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Whipscorpions (Arachnida, Thelyphonida) from Africa

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ABSTRACT

The presence of introduced whipscorpions in West Africa is confirmed. *Hypoctonus africanus* Henschel is redescribed and *Hypoctonus clarki*, new species is described on the basis of three specimens from the Gambia.

INTRODUCTION

The whipscorpions are large predatory arachnids of striking appearance having a curiously discontinuous distribution in some of the warmer parts of the world. They are characteristically found in humid situations beneath stones or rotten logs, but some species also occur in comparatively arid localities and are only encountered at night during the rainy season. Although whipscorpions are seen but rarely by laymen, nevertheless they are often quite abundant and with experience can be collected in quantity at certain times of the year. However, despite this they remain a poorly known and little studied group. Since the work of Werner (1935) and Speijer (1936) there have been no important systematic advances, although several significant publications on their biology have appeared (e.g., Eisner et al., 1961; Weygoldt, 1970, 1971, 1972; Crawford and Cloudsley-Thompson, 1971).

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ACKNOWLEDGMENTS

We are grateful to Mr. G. C. H. Smith of Wimborne, Dorset, England for making his extremely interesting material available to us for study and for providing valuable background information about Gambian habitats and the importation of agricultural produce to the country. We are also grateful to the late Mr. D. J. Clark of the British Museum (Natural History) for making us aware of the existence of additional whipscorpion material in that institution and arranging the loan of specimens.

DISTRIBUTION

Southeast Asia is the principal focus of the whipscorpions, more than 80 percent of the known species occurring in this region. They range from South India and Ceylon eastward across Indo-China and the Indonesian Archipelago to the Solomon Islands and Samoa, extending northward to Japan and Manchuria. In the New World a very restricted fauna extends from the southern United States through Central America to southern Brazil. On the African continent, however, whipscorpions have been held to be strikingly absent. Hentschel (1899) reported finding specimens in the Strasbourg Museum labelled as coming from Senegal, and these he described under the name *Hypoctonus africanus*, but without giving any figures. Subsequent authors have, for the most part, ignored *H. africanus* altogether or at best dismissed it summarily as a chance importation. In 1968 G. C. H. Smith wrote to one of us (J.A.L.C.) reporting the capture of several whipscorpions in the Gambia, two of which were subsequently sent for examination. They clearly belonged to the genus *Hypoctonus* Thorell, but were distinct from any of the known oriental species. Further study was delayed pending a search for the inadequately described types of *H. africanus* Hentschel, with which there were obvious affinities. All attempts to locate the types of *H. africanus* have failed, but in view of the close agreement of the Gambian material to the original description, particularly the number of teeth on the apophyses of the pedipalps, this new material is being used as the basis for a redescription of Hentschel's species. In the course of our investigations it was discovered that the British Museum (Natural History) possessed three more Gambian specimens, apparently collected at two other localities during the 1950s. These three specimens belong to a new and quite distinct species, *Hypoctonus clarki*, described below. From this it is clear that there is now an established, albeit limited, whipscorpion fauna in West Africa. There is every reason to suppose that this fauna is not endemic but introduced within the last 100 years from the Orient. The genus *Hypoctonus* is other-

