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of the Spider Genus *Trachelas* (Araneae, Clubionidae)
in North and Central America and the West Indies

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ABSTRACT

The *bispinosus* and *bicolor* groups of *Trachelas*, and the 29 species from North and Central America and the West Indies placed in them, are diagnosed and described. In both groups the male embolus is not a separate sclerite but merely the pointed tip of the tegulum, and the lateral ducts of the internal female genitalia are generally not folded anteriorly. As defined, the *bispinosus* group includes those species in which the male endites have lateral spurs and the *bicolor* group those species in which the male endites lack spurs. Insular evolution in the *bicolor* group and the use of the scanning electron microscope in studying genitalia are discussed. Fourteen new

species are described: *prominens* from Central America; *trifidus* from Panama; *digitus* and *planus* from Costa Rica; *parallelus* from Nicaragua; *rotundus* from Chiapas; *dilatatus* and *erectus* from Hispaniola; *tomaculus*, *oculus*, *contractus*, and *inclinatus* from Cuba; *giganteus* from Jamaica; and *triangulus* from the Canal Zone. The males of *borinquensis* Gertsch and *californicus* Banks and the female of *cadulus* Chickering are described for the first time. Four new synonymies are established: *domandus* Chickering with *mulcetus* Chickering, and *parvulus* Banks, *inornatus* (Banks), and *deceptus floridanus* (Chamberlin and Ivie), all with *deceptus* (Banks).

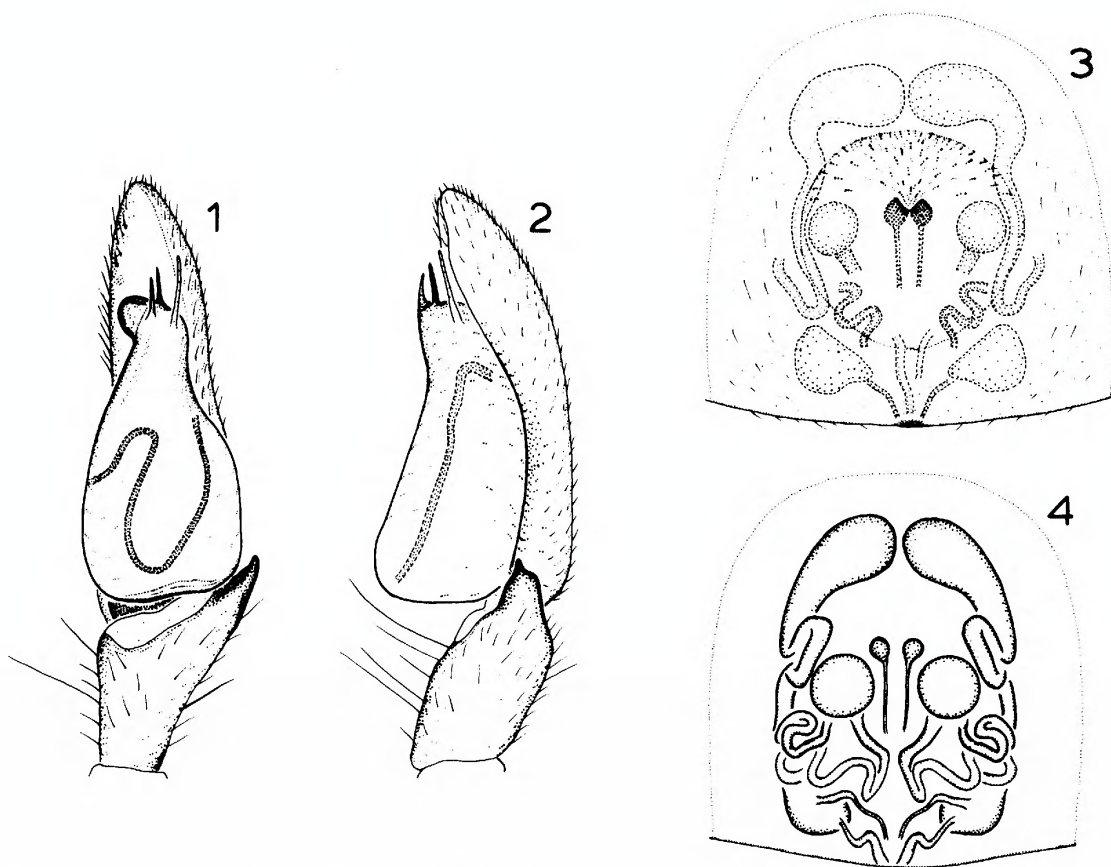
INTRODUCTION

The present paper, the second in a series on the tracheline genera of the spider family Cluibionidae, is concerned with the *bispinosus* and *bicolor* groups of *Trachelas*. Most of the species considered are from Central America and the larger islands of the West Indies, but two (*deceptus* and *californicus*) are common in North America. These two species were formerly placed in the genus *Meriola* Banks (1895), of which *deceptus* is the type species, but we have followed Simon (1897a) and most later authors in considering *Meriola* a synonym of *Trachelas*. Banks established *Meriola* on the basis of differences in the curvature of the posterior eye row, but *deceptus* is closer in this character to *minor* (the type species of *Trachelas*) than any of the other American species. Further, the genitalia of *deceptus* and *californicus* are similar to those of many species in the *bicolor* group that have always been placed in *Trachelas*.

The two species groups treated here are sister groups and seem to represent a line of evolution distinct from that of the *tranquillus* and *speciosus* groups (see Platnick and Shadab, 1974). In the *bispinosus* and *bicolor* groups the male embolus is not a separate sclerite but a distal continuation of the tegulum and the females generally lack the anteriorly folded lateral ducts typical of the *tranquillus* and *speciosus* groups. A few Jamaican species of the *bicolor* group have anteriorly folded lateral ducts, but their median ducts, unlike those of the *tranquillus* and *speciosus* groups, are uncoiled.

The *bispinosus* group contains those species whose males have unusual lateral spurs on the endites (fig. 43). These species have three or four retromarginal cheliceral teeth, and the median ducts of the female have characteristic basal enlargements (figs. 3, 4). Members of the group range from northern Mexico into South America. The *bicolor* group is somewhat heterogeneous but contains species without lateral spurs on the male endites, with usually only two retromarginal cheliceral teeth, and a generally simplified pattern of epigynal ducts. Members of the group apparently occur in Europe, Africa, and throughout the New World.

Chickering (1972) was the first to indicate the surprising richness of *Trachelas* species in the West Indies. Although the number of available specimens was small, especially when compared with the abundant collections of *Trachelas* from southern Central America, we recognize below four species on Cuba, four on Hispaniola, and five on Jamaica. All belong to the *bicolor* group, and only one (*tomaculus*, on Cuba and Hispaniola) occurs on more than one island. Each of the five Jamaican species is endemic, and their genitalia indicate that they are probably more closely related to each other than to species on other islands. They may be the descendants of a single successful colonization. Perhaps *Trachelas* were able to radiate into niches occupied on the mainland by other genera not present on Jamaica. The fact that the smallest (*bravidus*, body length 3-4 mm.) and the largest (*giganteus*, body length



FIGS. 1-4. *Trachelas bispinosus* F. O. P.-Cambridge. 1. Palp, ventral view. 2. Palp, retrolateral view. 3. Epigynum, ventral view. 4. Vulva, dorsal view.

