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Studies on Malagasy Spiders, 1. The Family Gallieniellidae (Araneae, Gnaphosoidea)

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ABSTRACT

On the basis of the sclerotized anterior spinnerets, obliquely depressed endites, and flattened oval posterior median eyes, the spider family Gallieniellidae Millot is transferred from the Clubionoidea to the Gnaphosoidea. The presence of a small but distinct apical segment on the anterior spinnerets suggests that gallieniellids are relatively plesiomorphic gnaphosoids. Two genera are rec-

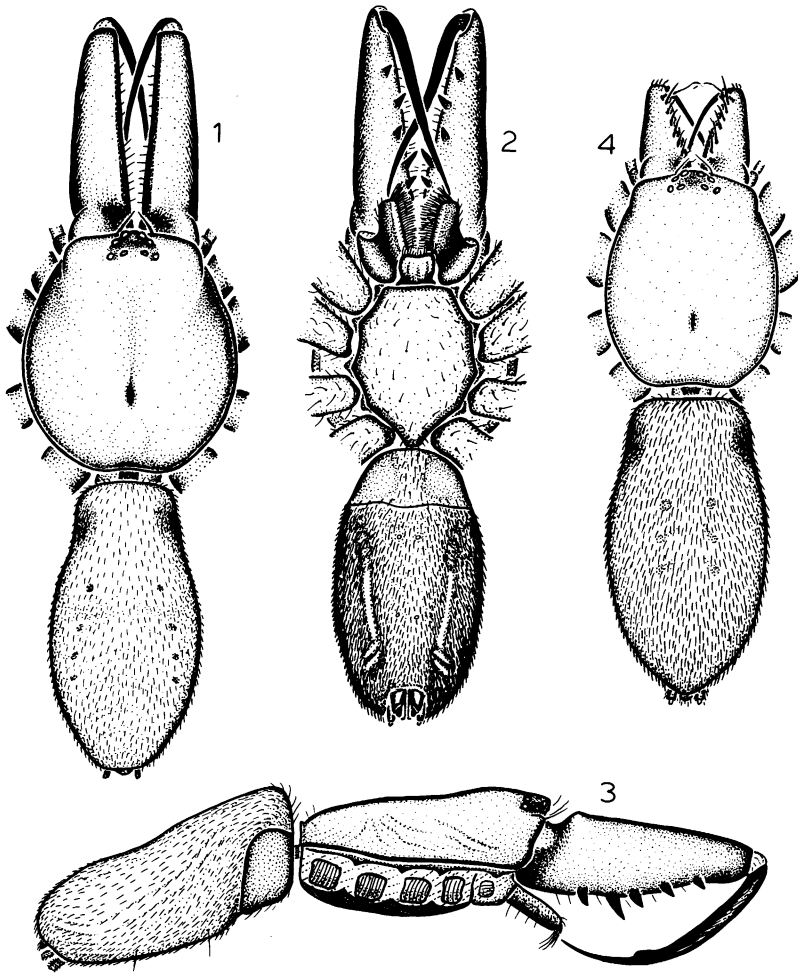
ognized. *Gallieniella* includes the type species *G. mygaloides* Millot and the new species *G. blanci* and *G. betroka*, all from Madagascar, and the new species *G. jocquei* from the Comoro Islands. The new genus *Legendrena* includes four new species (*L. angavokely*, *L. perinet*, *L. tamatave*, and *L. rolandi*) from Madagascar.

INTRODUCTION

The taxonomic history of the spider family Gallieniellidae is relatively brief. The only previously known species, *Gallieniella mygaloides*, was described by Millot (1947) on the basis of two male specimens from Madagascar. As his choice of specific name indicates, Millot was impressed by the mygalomorph-like appearance of the ocular area and, especially, the chelicerae, which are greatly elongated and bear a long, heavy fang (figs. 1-3). Millot realized, however, that these

resemblances to mygalomorphs are superficial, and that other araneomorph spiders exist which have similarly elongated chelicerae; he specifically mentioned tetragnathids, archaeids, *Myrmarachne*, *Desis*, and some anypaenids as examples, and even more impressively elaborated chelicerae occur in some Malagasy clubionoids as well. Nonetheless, Millot was uncertain of the proper taxonomic position of *Gallieniella*; although he thought the genus was clearly a member of the "Dion-

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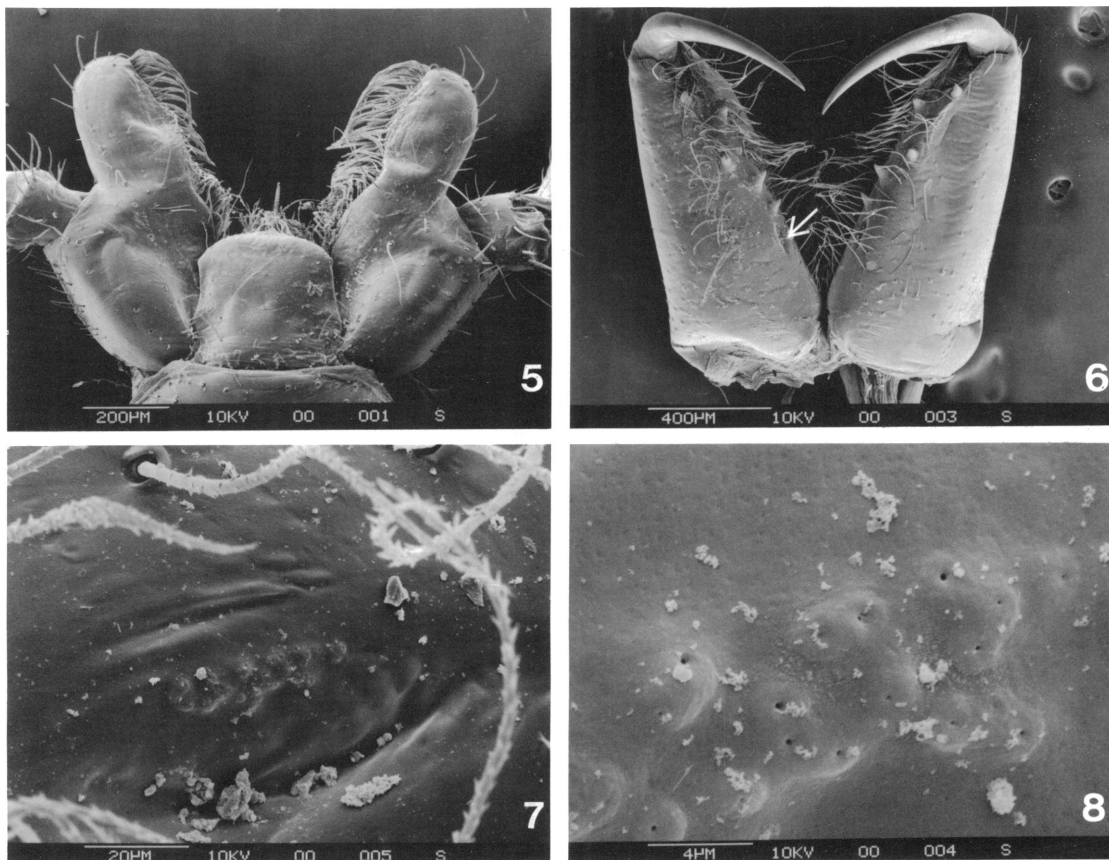
FIGS. 1-4. *Gallieniella mygaloides* Millot, cephalothorax and abdomen. 1-3. Male. 4. Female. 1, 4. Dorsal view. 2. Ventral view. 3. Lateral view.

ychia" (i.e., a two-clawed hunting araneomorph), Millot was unable to decide whether it deserved a family of its own (the Gallieniellidae) or should be placed as a separate subfamily (the Gallieniellinae) within the family Clubionidae.

Roewer (1954), in his catalog of spiders, preferred the latter placement but gave the group only tribal status (as the Gallienielleae) within the clubionid subfamily Corinninae, coordinate with the Tracheleae, Oedignatheae, and Corinneae. The association of *Gallieniella* with corinnines was not supported by any discussion of evidence, however, and it is very unlikely that Roewer actually ex-

amined any specimens of *G. mygaloides*. Nonetheless, placement of the genus somewhere within the Clubionidae was accepted, at least implicitly, by workers such as Kaestner (1968) and Kaston (1972), who did not include the Gallieniellidae in their lists of extant spider families.