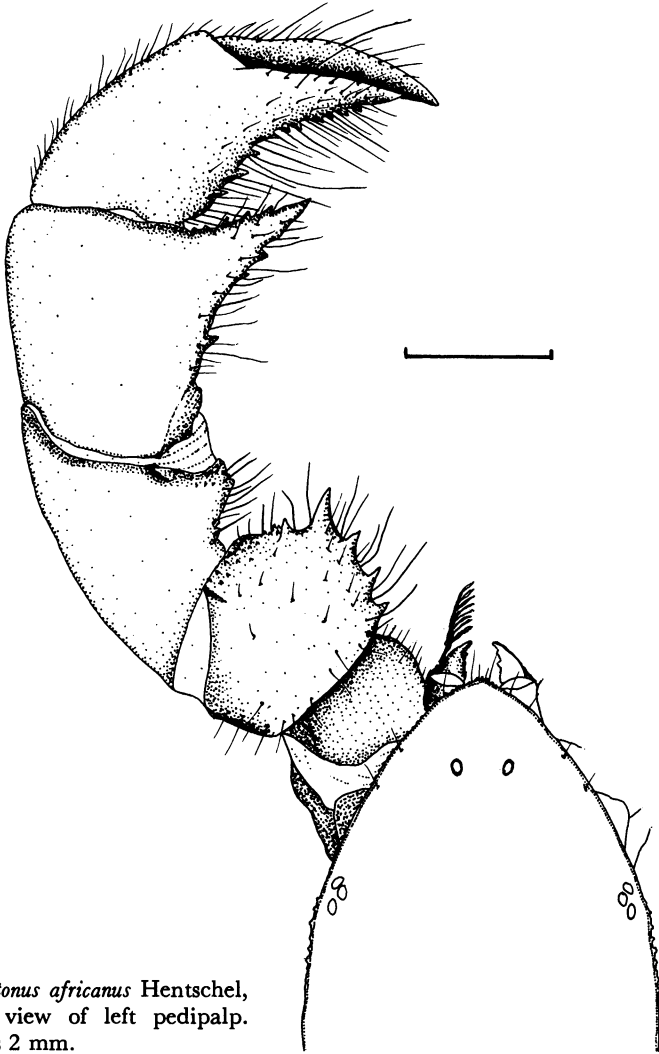


FIG. 1. *Hypoctonus africanus* Hentschel, female. Dorsal view of left pedipalp. Scale line equals 2 mm.

wise restricted to the region between Assam and the Malay Peninsula, and although neither *H. africanus* nor *H. clarki* has been found there, the fauna is so imperfectly known that no significance may be attached to this fact. *Hypoctonus africanus* is quite closely related to *H. binghami* (Oates) from Lower Burma, but the reduced armature of the pedipalp of *H. clarki* makes it unlike any of the other known species. It is tempting to speculate

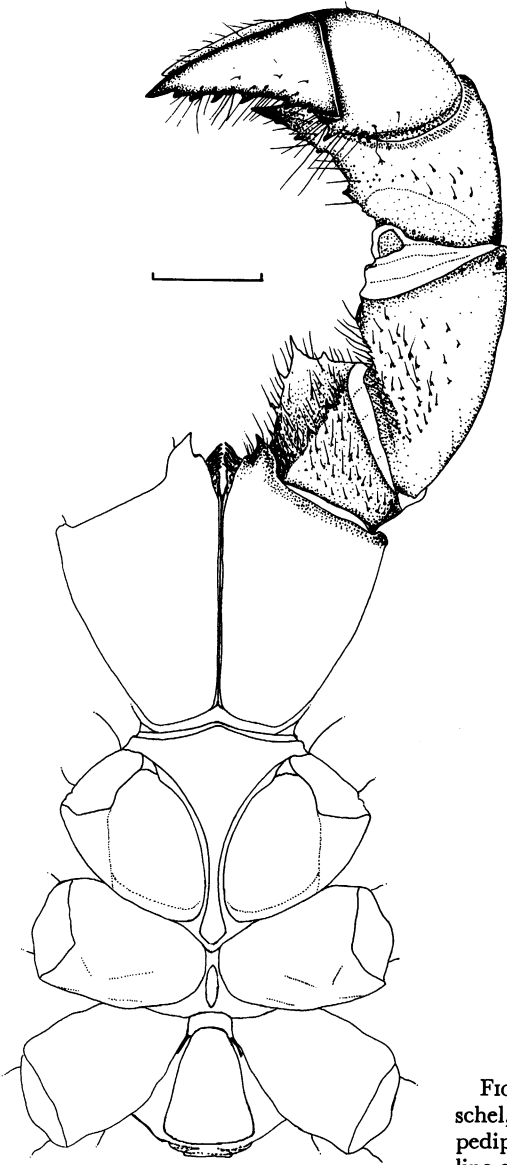


FIG. 2. *Hypoconus africanus* Hent-
schel, female. Ventral view of left
pedipalp and sternal region. Scale
line equals 2 mm.

that this condition may have arisen since the parent stock arrived in Africa, possibly as a result of hybridization and drastically altered selection pressures, but as only about 10 to 15 generations can have elapsed it is

rather unlikely. Agricultural produce has been imported to the Gambia from Burma and Thailand since the last part of the nineteenth century, and almost certainly whipscorpions have been introduced in the earth adhering to the roots of plants.

Hypoctonus africanus Hentschel

Figures 1, 2, 7, 10

Hypoctonus africanus HENTSCHEL, 1899, p. 430.

