REVIEW OF THE MYGALOMORPH GENUS *MELLOINA* BRIGNOLI (PARATROPIDIDAE: ARANEAE)

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The South American spider genus *Melloina* Brignoli, 1985 is reviewed. The type species, *Melloina gracilis* (Schenkel, 1953) is redescribed and a new species *M. rickwesti* is named from Panama. ❐ *Mygalomorphae, Paratropididae, Melloina, taxonomy, Venezuela, Panama.*

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The enigmatic Venezuelan genus *Melloa* Schenkel, 1953 was first placed in the Theraphosidae where its remarkable absence of dense hair on the legs, carapace and abdomen set it well aside from other taxa. In a cladistic analysis of all mygalomorphs, Raven (1985) transferred the genus to the Paratropididae and discussed the transfer in detail. The cladogram of Goloboff (1993) was not at variance with that.

The paratropidids are sparsely setose glabrous spiders which make no formal burrow but hide in the surface layers of the soil (West, pers. comm.). Their entire cuticle is soil-encrusted, the eye tubercle is very strongly arched and elevated, thick peglike setae are placed sparsely across the abdomen and the trichobothria are set in shallow protective cuticular cradles on the tibiae (Raven, 1985, figs. 165-7, 169, 171-2, 174). These characters no doubt are all sensory triggers for invertebrates moving across the soil.

Nomenclaturally, *Melloa* was blessed thrice. Both Brignoli (1985), in preparing his catalogue and Raven (1985) in his mygalomorph monograph noted the genus name was preoccupied and each proposed different replacement names, *Melloina* and *Glabropelma*, respectively. Brignoli was published earlier, thus his proposed genus name has precedence. However, Raven (1985) also proposed a family-group name Glabropelmatinae which is also valid. Goloboff (1995) incorrectly used the name *Glabropelma* in discussions and cladograms.

The new material presented here was taken during the IXth International Congress of Arachnology, in Panama.

The methods are those used in my previous papers (e.g. Raven, 1994). Micrographs were taken with a Polaroid Microcam. Measurements are in millimetres.

Family PARATROPIDIDAE
Subfamily GLABROPELMATINAE
Raven, 1985
Melloina Brignoli, 1983

Melloa Schenkel, 1953: 3; Brignoli, 1983: 138; Raven, 1985: 122, 155. Type species by original designation, *Melloa gracilis* Schenkel, 1953.

Melloina Brignoli, 1985: 380 (replacement name for *Melloa* preoccupied in Opilionida by *Melloa* Roewer, 1930); Platnick, 1989: 112; 1993: 115; 1998: 171.

Glabropelma Raven, 1985: 70, 122, 156 (duplicated replacement name for *Melloa* Roewer, 1930), figs. 16, 17; objective synonym of *Melloina*; Platnick, 1989: 112; Goloboff, 1995: 1-189.

DIAGNOSIS. *Melloina* differs from other paratropidid genera in the presence of distinct claw tufts on the legs and female palp, albeit thin on all, a normally (not highly) elevated eye tubercle and longer maxillary lobes than in the Theraphosidae but shorter than those in the Paratropidinae (Raven, 1985).

DESCRIPTION (supplementary to Raven, 1985). Tarsal organ low, domed. Leg cuticle smooth with band of finely fimbriate prostrate hairs beside dorsal midline of tarsi (Raven, 1994, fig. 19A).

DISTRIBUTION. Venezuela and Panama.

Melloina gracilis (Schenkel, 1953)
(Figs 1, 2)

Melloa gracilis Schenkel, 1953: 4, fig. 4a-c; Brignoli, 1983: 138.

Melloina gracilis: Brignoli, 1985: 380; Platnick, 1989: 112.