Millot's alternative view of familial status for the genus was supported, however, by Legendre (1967), who had the good fortune to recollect *G. mygaloides* at the type locality and obtained the first known females of the species. Legendre also observed several individuals in the field, occurring together with (and probably preying on) ants (of similar



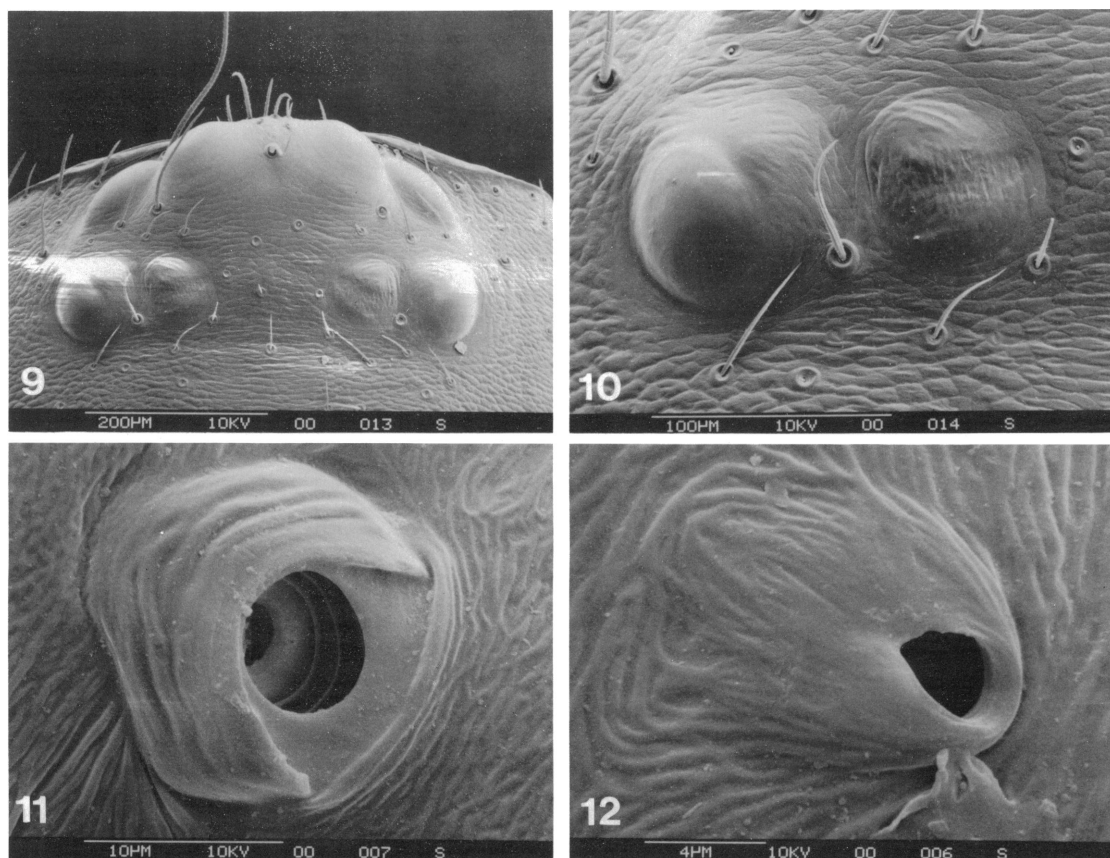
FIGS. 5-8. *Gallieniella* sp., juvenile. 5. Labium and endites, ventral view. 6. Chelicerae, posterior view; arrow indicates position of cheliceral gland pit. 7. Cheliceral gland pit, medial view. 8. Pores of cheliceral gland, medial view.

general appearance) and moving with such extreme agility that they could be distinguished from the ants and captured only with great difficulty. More recent authors, such as Levi (1982) and Brignoli (1983), have followed Legendre's treatment and accepted the Gallieniellidae as a valid family closely allied to the Clubionidae.

Through the generosity of Professor Roland Legendre of the Université des Sciences et Techniques du Languedoc, Montpellier, I have recently had the opportunity to study significant collections of ground- and litter-dwelling spiders taken in Madagascar by several French workers, notably Drs. R. Legendre, J.-M. Betsch, and J. Millot. The present paper, the first in a series devoted to these fascinating collections and the twenty-first in

a series on gnaphosoid spiders, deals with the available gallieniellid material, which has allowed a reappraisal of both the diversity and relationships of the group.

At Professor Legendre's request, the studied material has been distributed among the collections of the Muséum National d'Histoire Naturelle, Paris (MNHN), the American Museum of Natural History, New York (AMNH), and the British Museum (Natural History), London (BMNH). Special thanks go to Dr. Rudy Jocqué of the Musée Royal de l'Afrique Centrale, Tervuren (MRAC), who collected, recognized as gallieniellids, and made available for inclusion in this paper the first specimens of the family taken outside of Madagascar. I am also indebted to Ms. Joan Whelan of the American Museum for assis-



FIGS. 9–12. 9, 10. *Gallieniella* sp., juvenile. 11, 12. *G. mygaloides* Millot, male, leg IV. 9. Ocular area, dorsal view. 10. Left posterior lateral and posterior median eyes, dorsal view. 11. Trichobothrial base, dorsal view. 12. Tarsal organ, dorsal view.

tance with the scanning electron microscope, to Dr. Mohammad Shadab of the American Museum for providing illustrations, and to Dr. Charles Dondale of the Biosystematics Research Institute for a helpful review of the manuscript. All measurements presented below are in millimeters; abbreviations for eyes are standard for the Araneae.

RELATIONSHIPS

It is not surprising that no special characters of *Gallieniella* have been cited by any author as evidence for a relationship to the Clubionidae, for (as has been widely recognized in recent years) there seems to be no known synapomorphy uniting the taxa classically placed in that family. The same ambiguity exists with regard to the subfamily

Corinninae as limited, for example, by Roewer (1954). Given this situation, a compelling argument against associating the gallienielids with clubionids can only come from derived characters shared with other groups instead. I suggest that such characters do exist.

Millot (1947, p. 159), for example, noted that “C’est avec les Clubionides qu’il manifesterait le plus d’affinités, bien que les pièces buccales, entre autres, ne soient guère ‘clubioniques’.” Indeed, these unclubionid-like endites bear a distinct oblique depression (figs. 2, 5). Obliquely depressed endites are characteristic of gnaphosoids rather than clubionids. So far as I am aware, the only taxa currently placed in the Clubionidae that have such endites are the Australian molycriines and the Mediterranean cybaeodines. The first of these groups is almost certainly misplaced;

their greatly thickened anterior spinnerets suggest that they may in fact be the closest relatives of the prodidomine gnaphosoids. The second group is more problematical; cybaeodines were originally placed by Simon (1893) as a subfamily of Gnaphosidae, coordinate with his Hemicloeiinae, Drassodinae, and Cithaeroninae. More recent workers have assigned the group to the Clubionidae; Roewer (1954), for example, considered it a tribe of the Liocraninae. The type genus, *Cybaeodes*, contains two Mediterranean species, known only from females, that do have slightly depressed endites. However, in the African genus *Andromma*, which Simon (correctly, I suspect) considered a close relative of *Cybaeodes*, no such depressions are apparent; as will be demonstrated elsewhere, a third genus (*Baeriella*) assigned to the group by Simon (1903) is just a misplaced gnaphosid. If the depressed endites of *Cybaeodes* are plesiomorphic for a group including at least that genus and *Andromma*, then that group may represent the closest relative of all the current Gnaphosoidea; alternatively, the character may simply be a parallelism between *Cybaeodes* and true gnaphosoids.

If, as the endites suggest, gallieniellids are gnaphosoids, they should also have two other characters that seem synapomorphic for the superfamily, namely sclerotized anterior spinnerets and flattened, oval or irregularly shaped (rather than round) posterior median eyes. To my knowledge, neither of these features is found among clubionoids (except, again, for the molycrines), and both do in fact occur in gallieniellids (figs. 1-4, 9, 10). Hence, the family is transferred here to the Gnaphosoidea.

The position of the gallieniellids within the Gnaphosoidea cannot yet be established, for no cladogram of the superfamily has ever been produced, and some of the relevant groups (such as the Cithaeronidae and Trochanteridae) have yet to be examined in the modern literature. However, the anterior spinnerets of gallieniellids are notable in that they bear a small, but distinct, apical segment (figs. 13-16). No such segment exists in at least the vast majority of true Gnaphosidae; because one does occur in at least some Ammoxenidae and Cithaeronidae, it seems likely that the fusion of the two segments represents a

synapomorphy within the superfamily and that the gallieniellids are therefore one of the more plesiomorphic groups of gnaphosoids.