12-15 mm.) species in the *bicolor* group occur on Jamaica seems to support this hypothesis.

Chickering (1972) was also the first to note the occurrence of transparent conductors on the palpi of some *Trachelas* species. These structures are found in all members of the *bispinosus* group and some species of the *bicolor* group. Because of their transparency, they are easily overlooked under the light microscope, and, in fact, details of their structure cannot be seen with that instrument. Scanning electron micrographs (figs. 33-36, 41) show that these sclerites are intricately developed and species-specific.

The format of the descriptions follows that of our earlier paper. The accumulation of additional data on leg cusp counts indicates that the direct correlation reported by Carmichael (1973) between leg segment length and spine counts in

Araneus also holds true for the leg cusps of *Trachelas*.

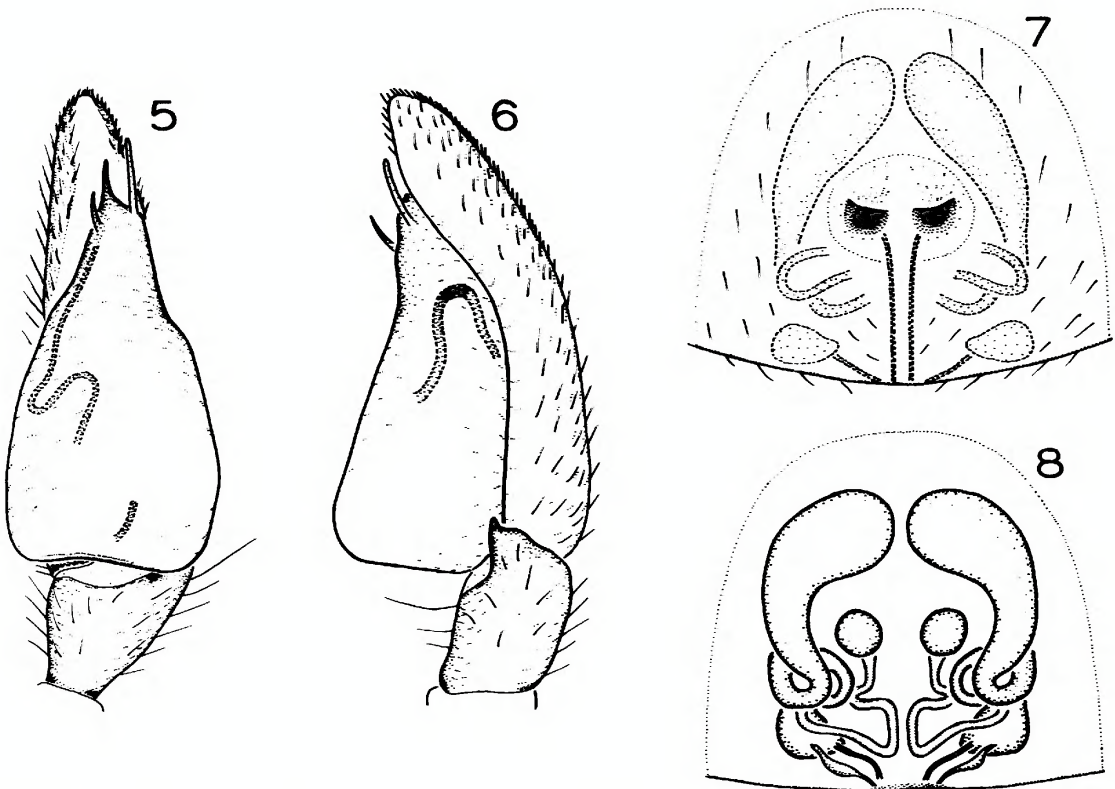
Specimens were obtained from Drs. J. A. Beatty; C. D. Dondale (Canadian National Collections); W. J. Gertsch; B. J. Kaston; H. W. Levi (Museum of Comparative Zoology, Harvard University); W. B. Peck; R. X. Schick (California Academy of Sciences); and H. V. Weems (Florida State Collection of Arthropods). Types were supplied by Dr. M. Grasshoff of the Natur-Museum und Forschungs-Institut Senckenberg, Dr. H. W. Levi, and Mr. F. Wanless of the British Museum (Natural History). Scanning electron micrographs were obtained with the assistance of Mr. R. J. Koestler of the American Museum of Natural History on a Cambridge Scientific Instruments Model S-4 purchased through a grant from the National Science Foundation.

THE *BISPINOSUS* GROUP

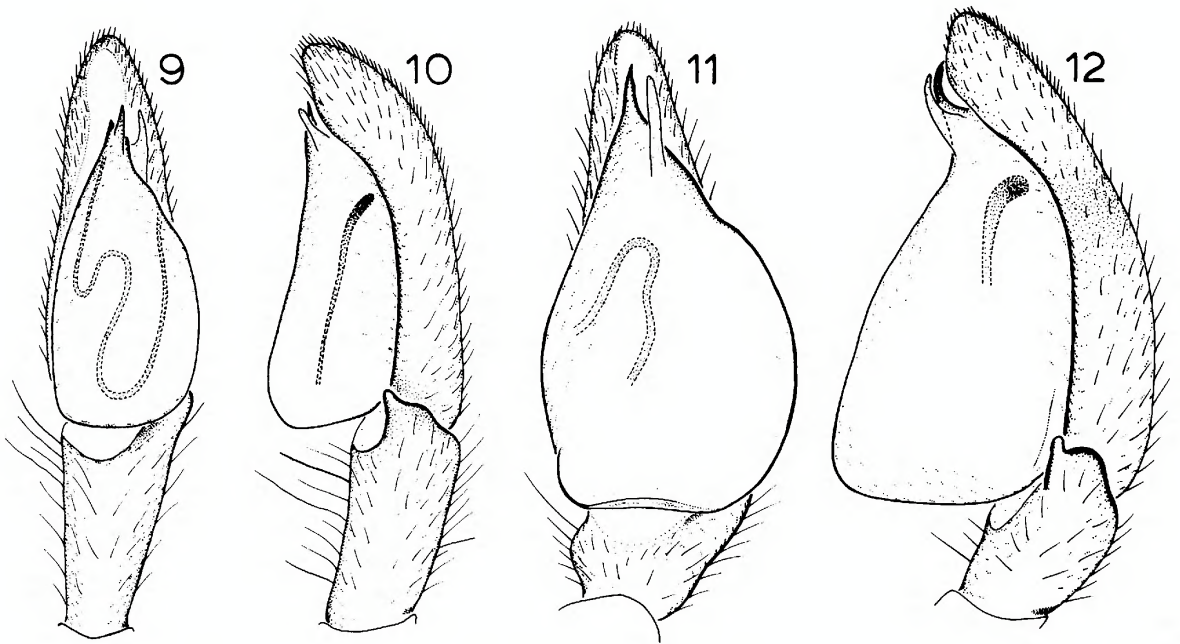
Diagnosis. The *bispinosus* group is closely related to the *bicolor* group; their species share the following characters: the embolus is not a separate sclerite but the distal tip of the tegulum, and the lateral ducts of the internal female genitalia are not anteriorly folded so that one loop lies directly dorsal to the other, or, if they are so folded, the median ducts are uncoiled. Species of the *bispinosus* group may be distinguished by the lateral spurs on the male endites (fig. 43), the basal enlargements of the median ducts of the female (figs. 3, 4), and the presence of three or four, rather than two, retromarginal cheliceral teeth. A few specimens of *bicolor* group species with three rather than two retromarginal teeth were detected; these are presumably aberrants.