Labochirus africanus GRAVELY, 1916, p. 64.

DIAGNOSIS: This species appears most similar to *H. binghami* (Oates) (figs. 5, 6, 9, 11) particularly with respect to the shape of the genital sternite and the form of the pedipalps. However, as shown in the figures, there are differences in the proportions of the patella¹ and tibia and in the finer details of the pedipalpal armature. There are also differences in the form of the anterior processes of the pedipalpal coxae, the sterna and the shape of the anal segment, and in the size and shape of the ommatoids.

DESCRIPTION: Total body length (edge of carapace to insertion of flagellum), 30.0 mm.; carapace length, 10.5 mm.; carapace width, 5.0 mm. Carapace muddy brown, faintly rugose with small scattered granulations and a few short, brown isolated hairs; no trace of keel between median and lateral eyes; small marginal denticles just behind lateral eyes. Abdominal tergites same color and texture as carapace, anal segment (fig. 10) lighter in color, smooth and shiny; ommatoids small and irregular in shape. Ventral surface lighter than dorsal, sternites smooth and shiny; genital sternite (fig. 7) without markings, posterior margin evenly rounded. Pedipalps (figs. 1, 2) slightly paler than carapace above and less rugose; patella with conspicuous pointed apophysis bearing 4–5 teeth on anterior face and 1–2 on posterior face; trochanter with five teeth on anterodorsal margin, one much larger than the rest, and with two strong teeth on ventral surface; coxae smooth and with small anterior processes, lacking accessory teeth on inner margin. Legs paler than carapace, same color as ventral surface of body with scattered, short brown hairs and with many small tubercles; tarsi of leg I with eight uniform segments, apical one longer than others and almost equal to combined lengths of three preceding segments; tibiae I–III devoid of spines, tibia IV with single apical ventral spine.

A second, smaller specimen, also apparently mature, agrees well with the above description. Carapace length 9.0 mm.; carapace width 4.0 mm.

¹ In the earlier literature this segment is erroneously called the tibia and the hand of the pedipalp is referred to as the basitarsus.