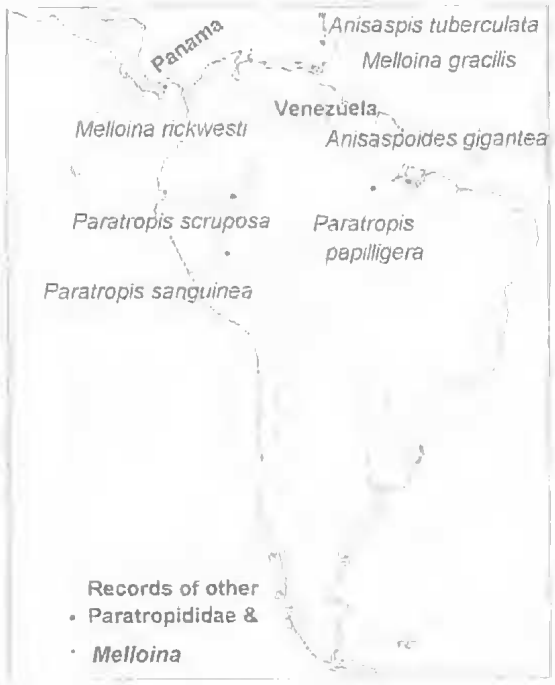

FIG. 1. Occurrence of *Melloina* and other Paratropididae.

Glabropelma gracilis: Raven, 1985: 122; Platnick, 1989: 112.

MATERIAL. HOLOTYPE: Male, El Pozon, Dto. Acosta, Prov. Falcon, Venezuela, Nov-Dec 1924, K. Wiedenmeyer, Naturhistorisches Museum, Basel, examined.

DIAGNOSIS. Differs from *M. rickwesti* in the more spinose tarsi and the presence of a tarsal crack on both legs III and IV (not only on IV).

DESCRIPTION. Holotype male. Carapace 8.40 long, 6.72 wide. Abdomen 8.24 long, 3.84 wide. Total length, 19.

Colour in alcohol. Carapace and legs red brown. Abdomen dorsally brown with 3 faint pallid lenticular areas; pallid ventrally.

Carapace. Glabrous, short, thornlike bristles on interstrial ridges; lateral margins with stout bristles in 1 row. Clypeus absent. Two bristles between PME; few fine on clypeal edge; none in striae. Fovea broad, procurved. Caput elevation low but above thorax.

Eyes. Tubercle raised, distinct. Group occupies 0.4 of head-width. Two rows; front row procurved, back row recurved. Eye group front width, back width, length, 73:79:33. MOQ front width, back width, length, 35:51:32. AME:ALE:PME:PLE, 27:18:16:14. AME-AME, 7, AME-ALE, 8, PME-PLE, 3, PME-PME, 32, ALE-PLE 5.

TABLE 1. Leg measurements of *Melloina gracilis*, holotype male.

	I	II	III	IV	Palp
Femur	7.83	7.17	6.50	8.67	4.67
Patella	4.50	4.00	3.33	3.83	2.83
Tibia	7.33	5.67	4.50	8.00	4.33
Metatarsus	6.67	6.00	6.50	10.33	
Tarsus	4.00	4.00	3.83	4.50	1.50

Chelicerae. Pilosity sparse with transverse ridges, only dorsal and fine setae laterally. Narrow, rounded. Rastellum absent. Fang long. Stridulatory strikers absent; no modifications but dark with pallid oval area near fang tip on groove not on interface. Furrow promargin with 15 large and 2 small teeth; intermedial row with 10 small and 30 fine, none on retromargin.

Labium. 1.76 wide, 0.88 long. With 60-70 blunt cuspules on anterior edge (see figure); long bristles; angled. Labiosternal suture a broad groove with two separated sigilla evident.

Maxillae. 2.40 long in front, 2.96 long behind, 1.40 wide; trapezoidal with conical inner edge not well defined; with *ca.* 60-70 cuspules spread, almost back onto heel but for more than half of maxillary length, blunt, spaced, not on mound. Heel angular; anterior lobes distinct, produced, angular. Lyra absent. Serrula absent.

Sternum. 3.96 long, 3.36 wide. Pilosity: fine hairs near margin, thick setae inside; rebordered slightly anteriorly. Sigilla oval: posterior 0.44 long, 0.32 from edge; middle 0.28 long, 0.16 from edge; anterior 0.12 long, 0.20 from edge.

Legs. Only bristles and spines evident; cuticle encrusted with soil. Tibia I with large truncated distal spur on proventral edge; an ovoid or leaf shaped megaspine on lower distal corner and digitiform megaspine on upper outer face of spur. Large trianguloid blunt upper process with digitiform tapering megaspine as long as process. No true scopula. Metatarsi and tarsi I, II with short hairs ventrally. Preening combs absent. Femora III noticeably incrassate. Tarsi III, IV ventrally cracked at *ca.* midpoint (see Table 1 for measurements).