Description. Total length 2.4-7.5 mm. Carapace oval in dorsal view, widest at coxae II, with

ocular area abruptly narrowed, dark reddish brown anteriorly, lighter posteriorly, tuberculate, with translucent border recurved anteriorly along posterior margin. Cephalic area gradually elevated; thoracic groove longitudinal. From front, anterior eye row procurved, posterior row recurved. All eyes circular, subequal in size; those of anterior row separated by less than their diameter, posterior medians separated by one and one-half times their diameter, by twice their diameter from posterior laterals. Median ocular quadrangle wider in back than in front, wider than long. Clypeal height equal to anterior median eye diameter. Chelicerae reddish brown, bowed apart with wide median concavity in males, with three or four retromarginal and three promarginal teeth. Endites dark orange, deeply depressed along labium, with anterolateral spurs (fig. 43). Labium dark orange with broad tip and pronounced posterolateral corners. Sternum dark



FIGS. 5-8. *Trachelas prominens*, new species. 5. Palp, ventral view. 6. Palp, retrolateral view. 7. Epigynum, ventral view. 8. Vulva, dorsal view.



FIGS. 9, 10. *Trachelas truncatulus* F. O. P.-Cambridge. 9. Palp, ventral view. 10. Palp, retrolateral view.

FIGS. 11, 12. *Trachelas rotundus*, new species. 11. Palp, ventral view. 12. Palp, retrolateral view.

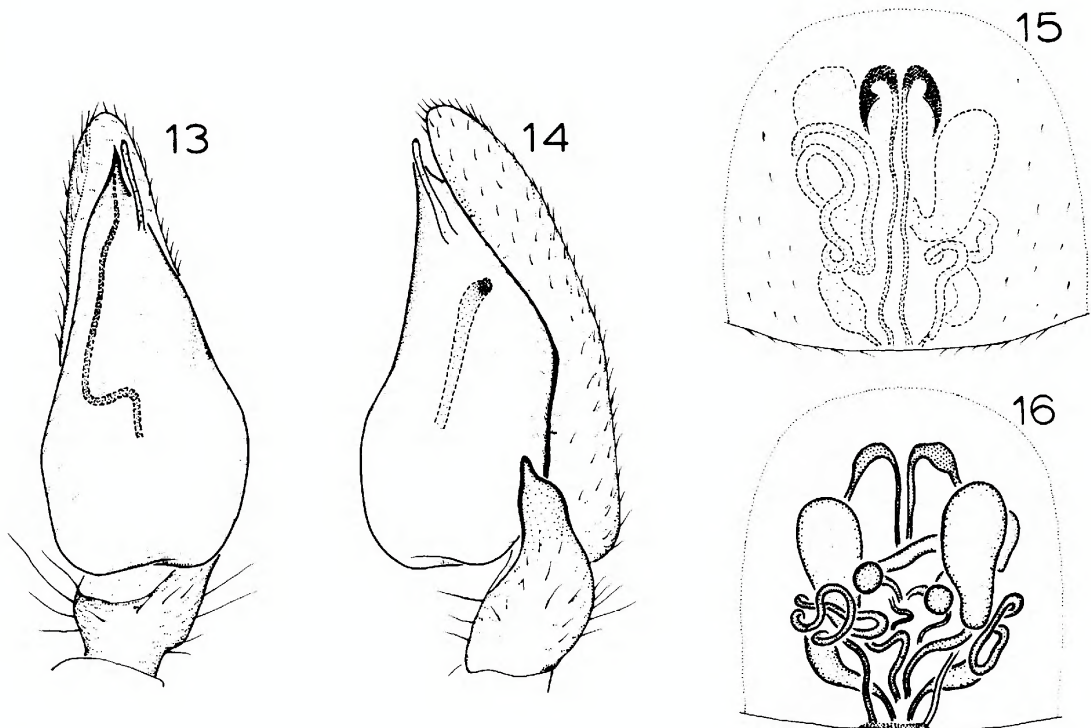
orange, strongly rebordered, not prolonged between coxae IV, finely tuberculate, with deep emarginations opposite coxae. Leg formula 1423, leg I enlarged, dark orange; others normal, light orange with distal segments darkest. All legs devoid of spines, with light scopulae of feathery setae under tarsi and metatarsi; patellae divided retrolaterally. Femora and tibiae with many trichobothria in dorsal and ventral rows. Tibiae, metatarsi, and often patellae and tarsi I and II with black cusps ventrally, at least in males. Tibiae III with prolateral series of large tubercles (as in fig. 42). Tarsi with two dentate claws and claw tufts. Abdomen pale white with dark cardiac mark and four dorsal muscle impressions. Male with light orange dorsal scutum covering most of dorsum. Venter of abdomen with four longitudinal rows of circular sclerotizations. Six spinnerets, medians tiny; no colulus. Female palp with claw. Male palp with large retrolateral tibial apophysis, bulbous tegulum with discernible curving duct, transparent conductor, short embolus, and sometimes spine-like terminal apophysis (figs. 1, 2, 33). Epigynum with small paired

openings (fig. 3). Internal female genitalia with enlarged lateral ducts, and small median ducts and spermathecae; median ducts with basal enlargements (fig. 4). Female genitalia often asymmetrical.