GALLIENIELLIDAE MILLOT

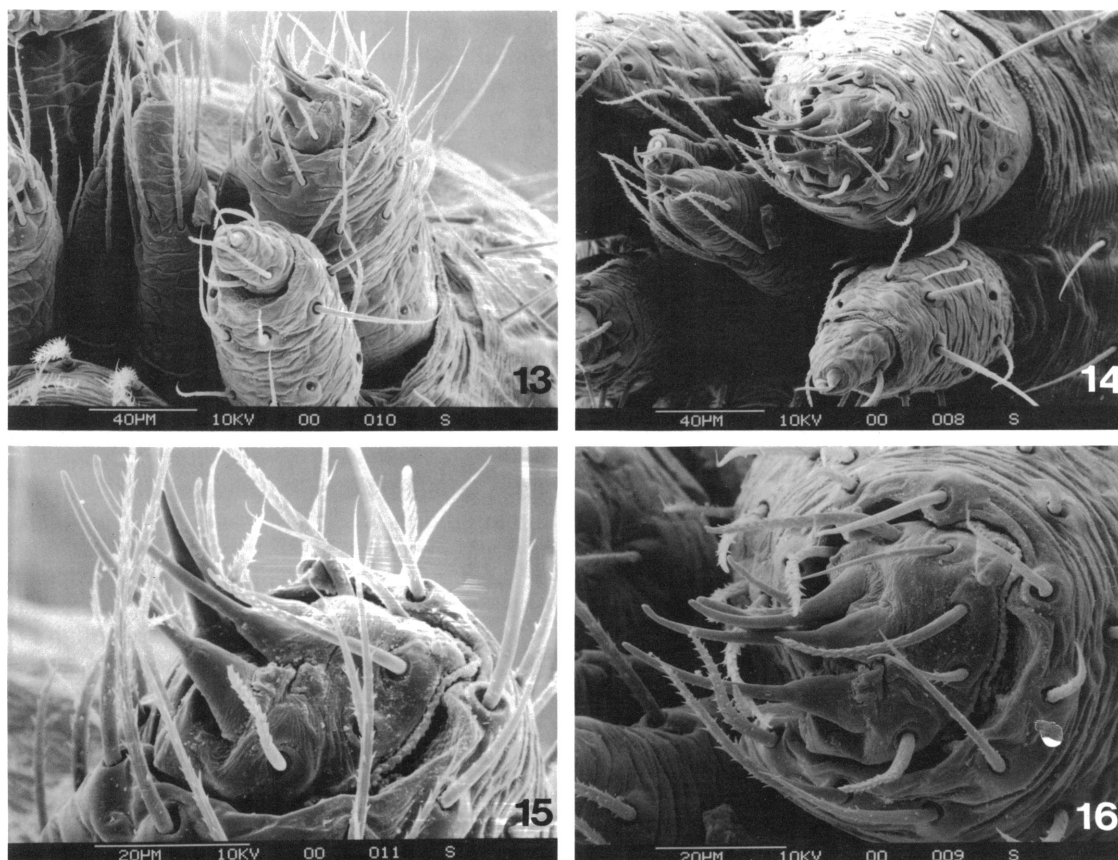
Gallieniellidae Millot, 1947, p. 159 (type genus *Gallieniella* Millot).

Gallieniellinae: Millot, 1947, p. 159.

Gallieniellae: Roewer, 1954, p. 605.

DIAGNOSIS: The combined presence of obliquely depressed endites (fig. 5), flattened and irregularly oval posterior median eyes (figs. 9, 10), and sclerotized but proximally and distally subcontiguous anterior spinnerets bearing a small apical segment (figs. 2, 13-16) will distinguish gallieniellids from all other spiders.

DESCRIPTION: Medium-sized ecribellate entelegyne araneomorph spiders. Carapace longer than wide, almost circular in dorsal view, widest between coxae II and III, slightly narrowed opposite coxae I, truncated anteriorly, where overshadowed at middle by ocular tubercle (fig. 9), slightly invaginated at middle of posterior margin; surface finely reticulate (fig. 9), with lightened elevated lateral margins and reflexed posterior margin; cephalic area slightly elevated; thoracic groove longitudinal, often pitlike, set back about five-sevenths of carapace length. Eight eyes in two rows on blackened elevated ocular tubercle, posterior row wider than anterior; AME circular, dark, directed obliquely rather than straight forward, ALE and PLE oval, light, PME flattened, irregularly oval, light (figs. 9, 10); lateral eyes larger than medians; medians much closer to laterals than to each other; lateral eyes of each side separated by their diameter or less; MOQ wider than long, wider in back than in front; clypeus low. Chelicerae moderately to greatly elongated, dorsally depressed at insertion, medially flattened at least on proximal two-thirds; promargin with three teeth, retromargin with two; cheliceral gland openings in pit near most proximal tooth (figs. 6-8). Endites flattened, elongated, narrowed opposite insertion of trochanters, obliquely depressed (fig. 5), with thick anteromedian scopula and anterolateral serrula consisting of single row of teeth. Labium large, truncated anteriorly. Sternum longer than wide, truncated anteriorly, with rebordered



FIGS. 13-16. *Legendrena* sp., juvenile. 13, 14. Spinnerets of left side. 15, 16. Apical segment of anterior spinneret. 13, 15. Posterior view. 14, 16. Distal view.

lateral margins and small sclerotized extensions to and between coxae. Leg formula 4123; at least posterior femora with spines; tarsi with two dentate claws but no claw tufts; trochanters unnotched; metatarsi without preening combs; tarsi with two rows, metatarsi and tibiae with single row of trichobothria; trichobothrial bases rugose (fig. 11); tarsal organ capsulate (fig. 12). Abdomen long, bearing six spinnerets, anteriors sclerotized, conical, subcontiguous for their entire length, with small medially directed apical segment (figs. 13-16), medians long, narrow, one-segmented, posteriors wider than medians, with apical segment about one-third as long as basal segment; colulus represented at most by setae. Respiratory system with anterior booklungs and single posterior spiracle situated near base of spinnerets, leading into short

vestibule from which apparently arise four narrow tracheae, with median pair almost immediately divided into two tracheoles (only one juvenile *Legendrena* examined). Male palpal tibia with at least one apophysis, female palp with dentate claw.

INCLUDED GENERA: *Gallieniella*, *Legendrena*.

DISTRIBUTION: Known only from Madagascar and the Comoro Islands.

GALLIENIELLA MILLOT

Gallieniella Millot, 1947, p. 158 (type species by original designation *Gallieniella mygaloides* Millot).

DIAGNOSIS: The more elongate and non-porrect chelicerae of both sexes (figs. 1-4), as well as the unicolored and non-enlarged tibia

I, the presence of spines on the posterior tibiae, and the scopulate tarsi, are diagnostic.

DESCRIPTION: Carapace with pair of long dark paramedian setae on clypeus and about three pairs along edge of scarcely delimited posterior declivity. Chelicerae greatly elongated, especially in males, not porrect, medially flattened along full length, males with tubercle on fang. Endites abruptly narrowed opposite insertion of trochanters. Labium distinctly widened at base, wider than long. Sternum widely separating coxae IV, with scattered stiff setae. Posterior tibiae with ventral spines. No segments of leg I enlarged, tibia I not bicolored. Tarsi and distal halves of metatarsi lightly scopulate. Males without dorsal abdominal scutum. Male palpal tibia with at least three apophyses. Bulb with large, conspicuous proximal subtegulum, distal tegulum, and proximally originating embolus expanded at base, extending along prolateral surface, coiling around retrolateral surface, supported by semicircular translucent functional conductor. Epigynum with anteromedian ledges.

Gallieniella mygaloides Millot

Figures 1-4, 11, 12, 17-21

Gallieniella mygaloides Millot, 1947, p. 159, figs.

A-G (male holotype from Tsiafajavona, Tananarive, Madagascar, should be in MNHN, lost). Legendre, 1967, p. 796, figs. 1, 2.

DIAGNOSIS: Males can be recognized by the large dorsal tibial apophysis and the long terminal coil of the embolus (figs. 17-19), females by the uniformly narrow median epigynal ducts (figs. 20, 21).