Spines. Tarsi also with short thornlike setae. Leg 1, fe p4, d6, pa 0, ti p3, v13 + megaspines, me p2, v12, ta v9+9 in two straight rows; leg 2, fe p3, d5, pa 0, ti p3, v12, me p2, v11; ta v9+9 in two straight rows; leg 3, fe p4, d4, r5, pa 0, ti p2, d2, r3, v7, me p4, d1, r3, v11, ta v11+9 in two rows;

leg 4, fe p3, d6, r3, pa 0, ti p3, d2, r3, v10, me p4, d2, r3, v10, ta v11+12 in two rows; palp, fe p1, d3, ti p3, v6; ta 8 on larger lobe, 2 on smaller.

Claws. 4-5 short teeth on medial keel of paired claws of I; claw similar on IV but shorter. Small, weak, divided but distinct claw tufts.

Trichobothria. In two rows, each of *ca*. 9 on tibiae from half of curving row; irregular line of 15-20 on metatarsi; irregular band of 20-30 filiform and clavate on tarsi.

Palp. Bulb pyriform; embolus long, tapering to broad tip; cymbium of two dissimilar lobes. Tibia with shallow distoventral groove.

Spinnerets. PMS 0.40 long, 0.16 wide and apart, *ca*. 0.24 of basal PLS in diameter. Basal, middle, apical, and total articles of PLS, 0.80, 0.64, 0.84, 2.28, long respectively.

DISTRIBUTION. El Pozon, Venezuela.

REMARKS. This description differs from that of Schenkel (1953) in which sparse hairs on tarsi I and II are described as a scopula, even though the scopulate hairs are widely spaced. Differences in leg lengths may simply reflect minor differences in the points measured by Schenkel compared to the points I used (see Raven, 1994).

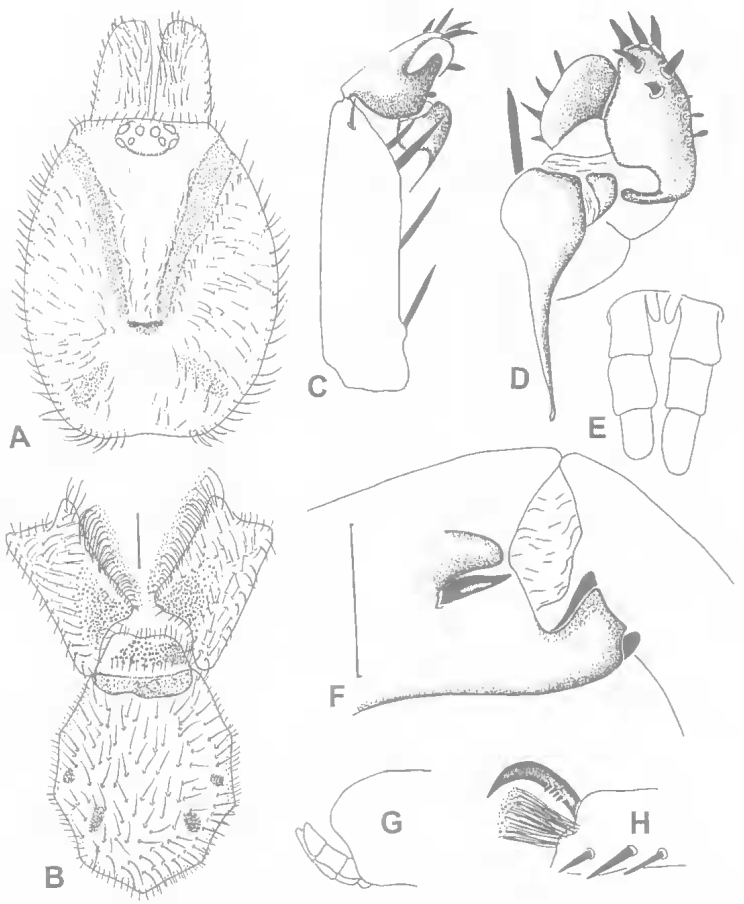

FIG. 2. *Melloina gracilis* Schenkel, holotype male. A, carapace & chelicerae, dorsal view. B, sternum, maxillae and labium, ventral view. C, palpal tibia, tarsus and bulb, prolateral view. D, palpal tibia, tarsus and bulb, proventral view. E, spinnerets, ventral view. F, tibia and metatarsus I, showing theraphosoid spur and megaspines, prolateral view. G, abdomen and spinnerets, lateral view. H, tarsus III, claws and tufts, prolateral view. Scale line on A = 2mm, B = 1mm, C-E, H = 0.5mm, G = 4mm, F = 1mm.