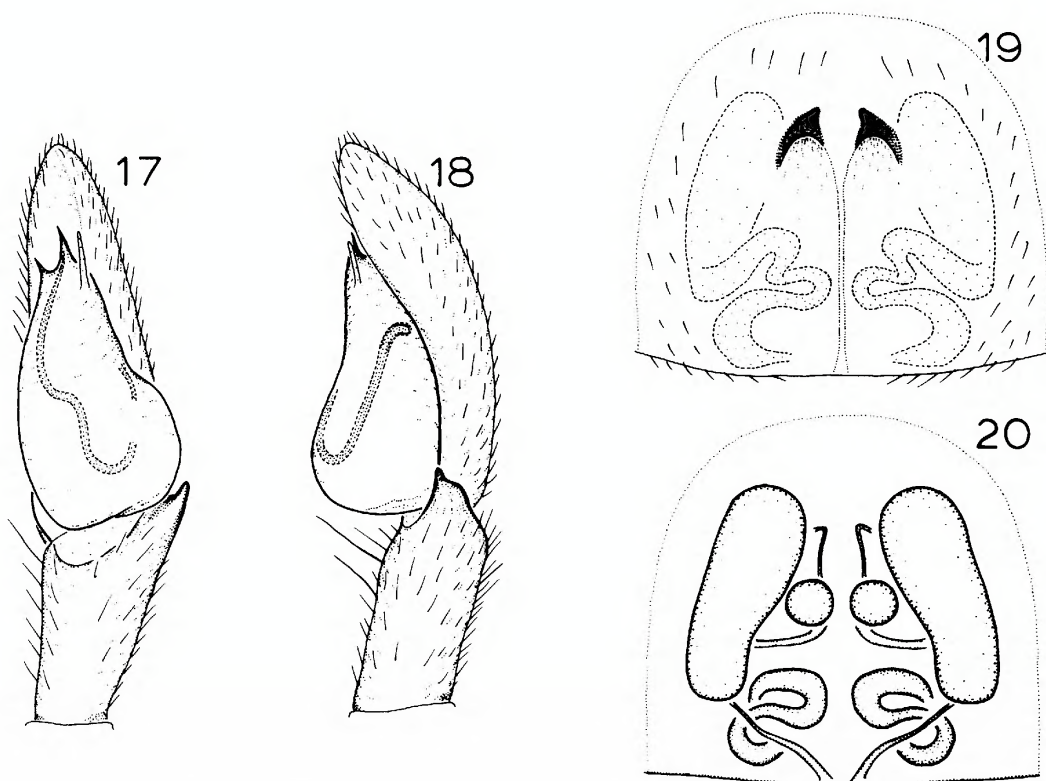
KEY TO SPECIES OF THE
BISPINOSUS GROUP
IN NORTH AND CENTRAL AMERICA

1. Males 2
Females 10
2. Palp with elongate terminal apophysis in addition to embolus and conductor (figs. 1, 5, 17, 29) 3
Palp without terminal apophysis or with short, blunt terminal apophysis (figs. 9, 11, 13, 21, 25) 6
3. Tip of terminal apophysis almost reaching tip of embolus (figs. 1, 29) 4
Tip of terminal apophysis not near tip of embolus (figs. 5, 17) 5
4. Tip of tegulum with pronounced prolateral flange (figs. 1, 33) *bispinosus*
Tip of tegulum without pronounced prolateral flange (fig. 29) *parallelus*

- 5. Embolus and terminal apophysis approximate (figs. 5, 34) *prominens*
 Embolus and terminal apophysis widely separated (figs. 17, 36) *trifidus*
 - 6. Conductor bent; terminal apophysis short, blunt (figs. 21, 25) 7
 Conductor straight; terminal apophysis absent (figs. 9, 11, 13) 8
 - 7. Embolus short, hidden by conductor (fig. 21) *digitus*
 Embolus long, extending beyond conductor (fig. 25) *planus*
 - 8. Embolus at tip of bulb (figs. 11, 13) 9
 Embolus slightly below tip of bulb (fig. 9) *truncatulus*
 - 9. Conductor thin (figs. 13, 35); retrolateral tibial apophysis long (fig. 14) *ecudobus*
 Conductor thick (fig. 11); retrolateral tibial apophysis short (fig. 12) *rotundus*
 - 10. Epigynal openings widely separated (figs. 27, 31) 11
 Epigynal openings approximate (figs. 3, 7, 15, 19, 23) 12
 - 11. Lateral ducts long, extending beyond epigynal openings (fig. 27) *planus*
 Lateral ducts short, not extending beyond epigynal openings (fig. 31) *parallelus*
 - 12. Epigynal openings situated anteriorly (figs. 15, 19) 13
 Epigynal openings situated medially (figs. 3, 7, 23) 14
 - 13. Median ducts with few coils (fig. 20) *trifidus*
 Median ducts with many coils (fig. 16) *ecudobus*
 - 14. Anterior portion of lateral ducts straight (fig. 24) *digitus*
 Anterior portion of lateral ducts curved (figs. 4, 8) 15
 - 15. Epigynal depression relatively large, epigynal openings relatively small (fig. 3) *bispinosus*
 Epigynal depression relatively small, epigynal openings relatively large (fig. 7) *prominens*
- Trachelas bispinosus* F. O. P.-Cambridge
 Figures 1-4, 33
- Trachelas bispinosus* F. O. P.-Cambridge, 1899,



FIGS. 13-16. *Trachelas ecudobus* Chickering. 13. Palp, ventral view. 14. Palp, retrolateral view. 15. Epigynum, ventral view. 16. Vulva, dorsal view.



FIGS. 17-20. *Trachelas trifidus*, new species. 17. Palp, ventral view. 18. Palp, retrolateral view. 19. Epigynum, ventral view. 20. Vulva, dorsal view.

p. 79, pl. 6, figs. 7, 8 (male holotype and six female paratypes from Bugaba, Panama, in the British Museum [Natural History], examined). Roewer, 1954, p. 587. Bonnet, 1959, p. 4667. *Trachelas quadridens* (misidentification): Kraus, 1955, p. 45, fig. 121 (female only).

Diagnosis. *Trachelas bispinosus* is closest to *prominens* but may be distinguished by the prolateral flange at the tip of the bulb (figs. 1, 33) and the large epigynal depression (fig. 3).

Male. Total length 4.88 ± 0.79 mm. Carapace 2.45 ± 0.28 mm. long, 1.83 ± 0.21 mm. wide. Femur I 1.87 ± 0.24 mm. long (21 specimens examined). Palp with pronounced prolateral flange at distal tip, elongate conductor and spine-like terminal apophysis (figs. 1, 2, 33). Leg cusps: tibia I 14-21, II 8-16; metatarsus I 14-28, II 5-14; tarsus I 4-12, II 0-3.

Female. Total length 5.63 ± 0.51 mm. Carapace 2.48 ± 0.18 mm. long, 1.83 ± 0.15 mm. wide. Femur I 1.92 ± 0.20 mm. long (16 specimens examined). Epigynum with small openings and

large median depression; coiling of ducts variable (figs. 3, 4). Leg cusps absent.

Localities. Mexico: Oaxaca: Palomares. Guatemala: Tukurú. Costa Rica: Turrialba. Panama: Boquete; Bugaba; El Valle. Canal Zone: Barro Colorado Island; Madden Dam. Trinidad: Simla.

Distribution. Oaxaca south to Panama and Trinidad.

***Trachelas prominens*, new species**
Figures 5-8, 34, 43

Types. Male holotype and female paratype from Madden Dam, Panama Canal Zone (February 12, 1958; A. M. Chickering), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *prominens* (projection) and refers to the projecting terminal sclerites of the palpus.