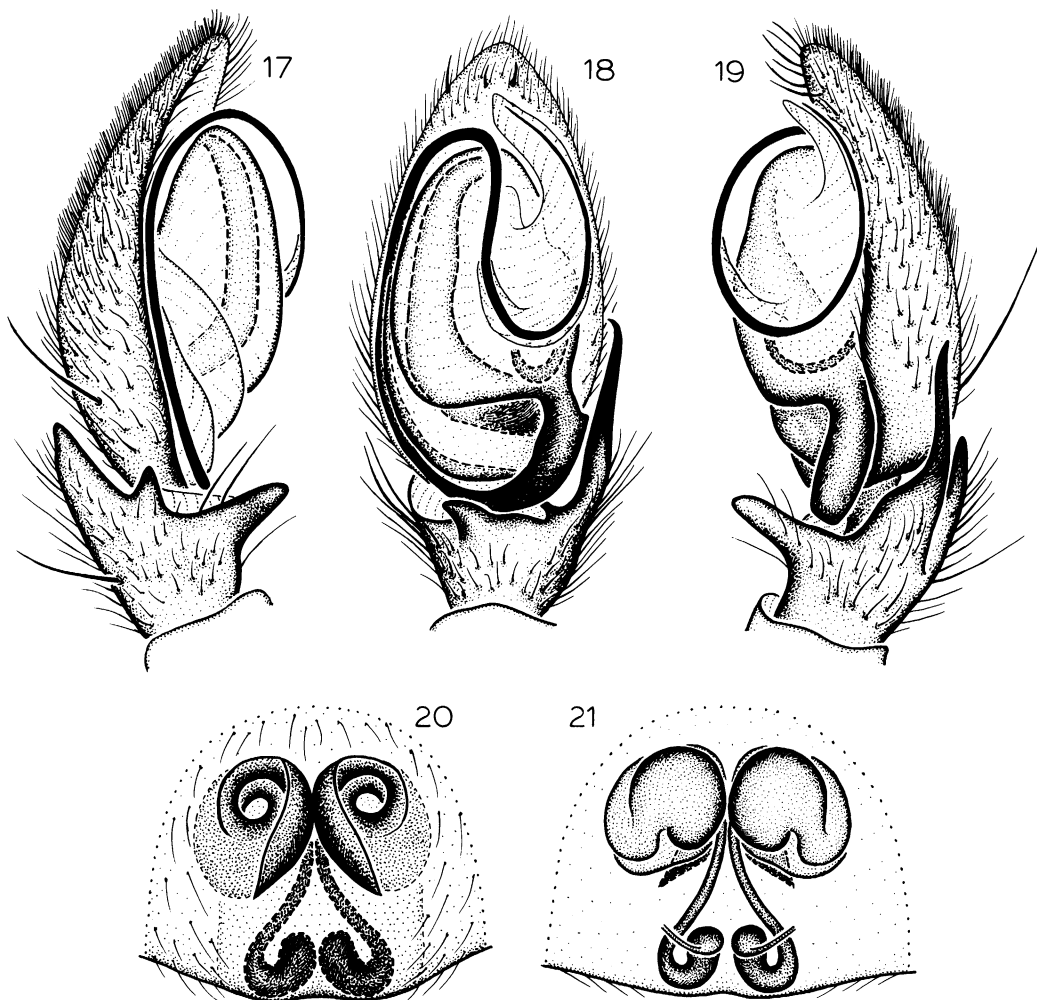
MALE: Total length, not including chelicerae, 4.37. Carapace 1.87 long, 1.66 wide, dark chestnut brown. From above, anterior eye row recurved, posterior row slightly recurved; from front, anterior row slightly recurved, posterior row very slightly procurved; eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.05, PLE 0.06; AME-AME 0.13, AME-ALE 0.02, PME-PME 0.14, PME-PLE 0.05, ALE-PLE 0.06; MOQ length 0.19, front width 0.21, back width 0.24. Clypeal height at AME almost twice their diameter. Chelicerae extending forward distance about seven-tenths of carapace length,

bearing long fang with distinct ventral tubercle at about two-thirds its length; two most distal promarginal teeth largest, widely separated, retromarginal teeth widely separated, proximal tooth much larger than distal. Leg spination (only surfaces bearing spines listed): femora III, IV d1-0-0; tibiae: III v2-2-2; IV v2-4-2. Legs light brown except for yellowish tarsi and longitudinal prolateral and retrolateral yellowish stripes on femur I. Abdomen dark gray with scattered white scales and short dark setae. Palpal tibia with four apophyses: very long sinuous retrolateral, long triangular dorsal, short triangular prolateral, and long ventrally directed ventral; embolus with long terminal coil (figs. 17-19).

FEMALE: As in male, except for the following. Total length, not including chelicerae, 5.11. Carapace 2.05 long, 1.69 wide. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.05, PLE 0.08; AME-AME 0.12, AME-ALE 0.02, PME-PME 0.15, PME-PLE 0.04, ALE-PLE 0.07; MOQ length 0.20, front width 0.22, back width 0.25. Chelicerae shorter than in male, extending forward distance about one-third of carapace length, with anteromedian row of long stiff setae, without ventral tubercle on fang; promarginal and retromarginal teeth smaller than in male, subequal. Femur II with prolateral yellow stripe on distal half. Palpal femur and patella with distal dorsal spine, tibia with one prolateral and two dorsal spines, tarsus with single proximal prolateral and dorsal spines. Epigynum with small posterior spermathecae and large membranous coiled anterior ducts (figs. 20, 21).

VARIATION: As indicated by Legendre (1967, p. 797), males vary significantly in the length of the chelicerae, with the paturon ranging from scarcely longer than that of the female to the full development described and illustrated above; in some specimens, even the right and left chelicerae vary in their degree of development.

MATERIAL EXAMINED: MADAGASCAR: *Fianarantsoa:* Anjavidilava, massif de l'Andringitra, elevation 2000 m., Berlese of moss from soil in dense sclerophyll montane forest, Jan. 15, 1971 (J.-M. Betsch, AMNH), 1♀; Itremo, Aug. (J. Millot, MNHN), 2♂, 1♀; Tsarafidy, elevation 1450 m., Berlese of litter from dense humid montane forest, Mar. 9,



FIGS. 17-21. *Gallieniella mygaloides* Millot. 17. Palp, pro-lateral view. 18. Palp, ventral view. 19. Palp, retrolateral view. 20. Epigynum, ventral view. 21. Epigynum, dorsal view.

1967 (J.-M. Betsch, BMNH), 2♂. *Tananarive*: Col du Tsiafajavona, massif de l'Ankaratra, elevation 2400 m., taken with ants, Feb. 1967 (R. Legendre, J.-M. Betsch, AMNH), 2♂, 1♀; same data (MNHN), 1♂; Station Forestière d'Angavokely, elevation 1780 m., litter from degraded dense sclerophyll montane forest, Feb. 2, 1967 (J.-M. Betsch, BMNH), 1♀.

DISTRIBUTION: Known only from montane localities in central Madagascar.

***Gallieniella blanci*, new species**

Figures 22-24

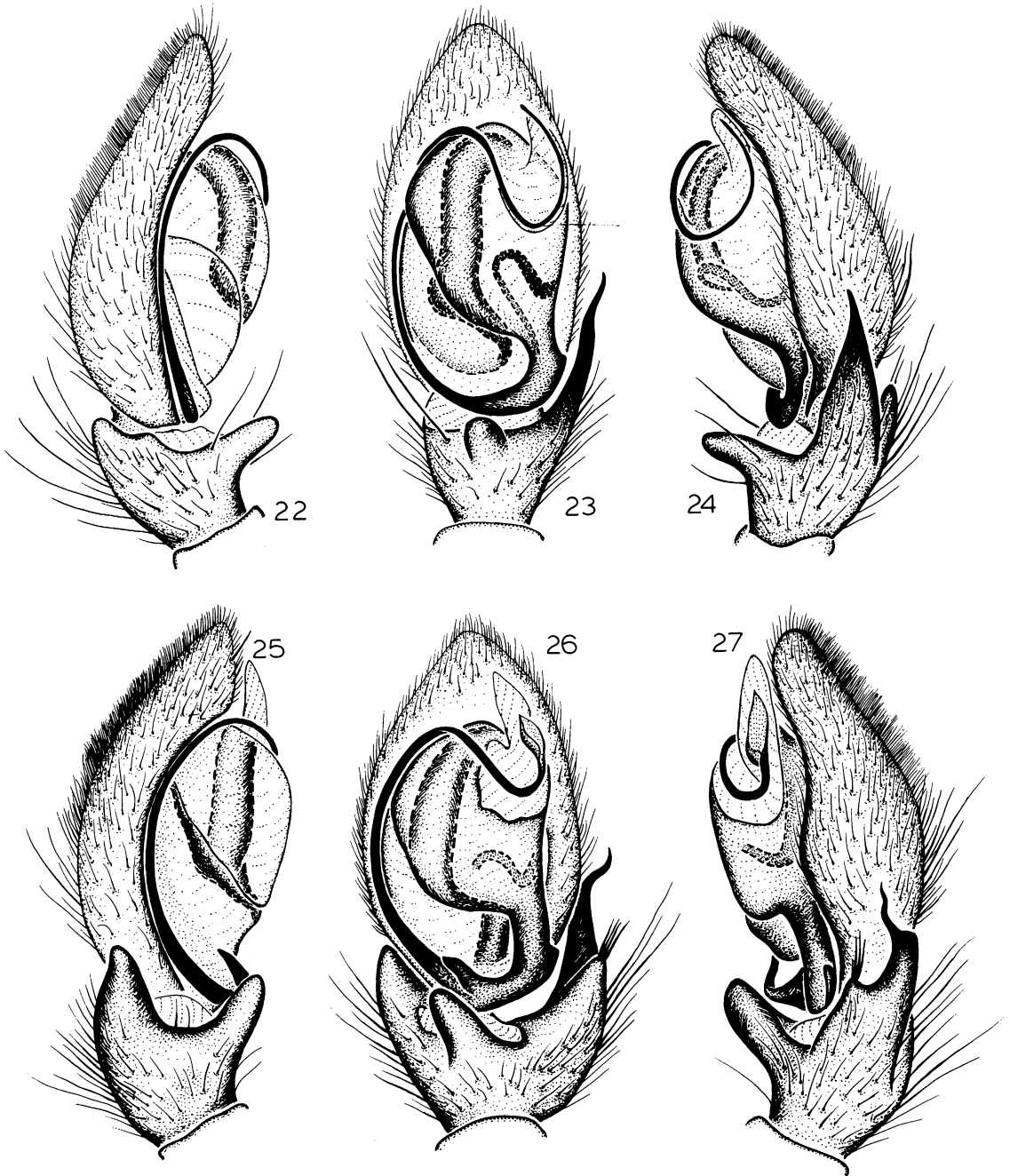
TYPE: Male holotype from "Sud Madagascar," presumably somewhere in Tuléar Prov-

ince (December 1962; C. Blanc), deposited in MNHN.

