae, the latter being as long as the corresponding hairs in *A. monodactylius*. A mentotectum is present, the two halves of which are incompletely separated by a V-shaped fissure in the newly emerged specimen; in the other, more strongly chitinised specimen the two halves are fused together. The integument covering the epimeral region is ornamented with minute punctuations. Epimeral setal formula is 3-1-3-3; all epimeral hairs are thickened; (rₐ) is setose, (rₐ) and (rₐ) are smooth; (zₐ) is setose; (zₐ) and (zₐ) are setose, (zₐ) is smooth; (zₐ) and (zₐ) are setose, (zₐ) is smooth. The antiaxial limits of the genital plates are more clearly defined than in *A. monodactylius*, especially in the newly emerged specimen in which each plate has a pronounced curved spur, directed posteriorly, on the postero-lateral margin (Fig. 5). Genital setae are inserted on the median margins of the plates, the anterior pairs being grouped very close together. The genital hairs in the well-chitinised specimen were difficult to count because of this close grouping and the dark background against which they were viewed; 13 pairs were counted with certainty, of which the first pairs anteriorly are relatively long and densely setose, the penultimate and ultimate pairs posteriorly are shorter and smooth. The genital hairs in the newly emerged specimen were seen more clearly against the light background and 14 pairs were noted comprising 12 pairs of long setose hairs and two pairs posteriorly of shorter smooth hairs. There are no aggenital hairs. Anal plates of the usual form; two pairs of simple anal setae inserted close together in the anterior halves of the plates, the anterior pair being slightly shorter than the posterior pair. Anal fissure (ian) present, but not as conspicuous as the adanal one (iad). Three pairs of adanal setae, becoming progressively longer towards the posterior end of the plate; these are thickened and finely setose, terminating in a fine point.

All legs are tridactylous. Tarsus I is very similar to that of *A. schuilingi*; (ω₁), (ω₂), (ω₃), and (φ₂), present and located in their usual places. The additional hair (Ad) is present and strongly developed.
Distribution in Ghana: Kibi (1 adult specimen); Achimota (a) (1 adult specimen — newly emerged).

The genus *Allonothrus*.

Dr. van der Hammen has summarised (1953) the features of *A. schuilingi* which he considers to be of generic significance. The two new species described above provide further information which may be incorporated in a diagnosis of the genus in the form of a supplement to van der Hammen's remarks. The fan-shaped character of the dorsal hairs is common to all three species. The legs of *A. schuilingi* and *A. russeolus* are tridactylyous, while those of *A. monodactylus* have only one claw. There are 7 pairs of genital hairs in *A. schuilingi* and *A. monodactylus*, but *A. russeolus* shows neotrichy as indicated by 13-14 pairs of genital hairs in the adult, a similar condition also being found in species of the genus *Trhypochthonius*. There is one additional hair on tarsus I of *A. schuilingi* and *A. russeolus*, but this was not seen in *A. monodactylus*.

REFERENCES