Diagnosis. *Trachelas prominens* is closest to *bispinosus* but may be distinguished by the absence of a prolateral flange at the tip of the bulb

(figs. 5, 34) and the small epigynal depression (fig. 7).

Male. Total length 4.26 ± 0.45 mm. Carapace 2.21 ± 0.25 mm. long, 1.57 ± 0.17 mm. wide. Femur I 1.70 ± 0.19 mm. long (65 specimens examined). Palp with elongate conductor and short terminal apophysis (figs. 5, 6, 34). Leg cusps: tibia I 9-23, II 4-21; metatarsus I 10-36, II 1-21; tarsus I 4-18, II 0-8.

Female. Total length 4.89 ± 0.42 mm. Carapace 2.23 ± 0.12 mm. long, 1.59 ± 0.14 mm. wide. Femur I 1.75 ± 0.11 mm. long (58 specimens examined). Epigynum with large openings and small median depression (figs. 7, 8). Leg cusps: tibia I 0, II 0; metatarsus I 1-7, II 0; tarsus I 1-5, II 0.

Localities. **Mexico:** San Luis Potosí: Valles. **Guatemala:** Uaxactún. **Nicaragua:** Musawas,

Huaspuc River. **Costa Rica:** Monte Verde. **Panama:** Arraiján; Boquete; El Valle. **Canal Zone:** Balboa; Barro Colorado Island; Chilibre; Chiva Chiva; Cocoli; Farfan; Forest Preserve; Madden Dam; Summit Gardens.

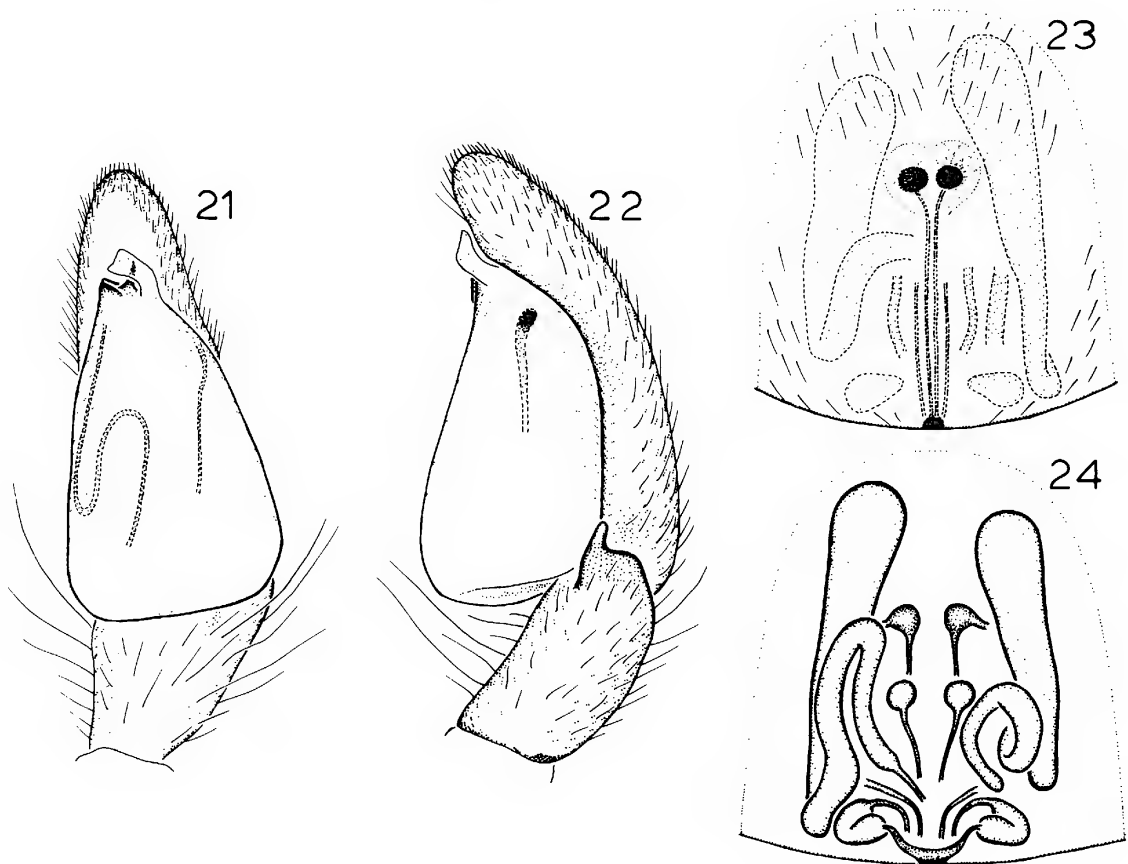
Distribution. San Luis Potosí south to Panama.