ETYMOLOGY: The specific name is a patronym in honor of the collector of the holotype.

DIAGNOSIS: Males resemble those of *G. mygaloides* but can be distinguished by the smaller dorsal tibial apophysis and the shorter terminal embolar coil (figs. 22-24).

MALE: As in *G. mygaloides*, except for the following. Total length, not including chelicerae, 3.38. Carapace 1.54 long, 1.35 wide, pars cephalica orangish brown, pars thoracica orange, darkened along posterior margin; surface with scattered recumbent white scales. From front, anterior eye row straight; eye sizes



FIGS. 22-27. 22-24. *Gallieniella blanci*, new species. 25-27. *G. betroka*, new species. 22, 25. Palp, prolateral view. 23, 26. Palp, ventral view. 24, 27. Palp, retrolateral view.

and interdistances: AME 0.05, ALE 0.07, PME 0.05, PLE 0.06; AME-AME 0.09, AME-ALE 0.02, PME-PME 0.12, PME-PLE 0.04, ALE-PLE 0.05; MOQ length 0.15, front width 0.19, back width 0.22. Clypeal height

at AME 1.5 times their diameter. Chelicerae extending forward distance about three-fifths of carapace length, with short setae and white scales anteriorly; ventral tubercle of fang at about half its length; retromarginal teeth sub-

equal. Leg spination: femora I–IV d1-0-0; tibiae as in *G. mygaloides*. Femora yellowish orange, patellae, tibiae, and metatarsi orangish brown, tarsi light tan. Dorsum of abdomen with about six light hairline chevrons posteriorly. Dorsal tibial apophysis short, prolateral apophysis absent; terminal embolar coil and functional conductor shorter than in *G. mygaloides* (figs. 22–24).

FEMALE: Unknown.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from southern Madagascar.

***Gallieniella betroka*, new species**

Figures 25–27

TYPE: Male holotype taken under a rock at Betroka, Tuléar, Madagascar (August 1948; J. Millot), deposited in MNHN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males resemble those of *G. jocquei* in having a bifid retrolateral tibial apophysis, lacking a dorsal tibial apophysis, having a greatly reduced terminal embolar coil, and having a distally divaricated embolus, but can be distinguished by the presence of a basal embolar apophysis (fig. 26) and by the differently shaped retrolateral tibial apophysis (fig. 27).

MALE: As in *G. mygaloides*, except for the following. Total length, not including chelicerae, 4.95. Carapace 2.05 long, 1.87 wide, pars thoracica with scattered white scales. Eye sizes and interdistances: AME 0.06, ALE 0.08, PME 0.06, PLE 0.08; AME–AME 0.16, AME–ALE 0.02, PME–PME 0.18, PME–PLE 0.08, ALE–PLE 0.09; MOQ length 0.21, front width 0.28, back width 0.30. Clypeal height at AME 1.5 times their diameter. Chelicerae extending forward distance about seventeenth-twentieths of carapace length, with white scales anterolaterally; ventral tubercle of fang larger than in *G. mygaloides*; retromarginal teeth subequal. Leg spination: femora II–IV d1-0-0; tibiae as in *G. mygaloides*. Femur II with distal prolateral and retrolateral yellowish stripes. Abdomen light gray, dorsum with three narrow, vaguely indicated lighter chevrons posteriorly. Retrolateral tibial apophysis bifid, short ventral lobe surmounted by stiff setae, dorsal apophysis absent, prolateral apophysis large, triangular, ventral apophysis

near small hook-shaped apophysis originating from base of embolus; terminal embolar coil and functional conductor very small, embolus divaricated distally (figs. 25–27).

FEMALE: Unknown.

OTHER MATERIAL EXAMINED: One male taken with the holotype (AMNH).

DISTRIBUTION: Known only from southern Madagascar.

***Gallieniella jocquei*, new species**

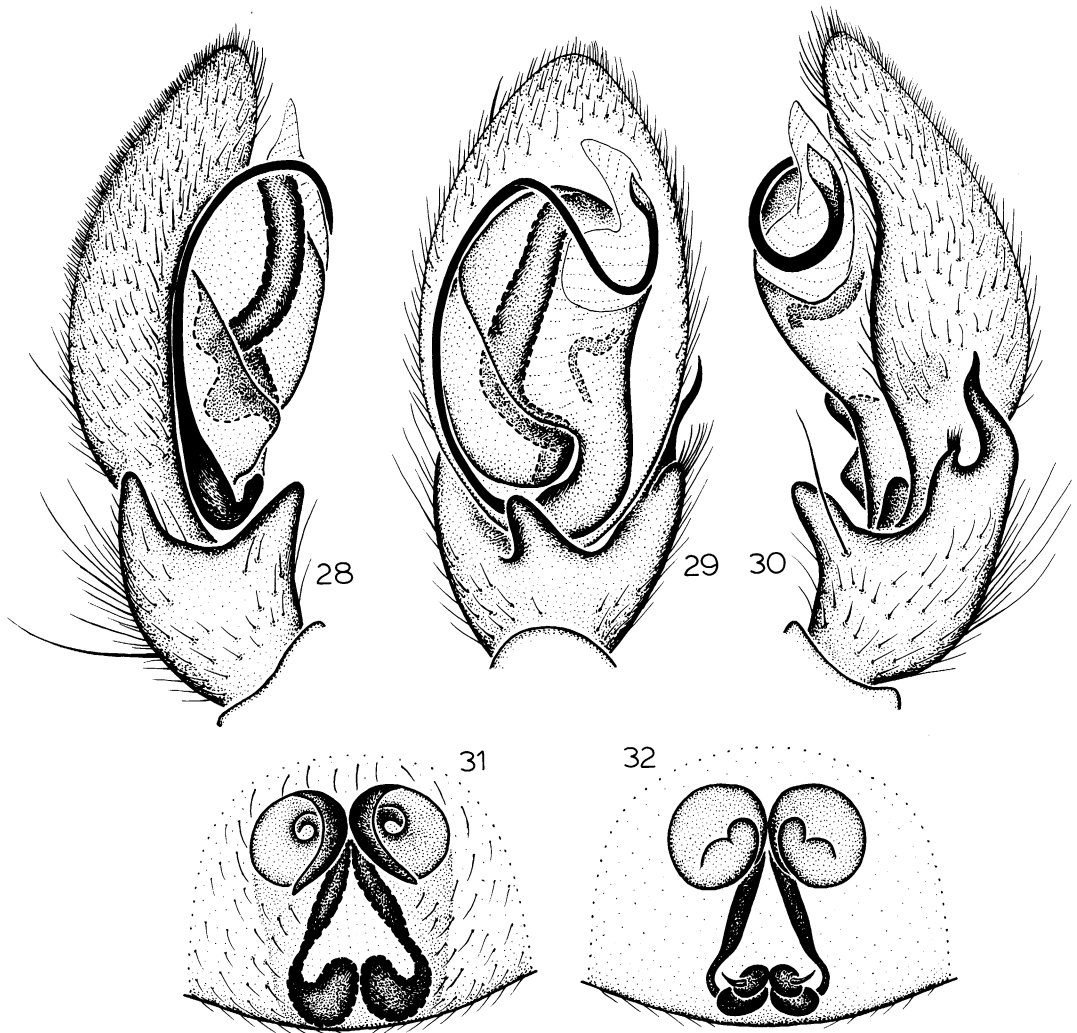
Figures 28–32

TYPE: Male holotype and female paratype from the Ilang Ilang plantations at Miringoni, Mohéli, Comoro Islands (November 5–13, 1983; R. Jocqué), deposited in MRAC.

ETYMOLOGY: The specific name is a patronym in honor of the collector of the types.

DIAGNOSIS: Males resemble those of *G. betroka* but lack a basal embolar apophysis and have a differently shaped retrolateral tibial apophysis (figs. 28–30); females differ from those of *G. mygaloides* in having anteriorly widened median epigynal ducts (figs. 31, 32).