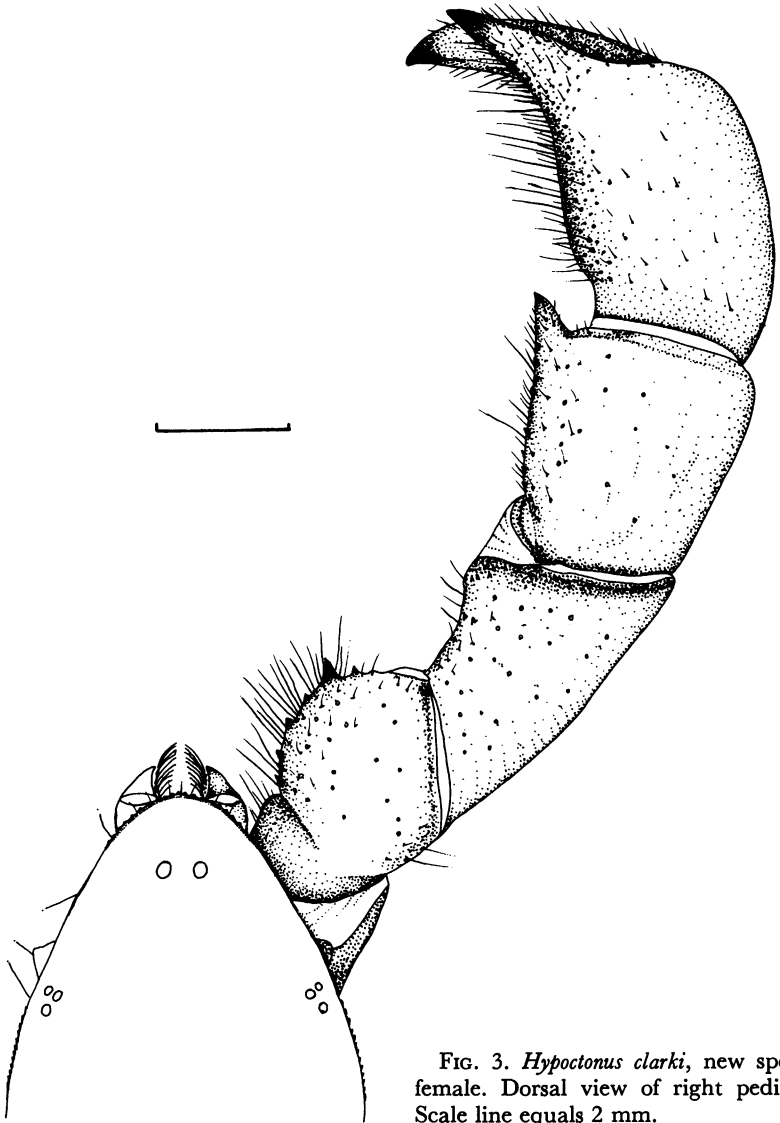


FIG. 3. *Hypoctonus clarki*, new species, female. Dorsal view of right pedipalp. Scale line equals 2 mm.

TYPE LOCALITY: Senegal.

OTHER RECORDS: Gambia; Safu Agricultural Station (180 miles up the Gambia River), 1968 (G. C. H. Smith), two females, one in the American Museum of Natural History, one in the British Museum (Natural History).

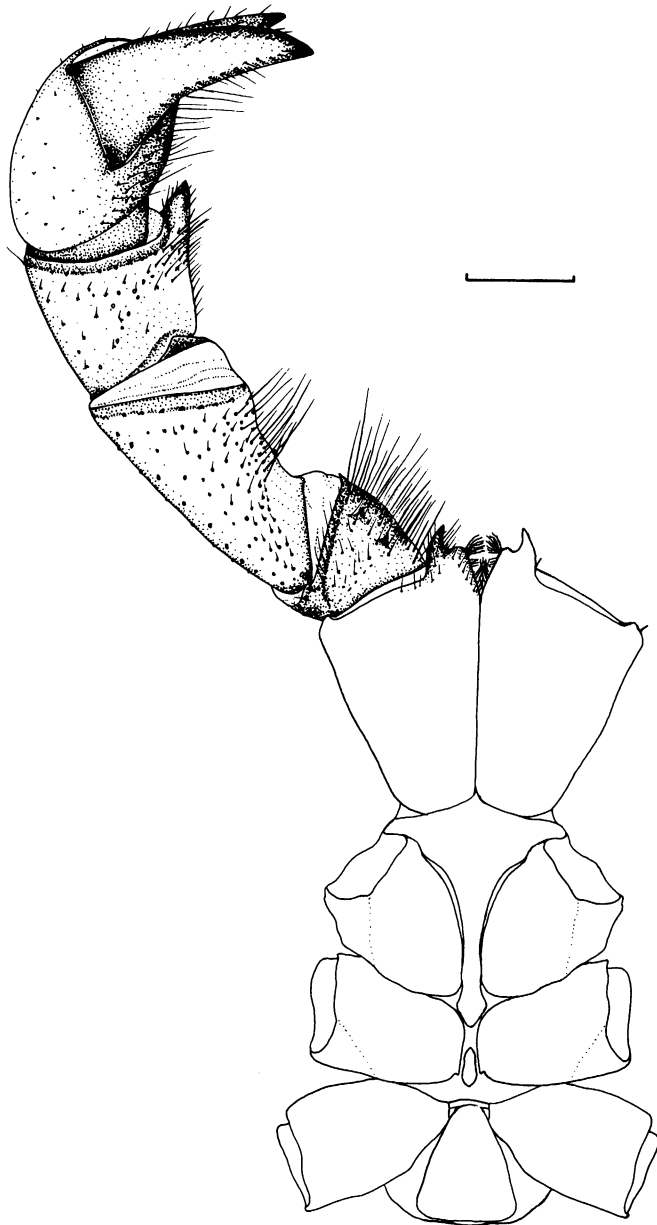


FIG. 4. *Hypoconus clarki*, new species, female. Ventral view of right pedipalp and sternal region. Scale line equals 2 mm.