Trachelas truncatulus F. O. P.-Cambridge

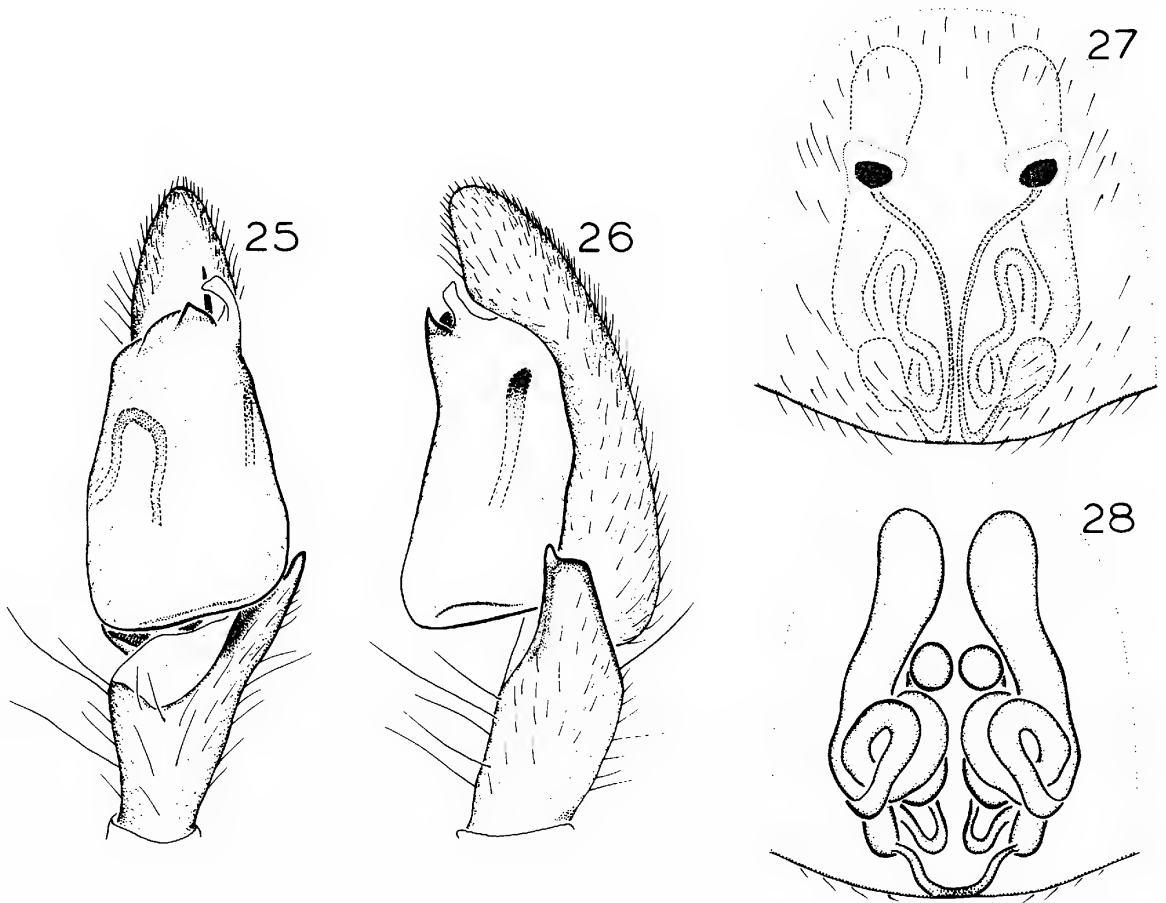
Figures 9, 10

Trachelas truncatulus F. O. P.-Cambridge, 1899, p. 79, pl. 6, fig. 9 (male holotype and male paratype from Frontera, Tabasco, Mexico, in the British Museum [Natural History], examined). Roewer, 1954, p. 589. Bonnet, 1959, p. 4671.

Diagnosis. *Trachelas truncatulus* is a distinc-



FIGS. 21-24. *Trachelas digitus*, new species. 21. Palp, ventral view. 22. Palp, retrolateral view. 23. Epigynum, ventral view. 24. Vulva, dorsal view.



FIGS. 25-28. *Trachelas planus*, new species. 25. Palp, ventral view. 26. Palp, retrolateral view. 27. Epigynum, ventral view. 28. Vulva, dorsal view.

tive species easily recognizable by the widened conductor and the embolus originating slightly below the tip of the bulb (figs. 9, 10).

Male. Total length 5.51, 6.16 mm. Carapace 2.80, 3.20 mm. long, 1.91, 2.34 mm. wide. Femur I 1.98, 2.52 mm. long (two specimens). Palp with widened conductor, embolus originating slightly below tip of bulb, and doubly looped duct (figs. 9, 10). Leg cusps: tibia I 12-25, II 2-8; metatarsus I 14-30, II 4; tarsus I 12-19, II 0.

Female. Unknown.

Localities and Distribution. Known only from the type specimens from Tabasco, Mexico.

***Trachelas rotundus*, new species**

Figures 11, 12

Type. Male holotype from a pine-oak forest 5 miles west of San Cristóbal de las Casas, latitude

16° 45' N, longitude 92° 41' W, Chiapas, Mexico (August 24, 1966; Jean and Wilton Ivie), deposited in the American Museum of Natural History.

Etymology. The specific name is from the Latin *rotundus* (circular) and refers to the shape of the tegulum.

Diagnosis. *Trachelas rotundus* is closest to *ecudobus* but may be distinguished by the proximally expanded tegulum (figs. 11, 12) and its larger size.

Male. Total length 5.58 mm. Carapace 3.01 mm. long, 2.20 mm. wide. Femur I 2.19 mm. long (holotype). Palp with proximally expanded tegulum, long embolus, and wide conductor (figs. 11, 12). Leg cusps: tibia I 18-22, II 15; metatarsus I 17, II 9 or 10; tarsus I 7-11, II 3.

Female. Unknown.

Localities and Distribution. Known only from the type specimen from Chiapas, Mexico.

Trachelas eudobus Chickering

Figures 13-16, 35

Trachelas eudobus Chickering, 1972, p. 222, figs. 14-19 (male holotype and female paratype from St. Augustine, Trinidad, in the Museum of Comparative Zoology, examined).

Diagnosis. *Trachelas eudobus* is closest to *rotundus* but may be distinguished by the much narrower tegulum (figs. 13, 14), the anterior epigynal openings (fig. 15), and its smaller size.

Male. Total length 2.63±0.11 mm. Carapace 1.34±0.09 mm. long, 0.93±0.05 mm. wide. Femur I 0.89±0.05 mm. long (75 specimens examined). Palp with sharply pointed embolus and long conductor (figs. 13, 14, 35). Leg cusps: tibia I 6-10, II 5-7; metatarsus I 3-7, II 0-3; tarsus I 0, II 0.

Female. Total length 3.05±0.15 mm. Carapace 1.45±0.07 mm. long, 0.99±0.02 mm. wide.

Femur I 0.97±0.04 mm. long (73 specimens examined). Epigynum with anterior openings and long median ducts (figs. 15, 16). Leg cusps absent.

Localities. **Panama:** Arraiján. **Canal Zone:** Barro Colorado Island; Cocoli; Corozal; Forest Preserve; Gamboa; Madden Dam; Paraíso; Pedro Miguel; Summit Gardens. **Trinidad:** St. Augustine.

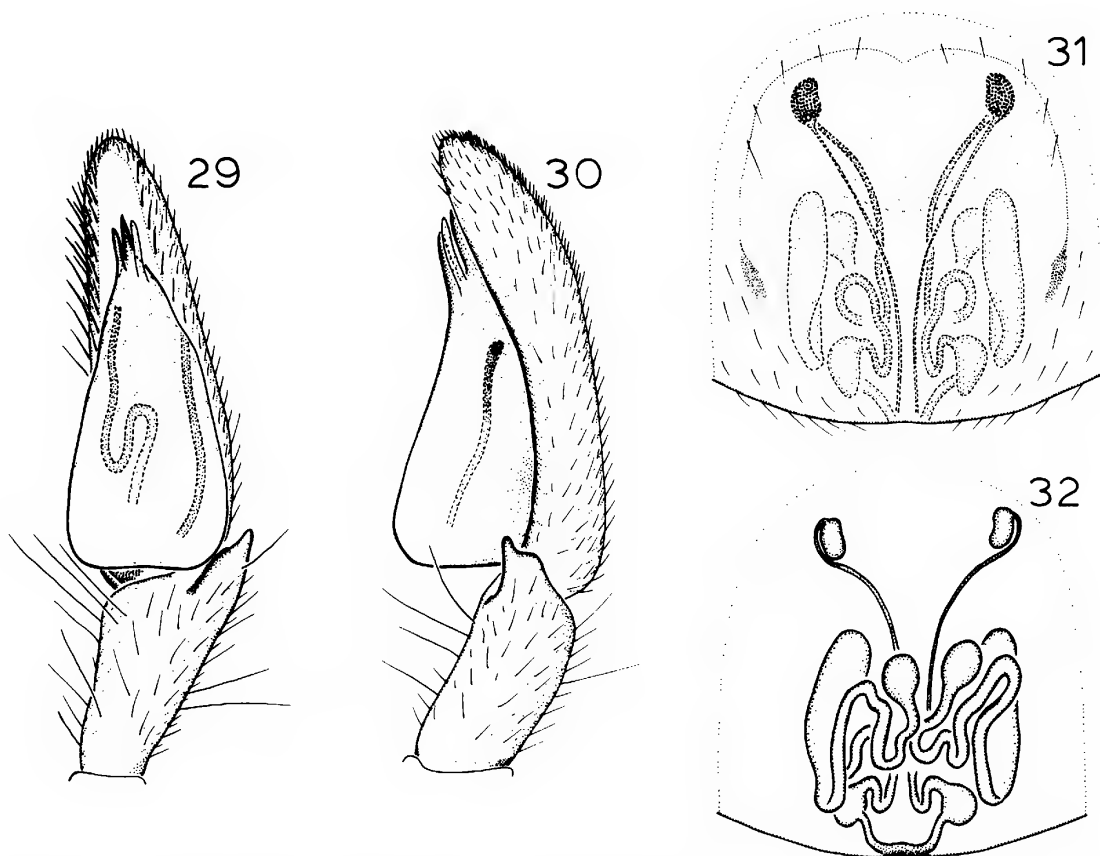
Distribution. Panama and Trinidad.