MALE: As in *G. mygaloides*, except for the following. Total length, not including chelicerae, 3.87. Carapace 1.68 long, 1.53 wide. From front, posterior eye row very slightly recurved; eye sizes and interdistances: AME 0.06, ALE 0.07, PME 0.06, PLE 0.07; AME–AME 0.12, AME–ALE 0.01, PME–PME 0.14, PME–PLE 0.06, ALE–PLE 0.07; MOQ length 0.20, front width 0.24, back width 0.26. Clypeal height at AME roughly equal to their diameter. Chelicerae extending forward distance about eight-ninths of carapace length, fang bearing narrow tubercle as thick as fang at that point; promarginal teeth evenly separated, middle tooth largest, retromarginal teeth both near most distal promarginal tooth. Leg spination: femora I–IV d1-0-0; tibiae: III v2-2-2; IV v2-3-2. Legs dark brown except for light brown tarsi, metatarsi, and proximal halves of posterior patellae, longitudinal prolateral and retrolateral yellowish stripes on femur I, and longitudinal dorsal yellowish stripes on posterior tibiae. Abdomen with white scales concentrated in cardiac area. Retrolateral tibial apophysis bifid, short ventral lobe surmounted by stiff setae, dorsal apophysis absent, prolateral apophysis triangular, ventral apophysis small; embolar base without apophysis; terminal embolar coil



FIGS. 28–32. *Gallieniella jocquei*, new species. 28. Palp, prolateral view. 29. Palp, ventral view. 30. Palp, retrolateral view. 31. Epigynum, ventral view. 32. Epigynum, dorsal view.

and functional conductor small, embolus divaricated distally (figs. 28–30).

FEMALE: As in male, except for the following. Total length, not including chelicerae, 4.90. Carapace 1.80 long, 1.53 wide. From front, posterior eye row very slightly procurved; eye sizes and interdistances: AME 0.07, ALE 0.07, PME 0.06, PLE 0.07; AME–AME 0.09, AME–ALE 0.01, PME–PME 0.14, PME–PLE 0.06, ALE–PLE 0.05; MOQ length 0.19, front width 0.23, back width 0.27. Chelicerae extending forward distance about two-fifths of carapace length, as in *G. mygaloides*. Leg spination: femora III, IV d1-0-0; tibiae:

III v2-2-2; IV v1-3-2. Epigynum with small posterior spermathecae and large membranous coiled anterior ducts.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from the Comoro Islands.

LEGENDRENA, NEW GENUS

TYPE SPECIES: *Legendrena angavokely*, new species.

ETYMOLOGY: The generic name is in honor of Professor Roland Legendre, in recognition of his contributions to our knowledge of gal-

lieniellids and other Malagasy spiders, and is feminine in gender.

DIAGNOSIS: The less elongate but porrect chelicerae of both sexes (figs. 33–36), as well as the bicolored and enlarged tibia I (fig. 37), the absence of spines on all tibiae, and the unscopulate tarsi, are diagnostic.

DESCRIPTION: Carapace bearing only short weak clypeal setae, without setae along edge of posterior declivity. Chelicerae only moderately elongated, even in males, porrect, bearing several pairs of long bristles anteriorly, proximal two-thirds flattened medially, bearing short laterally directed fang without tubercle. Endites smoothly narrowed opposite insertion of trochanters. Labium scarcely widened at base, length/width ratio variable. Sternum narrowly separating coxae IV, with scattered weak setae. Tibiae without spines. Femur, patella, and tibia I moderately to greatly enlarged, tibia I distinctly bicolored. Tarsi and distal halves of metatarsi without scopulae. Males with dorsal abdominal scutum. Male palpal tibia with only one apophysis. Bulb with inconspicuous subtegulum, proximal tegulum, distally originating triangular prolateral embolus, and elongate transluent functional conductor. Epigynum with anterolateral ledges.

NOTE: Males and females have not been collected together, are paired here primarily on the basis of similarities in coloration, and may therefore be mismatched, particularly as all four known species apparently occur within the environs of the Périnet railway station in eastern Madagascar.

***Legendrena angavokely*, new species**

Figures 33–36, 38–42

TYPE: Male holotype from Angavokely, Tananarive, Madagascar (February 21, 1967; R. Legendre), deposited in MNHN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by the long, distally narrowed tibial apophysis (figs. 38–40), females by the relatively short epigynal ducts (figs. 41, 42).

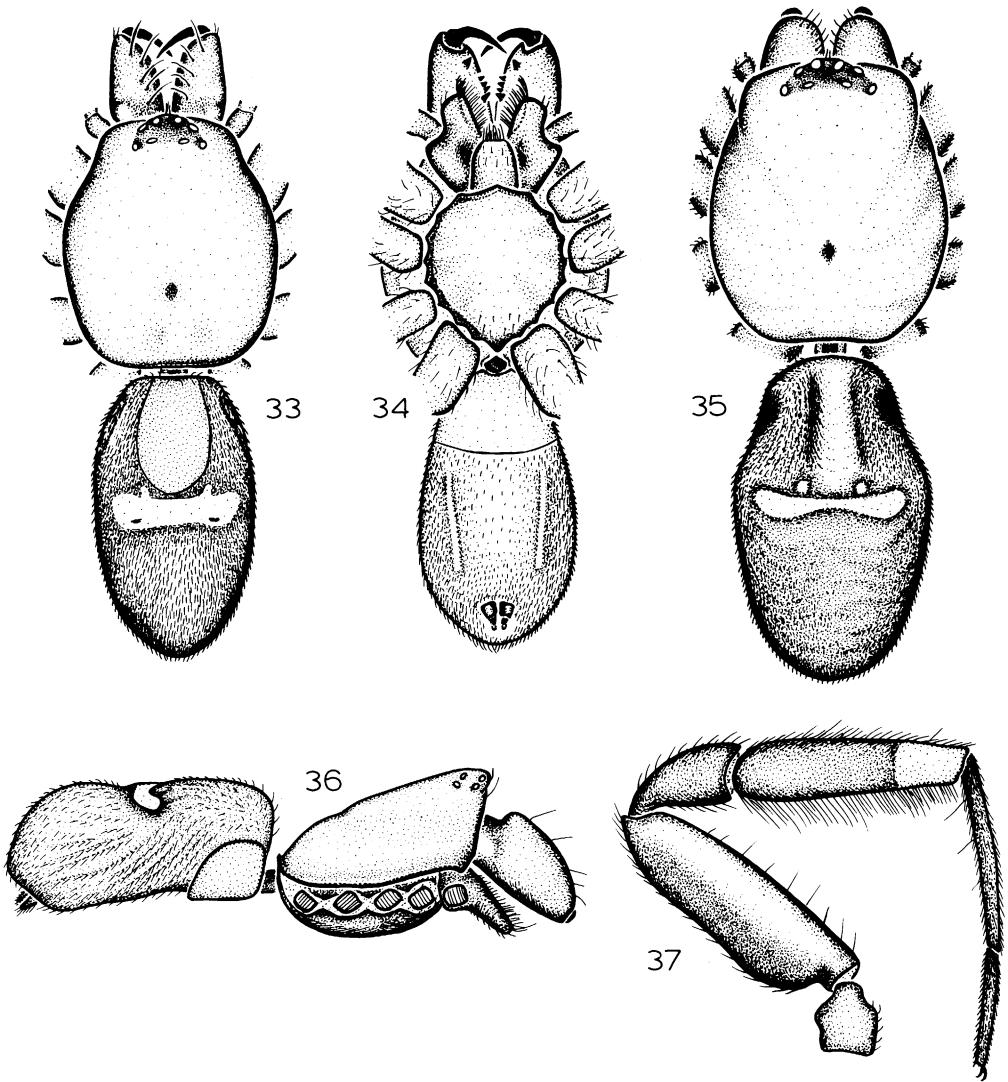
MALE: Total length, not including chelicerae, 2.99. Carapace 1.46 long, 1.19 wide, dark reddish brown. From above, both eye rows recurved; from front, anterior row

slightly recurved, posterior row very slightly procurved; eye sizes and interdistances: AME 0.05, ALE 0.06, PME 0.05, PLE 0.06; AME–AME 0.09, AME–ALE 0.02, PME–PME 0.12, PME–PLE 0.06, ALE–PLE 0.05; MOQ length 0.17, front width 0.19, back width 0.22. Clypeal height at AME only slightly greater than their diameter. Chelicerae extending forward distance about three-eighths of carapace length; promargin with three closely spaced teeth, of which middle tooth is largest, retromargin with two widely separated subequal teeth. Labium as long as wide. Leg spination (only surfaces bearing spines listed): femora I–IV d1-0-0. Legs light brown, femora with prolateral and retrolateral dark brown stripes, patella I and proximal two-thirds of tibia I dark brown. Abdomen dark gray except for narrow transverse white dorsal band at about half its length, with scattered iridescent scales and long dark setae; dorsal scutum extending almost half of abdominal length. Palpal tibia with single large distally narrowed dorsal apophysis; cymbium narrowed proximally (figs. 38–40).