Melloina rickwesti sp. nov.
(Figs 1, 3-5)

Melloina sp: Raven, 1994: 322, fig. 19A.

ETYMOLOGY. For Rick West, student of tarantula taxonomy and biology, and the collector.

MATERIAL. HOLOTYPE: QMS6740, F, Limbo Camp, Gamboa, Panama, August 1983, Rick West. QMS34654, Penultimate M, same data but 25 Mar 1984, A. Decae.

DIAGNOSIS. Differs from *M. gracilis* in having only 2 rows each of 4 (cf. 9-12) spines on ventral tarsi, only tarsi IV (*cf.* III and IV) cracked, and a relatively shorter sternum and larger labium.

DESCRIPTION. Holotype female QMS6740. Carapace 4.64 long, 3.76 wide. Abdomen 5.04 long, 2.72 wide. Total length, 12.

Colour in alcohol. Carapace orange brown, striae and chelicerae darker, legs lighter. Abdomen dorsally brown with 2 pale paired areas anteriorly and generally with finely reticulated pallid areas. Sternum & labium orange brown, maxillae & other coxae lighter; abdomen ventrally pallid.

Carapace. Glabrous; lines of thick bristles along strial edges: *ca*. 5 along each caput edge, 3-4 on prolateral edges of lateral striae; 3 long and 2-3 small on outer edge of posterior striae. 6-8 behind

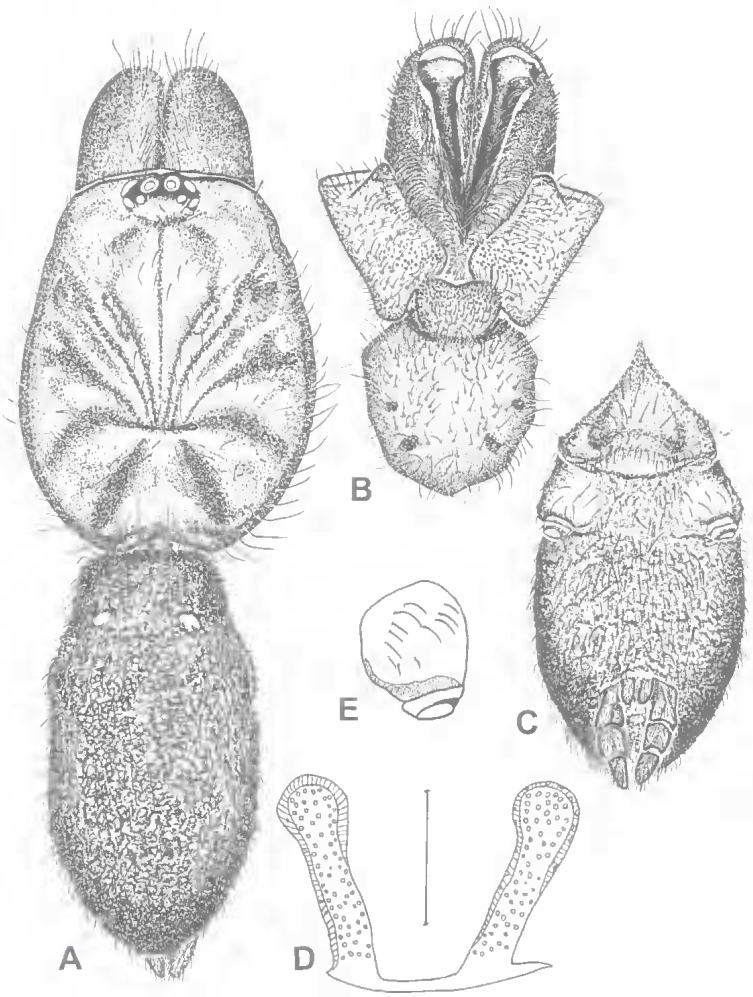

FIG. 3. *Melloina rickwesti* sp. nov., holotype female. A, carapace, chelicerae and abdomen, dorsal view. B, sternum, maxillae and labium, ventral view. C, abdomen and spinnerets, ventral view. D, spermathecae. E, book-lung, ventral right, ventral view. Scale line for A-C = 1.8mm, D = 0.25mm, E = 3.6mm.