Trachelas trifidus, new species

Figures 17-20, 36

Types. Male holotype and female paratype from Summit Gardens, Panama Canal Zone (July 13, 1954; A. M. Chickering), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *trifidus* (three-forked) and refers to the arrangement of the terminal sclerites of the palp.



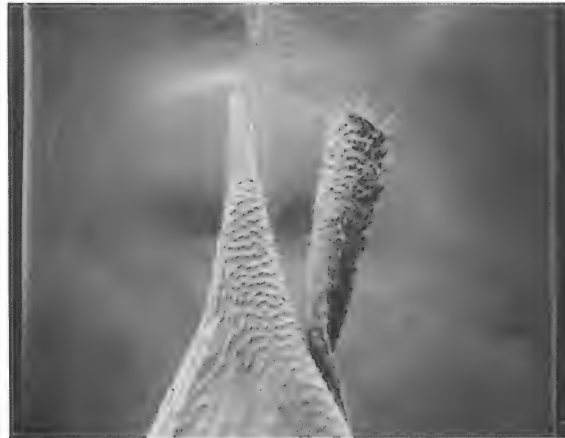
FIGS. 29-32. *Trachelas parallelus*, new species. 29. Palp, ventral view. 30. Palp, retrolateral view. 31. Epigynum, ventral view. 32. Vulva, dorsal view.



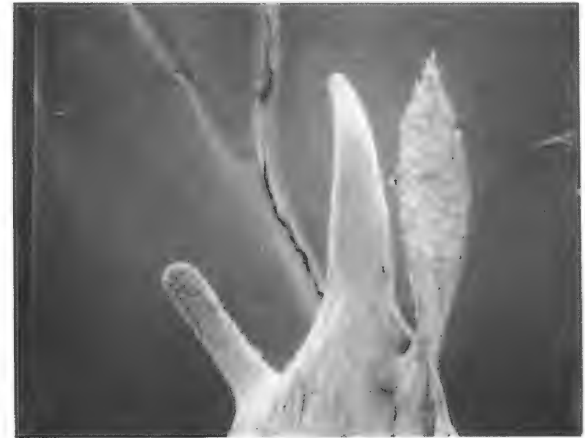
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34



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36

FIGS. 33-36. Embolar regions of palpi, scanning electron micrographs. 33. *Trachelas bispinosus* F. O. P.-Cambridge, 480X. 34. *T. prominens*, new species, 1100X. 35. *T. eudobus* Chickering, 620X. 36. *T. trifidus*, new species, 850X.

Diagnosis. *Trachelas trifidus* is a distinctive species easily recognizable by the acutely angled terminal apophysis (figs. 17, 36) and the anterior openings and simplified coiling of the median ducts of the female epigynum (figs. 19, 20).

Male. Total length 4.09-5.11 mm. Carapace 2.15-2.74 mm. long, 1.66-2.03 mm. wide. Femur I 1.62-2.09 mm. long (three specimens). Palp with acutely angled terminal apophysis and narrow retrolateral tibial apophysis (figs. 17, 18, 36). Leg cusps: tibia I 18-26, II 10-14; metatarsus I 14-28, II 8-16; tarsus I 7-14, II 0-4.

Female. Total length 5.26-6.37 mm. Carapace 2.45-2.95 mm. long, 1.91-2.20 mm. wide. Femur

I 1.91-2.20 mm. long (five specimens). Epigynum with anterior hoodlike openings (figs. 19, 20). Leg cusps: tibia I 0, II 0; metatarsus I 2-15, II 0-6; tarsus I 2-14, II 0-4.

Localities. Panama Canal Zone: Madden Dam; Summit Gardens.

Distribution. Canal Zone.

***Trachelas digitus*, new species**
Figures 21-24

Trachelas bispinosus (misidentification): Banks, 1909, p. 197 (in part).

Types. Male holotype and female paratype

from Santa María, Dota Mountains, Costa Rica (no date; Biolley and Tristian), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *digitus* (finger) and refers to the shape of the retrolateral tibial apophysis.

Diagnosis. *Trachelas digitus* is closest to *planus* but may be distinguished by the shorter embolus (fig. 21) and the closely spaced epigynal openings (fig. 23).

Male. Total length 5.18 mm. Carapace 2.81 mm. long, 2.27 mm. wide. Femur I 2.48 mm. long (holotype). Palp with bent conductor covering embolus ventrally (figs. 21, 22). Leg cusps:

tibia I 19 or 20, II 14 or 15; metatarsus I 20 or 21, II 13-15; tarsus I 9-12, II 4 or 5.

Female. Total length 7.31 mm. Carapace 3.20 mm. long, 2.45 mm. wide. Femur I 2.70 mm. long (paratype). Epigynum with closely spaced openings and elongate lateral ducts (figs. 23, 24). Leg cusps absent.

Localities and Distribution. Known only from the type specimens from Costa Rica.