FEMALE: As in male, except for the following. Total length, not including chelicerae, 3.06. Carapace 1.57 long, 1.18 wide. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.05, PLE 0.08; AME–AME 0.09, AME–ALE 0.02, PME–PME 0.12, PME–PLE 0.06, ALE–PLE 0.05; MOQ length 0.18, front width 0.19, back width 0.22. Chelicerae extending forward distance about one-tenth of carapace length. Labium slightly longer than wide. Leg spination: femora: I d1-0-0, p0-0-1; II–IV d1-0-0. Abdominal scutum absent. Palpal femur with dorsal distal spine, patella with prolateral proximal and dorsal distal spines, tibia with prolateral proximal and dorsal median and distal spines, tarsus with prolateral proximal spine. Epigynum with anterolateral ledges invaginated (to receive tip of tibial apophysis?), ducts relatively short (figs. 41, 42).

OTHER MATERIAL EXAMINED: MADAGASCAR: *Tamatave*: Forêt de Didy, Andranonandevy, bushes, Mar. 1947 (J. Millot, MNHN), 2♀; same data (AMNH), 2♀; Forêt d'Analamazaotra, near Périnet railway station, Feb. 1967 (R. Legendre, MNHN), 1♀.

DISTRIBUTION: Known only from central and eastern Madagascar.



FIGS. 33–37. 33–36. *Legendrena angavokely*, new species, cephalothorax and abdomen. 37. *L. rolandi*, new species, leg I. 33, 34, 36, 37. Male. 35. Female. 33, 35. Dorsal view. 34. Ventral view. 36, 37. Lateral view.

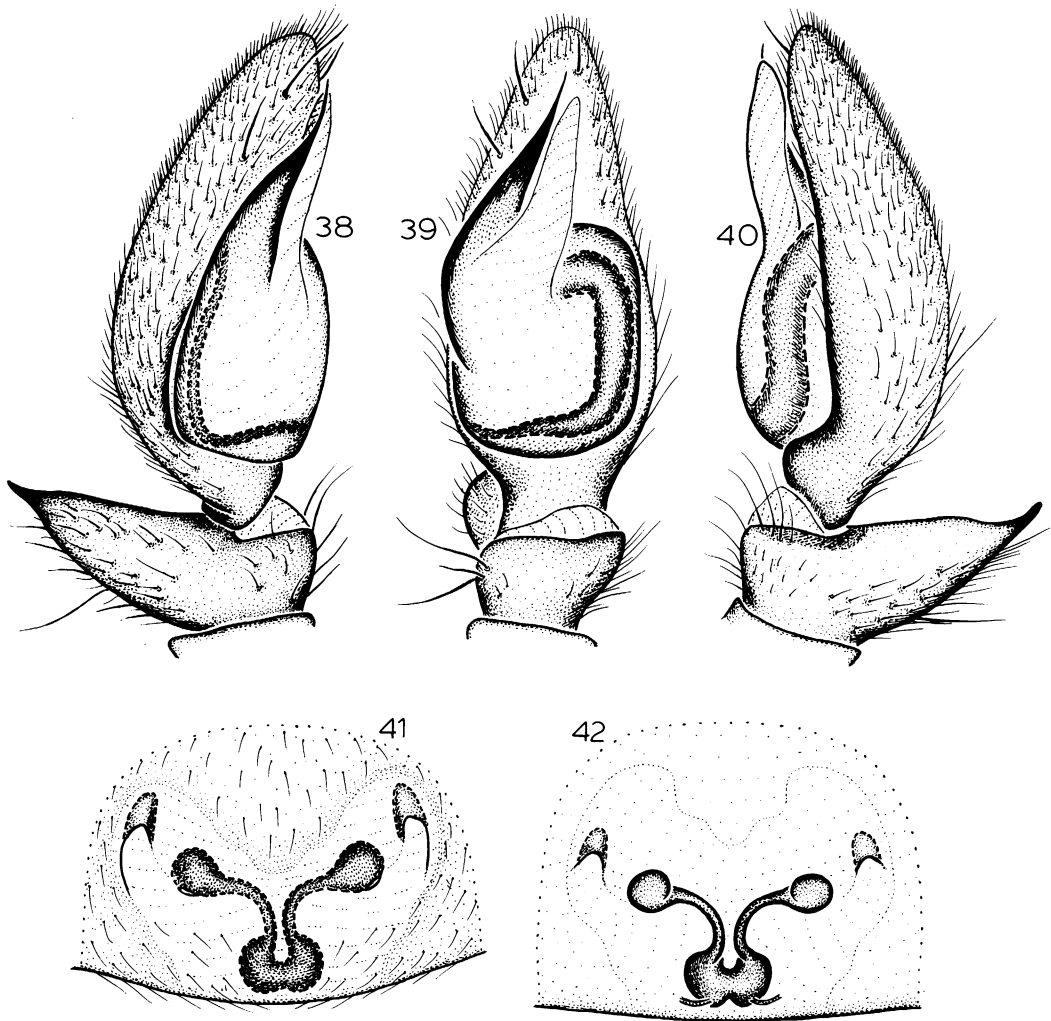
***Legendrena perinet*, new species**
 Figures 43–45

TYPE: Male holotype from the Forêt d'Analamazaotra, near the Périnet railway station, Tamatave, Madagascar (September 20, 1958; J. Lepointe), deposited in MNHN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by the expanded palpal tibia (figs. 43–45).

MALE: As in *L. angavokely*, except for the following. Total length, not including chelicerae, 3.71. Carapace 1.87 long, 1.55 wide, light reddish brown. From front, anterior eye row straight; eye sizes and interdistances: AME 0.06, ALE 0.10, PME 0.08, PLE 0.09; AME–AME 0.05, AME–ALE 0.02, PME–PME 0.12, PME–PLE 0.05, ALE–PLE 0.04; MOQ length 0.17, front width 0.18, back width 0.28. Clypeal height at AME twice their diameter. Chelicerae extending forward dis-



FIGS. 38–42. *Legendrena angavokely*, new species. 38. Palp, prolateral view. 39. Palp, ventral view. 40. Palp, retrolateral view. 41. Epigynum, ventral view. 42. Epigynum, dorsal view.

tance about two-sevenths of carapace length, distal one-third flattened laterally, where bordered by short setae on elevated bases. Labium longer than wide. Leg spination (leg IV missing): femora I–III d1-0-0. Only proximal half of tibia I dark brown; femur, patella, and tibia I only moderately enlarged. Dorsum of abdomen without white band, with only indistinct transverse band of white scales. Dorsal apophysis of palpal tibia apically hooked, segment expanded ventrally (figs. 43–45).

FEMALE: Unknown.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from eastern Madagascar.