PME; 4 between PME; 3 long recurved between AME and 2 long projecting from tubercle edge. Lateral margins with single line of thin (anterior part of carapace) to thick (mid-length of carapace posteriorly) bristles. Fovea short, slightly procurved. Clypeus absent.

Eyes. Tubercle low, well defined; anterior edge is carapace edge. Front row slightly procurved, back row recurved. PME pearly white, other eyes translucent. Group occupies 0.38 of head-width. Eye group front width, back width, length, 53:50:22. MOQ front width, back width, length, 22:33:16. AME:ALE:PME:PLE, 10:16:7:9. AME-AME, 0.6, AME-ALE, 0.5, ALE-ALE, 0.2, PME-PLE, 0.3, PME-PME, 2.0, ALE-PLE 0.2.

Labium. 1.16 wide, 0.80 long. Broad, rounded, deeply indented anteriorly. *ca*. 90 cuspules; cuspules largest on anterior slopes of lateral lobes; cuspules smallest along posterior edge where they equal size of cuspules on maxillae.

Maxillae. 1.68 long in front, 2.00 long behind, 1.12 wide. Placement and size of cuspules (*ca*. 60) uniform. Heel slightly produced; anterior lobe distinct.

Chelicerae. 3 distinct lines of setae dorsally, medialmost line has longest setae. No modified setae on interfaces. Promargin with long row of 14 large teeth interspersed with 3 smaller; intermedial region in basal one-third with *ca*. 30 very small pointed teeth and few larger teeth.

Sternum. 2.24 long, 2.48 wide. Rounded; strong setae around margins shorter, medial setae shorter. Cuticle lightly soil-encrusted. Sigilla small, oval, marginal.

Legs. Glabrous; covered only with thick and thin erect bristles. Anterior face of trochanter III and, to a lesser extent, IV with distinct basal invagination. All coxae soil-encrusted ventrally. Only tarsi IV cracked. Basifemoral thorns, thorn

TABLE 2. Leg measurements of *Melloina rickwesti*, holotype female.

	I	II	III	IV	Palp
Femur	3.60	2.96	2.72	4.48	2.64
Patella	2.16	1.84	1.44	1.84	1.60
Tibia	2.88	2.08	1.76	3.28	1.84
Metatarsus	2.16	2.00	2.16	3.52	—
Tarsus	1.36	1.44	1.68	2.00	1.84
Total	12.16	10.32	9.76	15.12	7.92