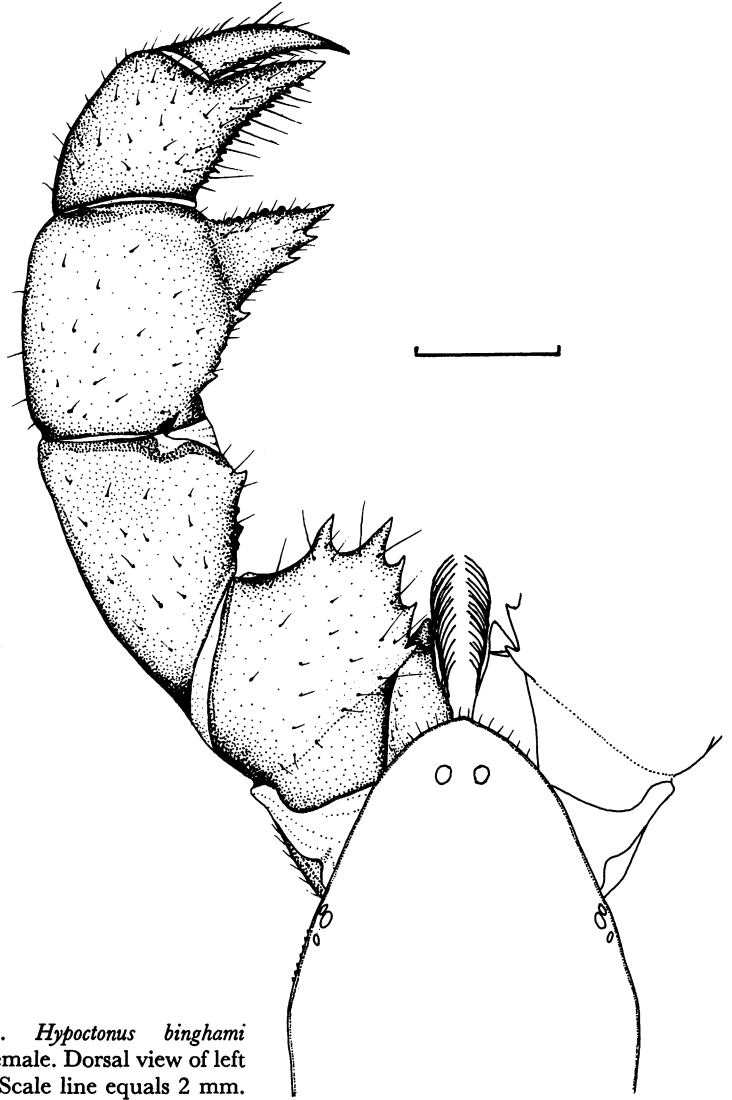


FIG. 5. *Hypoctonus binghami* (Oates), female. Dorsal view of left pedipalp. Scale line equals 2 mm.

***Hypoctonus clarki*, NEW SPECIES**

Figures 3, 4, 8, 12

DIAGNOSIS: This species resembles *Hypoctonus africanus* Hentschel in the form of the genital sternite, the small size of the anterior processes of the pedipalpal coxae, the small irregular ommatoids, and the well-developed

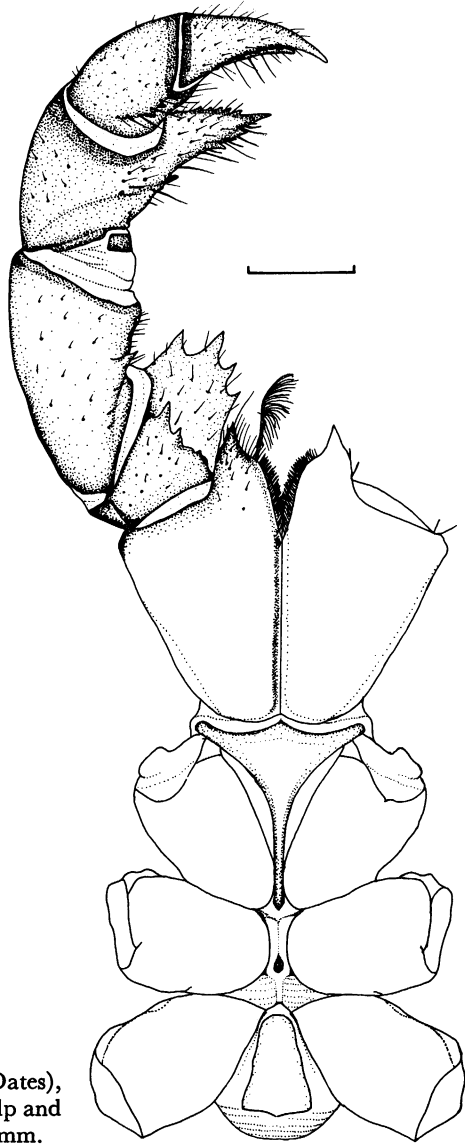
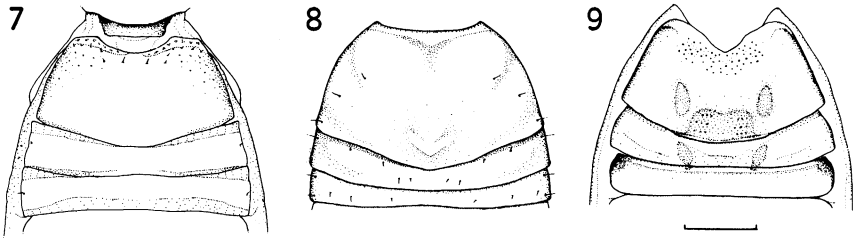