Legendrena tamatave, new species

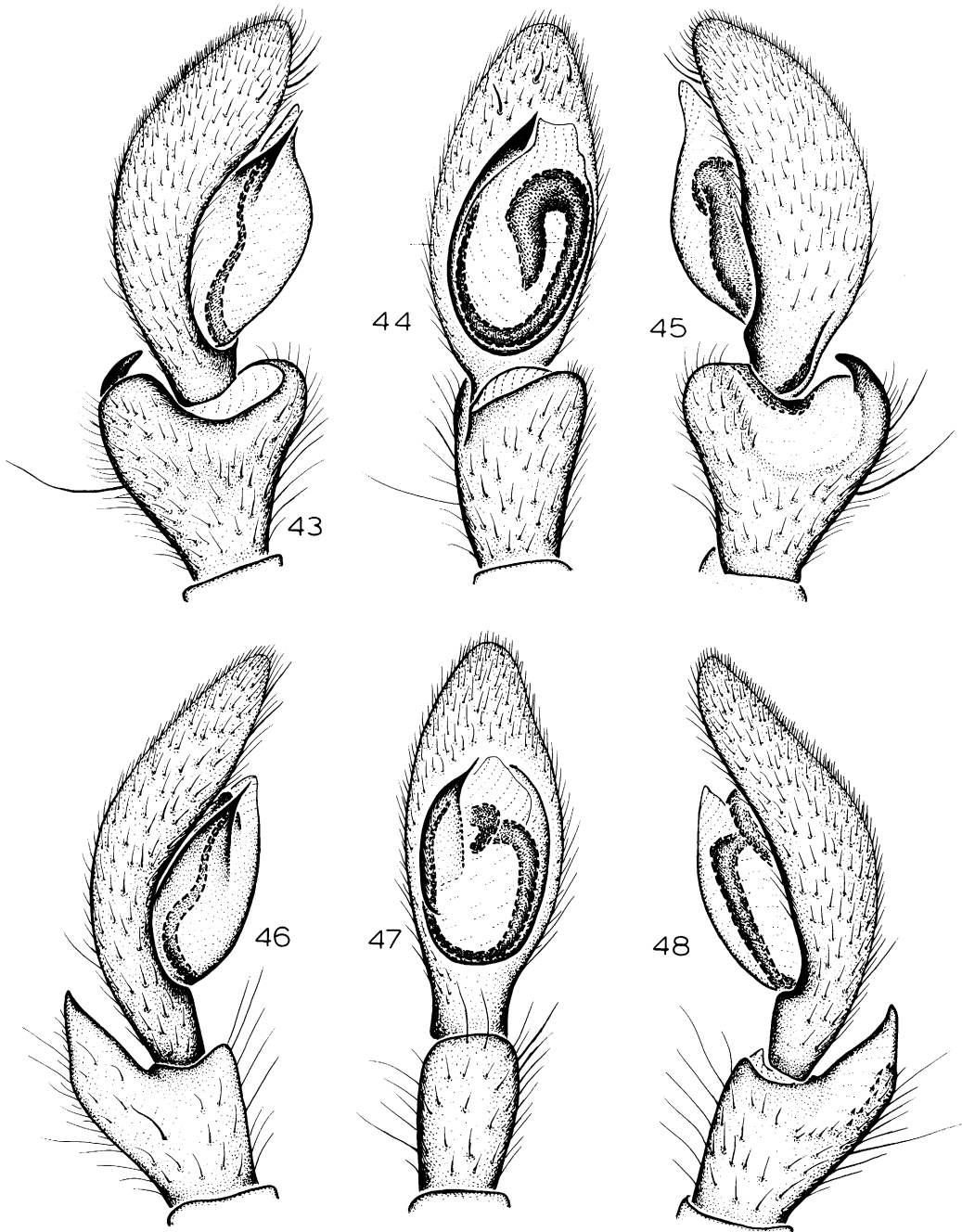
Figures 49–53

TYPE: Male holotype from the Forêt d'Analamazaotra, near the Périnet railway station, Tamatave, Madagascar (December 14, 1955; collector unknown), deposited in MNHN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by the basally hooked tibial apophysis (figs. 50, 51), females by the relatively long epigynal ducts (figs. 52, 53).

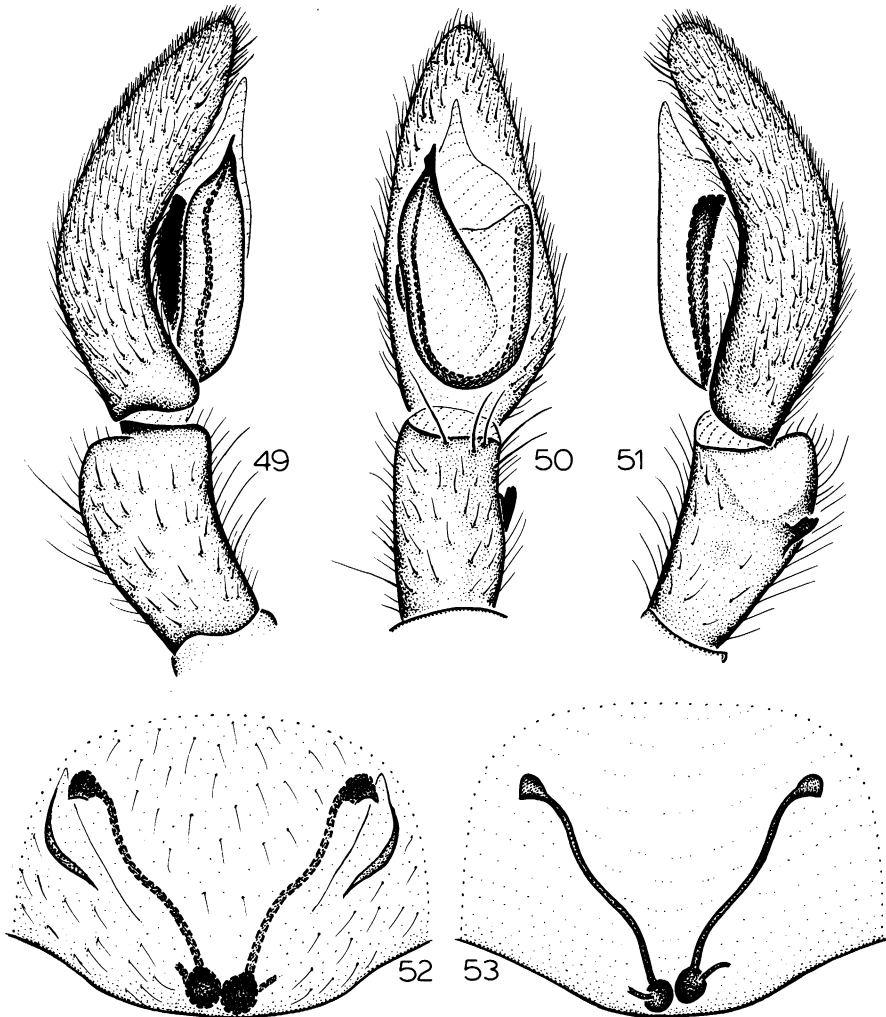
MALE: As in *L. angavokely*, except for the following. Total length, not including chelic-



FIGS. 43-48. 43-45. *Legendrena perinet*, new species. 46-48. *L. rolandi*, new species. 43, 46. Palp, prolateral view. 44, 47. Palp, ventral view. 45, 48. Palp, retrolateral view.

erae, 4.28. Carapace 2.14 long, 1.62 wide. From front, anterior eye row straight; eye sizes and interdistances: AME 0.05, ALE 0.09, PME 0.06, PLE 0.09; AME-AME 0.10, AME-ALE 0.04, PME-PME 0.19, PME-PLE

0.09, ALE-PLE 0.05; MOQ length 0.20, front width 0.13, back width 0.31. Clypeal height at AME twice their diameter. Chelicerae extending forward distance about one-third of carapace length, distal one-third flattened lat-



FIGS. 49-53. *Legendrena tamatave*, new species. 49. Palp, prolateral view. 50. Palp, ventral view. 51. Palp, retrolateral view. 52. Epigynum, ventral view. 53. Epigynum, dorsal view.

erally, where bordered by short setae on elevated bases. Labium longer than wide. Leg spination: femora III, IV d1-0-0. Transverse white band on abdominal dorsum interrupted at center. Palpal tibia with small basally hooked dorsal apophysis; cymbium greatly narrowed proximally, embolus apically hooked (figs. 49-51).

FEMALE: As in *L. angavokely*, except for the following. Total length, not including chelicerae, 3.47 (but abdomen shriveled). Carapace 1.92 long, 1.44 wide. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME

0.05, PLE 0.09; AME-AME 0.13, AME-ALE 0.04, PME-PME 0.17, PME-PLE 0.09, ALE-PLE 0.06; MOQ length 0.17, front width 0.22, back width 0.27. Clypeal height at AME 1.5 times their diameter. Chelicerae extending forward distance about one-sixth of carapace length. Labium wider than long. Leg spination as in *L. angavokely*. Transverse white band on abdominal dorsum interrupted at middle. Palpal tarsus with additional dorsal proximal spine. Epigynum with long lateral ledges and long ducts (figs. 52, 53).

OTHER MATERIAL EXAMINED: MADA-

GASCAR: *Tamatave:* Forêt d'Analamazaotra, near Périnet railway station, Feb. 1, 1958 (J. Lepointe, MNHN), 1♀.

DISTRIBUTION: Known only from eastern Madagascar.

***Legendrena rolandi*, new species**

Figures 37, 46–48

TYPE: Male holotype from the Forêt d'Analamazaotra, near the Périnet railway station, Tamatave, Madagascar (no date; R. Legendre), deposited in MNHN.

ETYMOLOGY: The specific name is a patronym in honor of the collector of the holotype.

DIAGNOSIS: Males can be recognized by the cusps on the palpal tibia (fig. 48).

MALE: As in *L. angavokely*, except for the following. Total length unknown (abdomen missing). Carapace 1.68 long, 1.40 wide. Eye sizes and interdistances: AME 0.05, ALE 0.09, PME 0.05, PLE 0.08; AME–AME 0.11, AME–ALE 0.03, PME–PME 0.16, PME–PLE 0.06, ALE–PLE 0.05; MOQ length 0.19, front width 0.21, back width 0.26. Clypeal height at AME almost twice their diameter. Chelicerae extending forward distance about two-sevenths of carapace length, distal one-third flattened laterally, where bordered by short setae on elevated bases. Labium longer than wide. Leg spination: femora: I d1-0-0, p0-0-1; II–IV d1-0-0. Patella and tibia I with ventral fringe of setae (fig. 37). Abdomen missing. Dorsal apophysis on palpal tibia bearing cusps retrolaterally (fig. 48).

FEMALE: Unknown.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from eastern Madagascar.

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