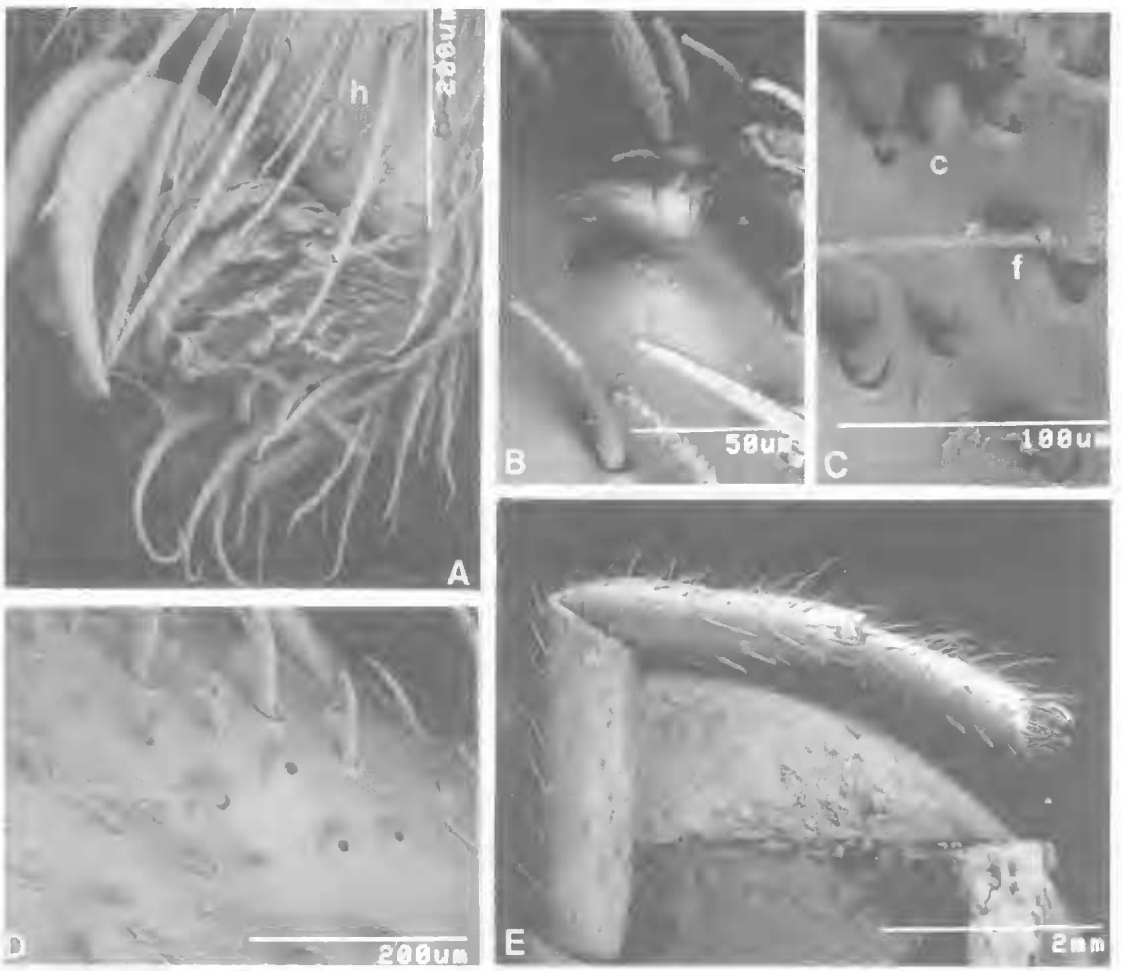

FIG. 4. *Melloina rickwesti* sp. nov., holotype female, scanning electron micrographs. A, claws, tufts and fimbriate hairs (h), paraxial view. B, tarsal organ, retrolateral view. C, cuticle of tarsus, showing filiform (f) and clavate (c) trichobothria, dorsal view. D, trichobothrial distribution on tarsi. E, patella, tibia, metatarsus, and tarsus, I, prolateral view.

spines, and metatarsal preening combs absent (see Table 2 for measurements).

Spines. Single spine dorsally on tarsi III and distal of crack on IV. Leg 1, fe p1, d2, pa 0, ti v5, mc v8, ta v9; leg 2, fe p1, d4, pa 0, ti p1, v4, me p1, v6; ta v8; leg 3, fe p3, d3, r3, pa 0, ti p2, d2, r1, v7, me p3, r3, v8, ta v11; leg 4, fe d5, r1, pa 0, ti p2, r3, v7, me p4, r5, v9, ta v13 in two rows; palp, fe p1, d4, ti v6; ta v14.

Claws. 2 short claws with 2 small teeth on I and on IV but longer claws. Tufts deep, paired on palp and I, very thin on IV.

Trichobothria. In two rows, each of *ca.* 8 short trichae on tibiae, bases not saddlelike but straddled by irregular line of short translucent spathulate hairs and each of two distal trichobothrial bases ringed by these hairs. Similar on metatarsi, 4-5 trichae on retrolateral face proximally flanked by short clavate hairs, trichae on dorsal surface more distally. Tarsi dorsally with *ca.* 13 short filiform trichae in band interspersed with *ca.* 10 short clavate for length of tarsi.

Booklung apertures. Oval and sclerotised.

Spinnerets. ca. 10 distinct large (?pumpkiniform) spigots on PMS; small spigots barely discernible ventrally on PLS. PMS 0.40 long, 0.12 wide, 0.08 apart, *ca.* 0.70 of basal PLS in diameter. PLS length of basal, middle, apical, and total articles, 0.64, 0.40, 0.48, 1.52, respectively.