FIG. 6. *Hypoconus binghami* (Oates), female. Ventral view of left pedipalp and sternal region. Scale line equals 2 mm.

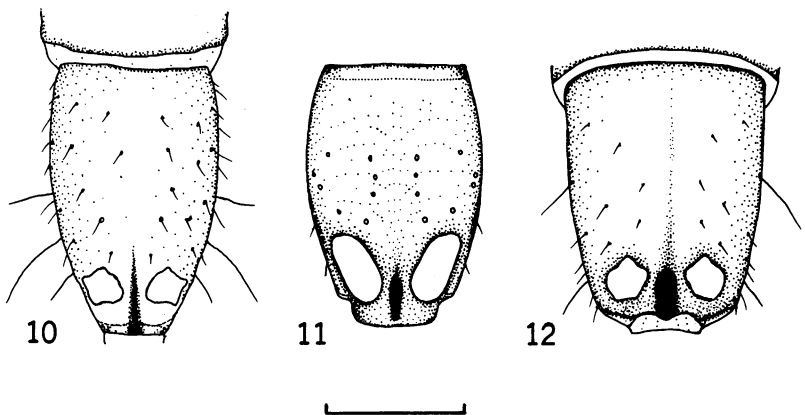
prosomal sterna. It is very distinctive in the form of the pedipalps, however, particularly in the small size of the patellar apophysis, the reduction in armature, the relatively greater length of the femur, and the more massive tibia, as shown in the figures.

DESCRIPTION OF FEMALE HOLOTYPE: Total body length (edge of carapace to insertion of flagellum), 28.0 mm.; carapace length, 11.0 mm.;



FIGS. 7-9. Female genital sternites. 7. *Hypoconus africanus* Hentschel. 8. *H. clarki*, new species. 9. *H. binghami* (Oates). Scale line equals 2 mm.

carapace width, 5.5 mm. Carapace deep mahogany red, faintly rugose with small scattered granulations and a few short, brown isolated hairs; with fine median furrow; no trace of keel between median and lateral eyes; small marginal denticles anteriorly and just behind lateral eyes. Abdominal tergites same color and texture as carapace; anal segment (fig. 12) squat, lighter in color, smooth and shiny; ommatoids small and irregular in shape. Ventral surface lighter than dorsal, sternites smooth and shiny medially, faintly granular laterally; genital sternite (fig. 8) smooth and without surface markings, posterior margin evenly rounded. Pedipalps (figs. 3, 4) same color as carapace but less rugose; patella with small apophysis lacking accessory teeth; trochanter with small tooth on



FIGS. 10-12. Female anal segments, dorsal view, showing ommatoids. 10. *Hypoconus africanus* Hentschel. 11. *H. binghami* (Oates). 12. *H. clarki*, new species. Scale line equals 1 mm.

anterodorsal margin and some small denticles, two teeth ventrally; coxae with a few tubercles along posterior lateral margin, anterior processes small and without accessory teeth on inner margin. Legs same color as ventral surface of abdomen, covered in small tubercles and scattered brown hairs; tarsi of leg I with eight uniform segments, apical one longer than others, equal to combined length of two preceding segments; tibiae I-III devoid of spines, tibia IV with single apical ventral spine.

TYPE LOCALITY: Gambia; Yundum, September 1, 1956 (C. R. Wallace). Holotype female deposited in the British Museum (Natural History).

OTHER RECORD: Paratypes (deposited in the British Museum [Natural History]): Gambia, 1951 (M. H. Roth) (no precise locality data recorded), two adult females. These specimens agree well with the description of the holotype, but one possesses an apical tibial spine on leg III on one side only.

ETYMOLOGY: This species is named for the late D. J. Clark, arachnologist at the British Museum.

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