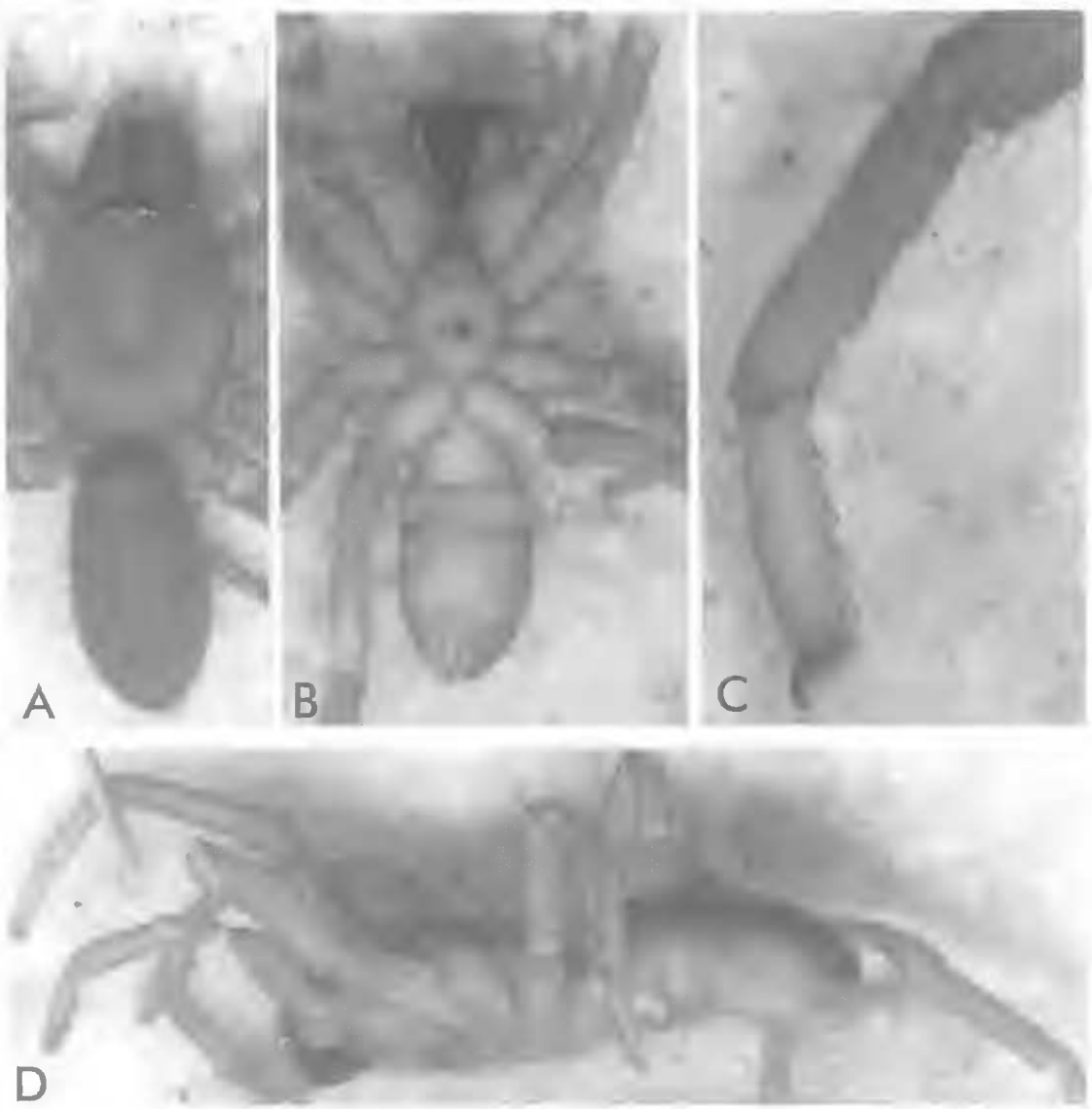

FIG. 5. *Melloina rickwesti* sp. nov., holotype female, micrographs. A, D, carapace, chelicerae, legs and abdomen, dorsal (A) and lateral (D) views. B, chelicerae, sternum, maxillae, labium, legs and abdomen, ventral view. C, leg I, retrolateral view.

Spermathecae. Two long undivided lobes.

REMARKS. The differences between the male of *M. gracilis* and female of *M. rickwesti* are greater than that found between male and female conspecific paratropidines in a pending revision of the sister subfamily (pers. obs.). Hence, the difference between the two animals is more than sexual dimorphism.

The tarsal organ of *Melloina* sp. (Raven, 1994: fig. 19A) is that of *M. rickwesti*.

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