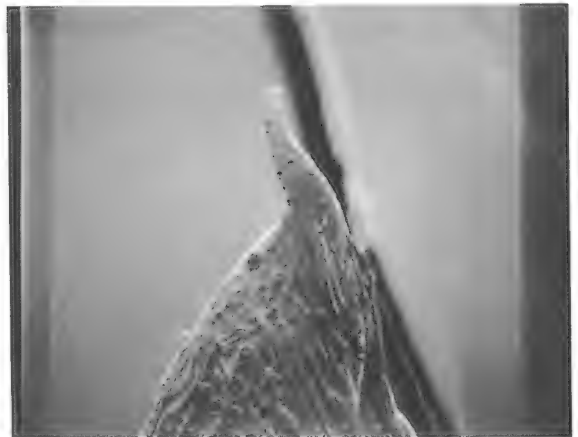
***Trachelas planus*, new species**

Figures 25-28

Types. Male holotype and female paratype



37



38



39



40

FIGS. 37-40. Embolar regions of palpi, scanning electron micrographs. 37. *Trachelas panamanus* Chickering, 600X. 38. *T. triangulus*, new species, 600X. 39. *T. deceptus* (Banks), 1900X. 40. *T. californicus* Banks, 485X.



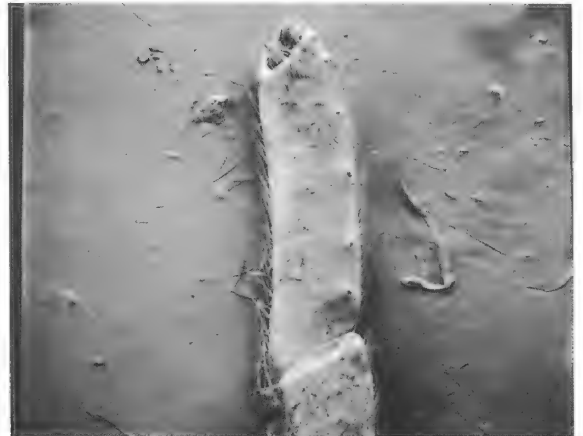
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42



43



44

FIGS. 41-44. Scanning electron micrographs. 41. *Trachelas barroanus* Chamberlin, embolar region of palp, 620X. 42. *T. barroanus*, tibia III, prolateral view, 120X. 43. *T. prominens*, new species, male endites, 125X. 44. *T. panamanus* Chickering, tibia III, prolateral view, 64X.

from Turrialba, Costa Rica (August, 1965; A. M. Chickering), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *planus* (flat) and refers to the shape of the tip of the palpal bulb.

Diagnosis. *Trachelas planus* is closest to *digitus* but may be distinguished by the longer embolus (fig. 25) and the widely spaced epigynal openings (fig. 27).

Male. Total length 7.09 mm. Carapace 3.76 mm. long, 2.36 mm. wide. Femur I 2.66 mm. long (holotype). Palp with bent conductor only partially shielding long embolus (figs. 25, 26). Leg

cusps: tibia I 30, II 26; metatarsus I 41-43, II 19; tarsus I 10-12, II 2.

Female. Total length 7.20, 7.45 mm. Carapace 3.06, 3.28 mm. long, 2.08, 2.23 mm. wide. Femur I 2.52, 2.59 mm. long (two specimens). Epigynum with widely spaced openings and elongate lateral ducts (figs. 27, 28). Leg cusps absent.

Localities and Distribution. Known only from the type locality in Costa Rica.

***Trachelas parallelus*, new species**

Figures 29-32

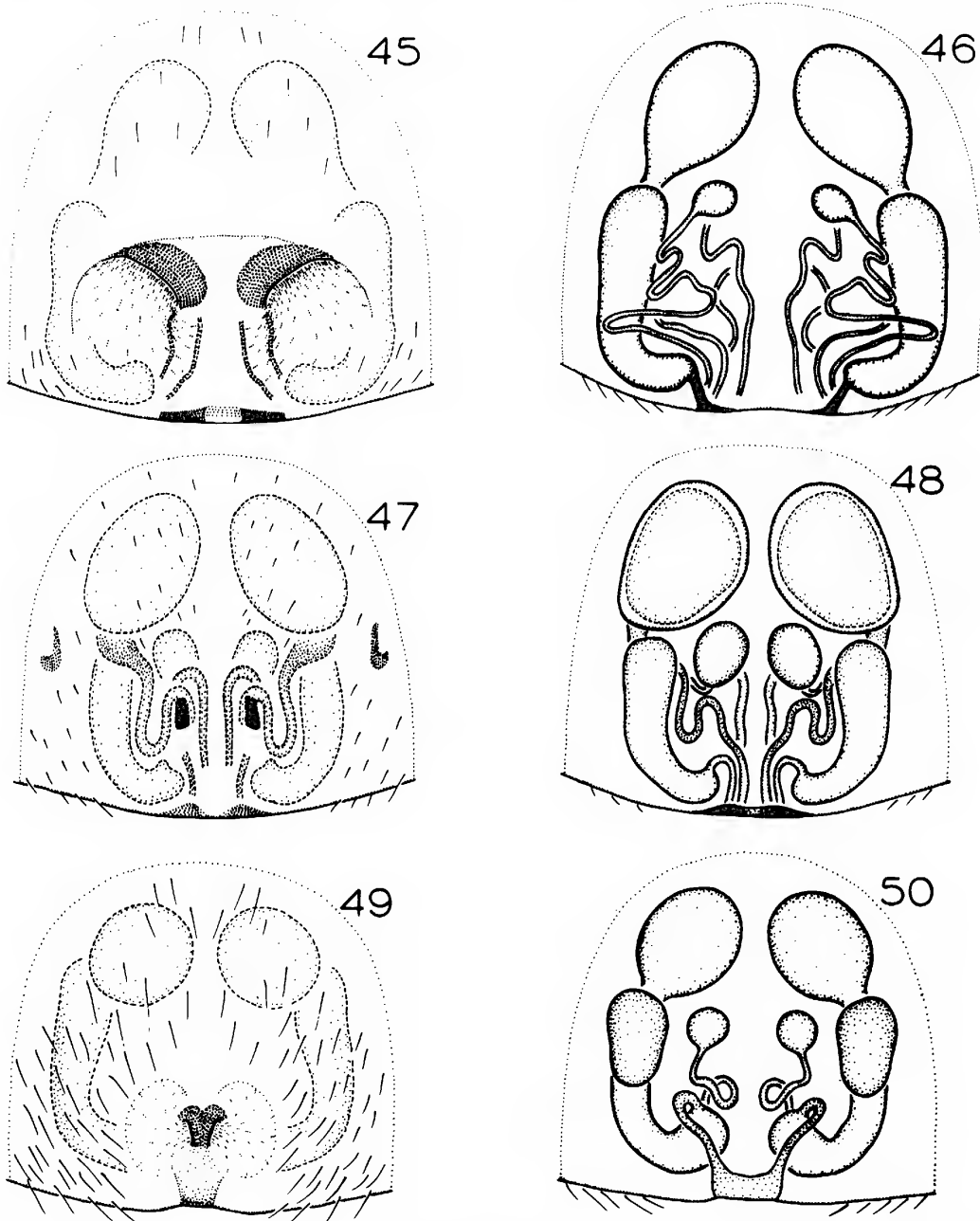
Types. Male holotype and female paratype

from Musawas, Huaspuc River, Nicaragua (October 10-31, 1955; B. Malkin), deposited in the American Museum of Natural History.

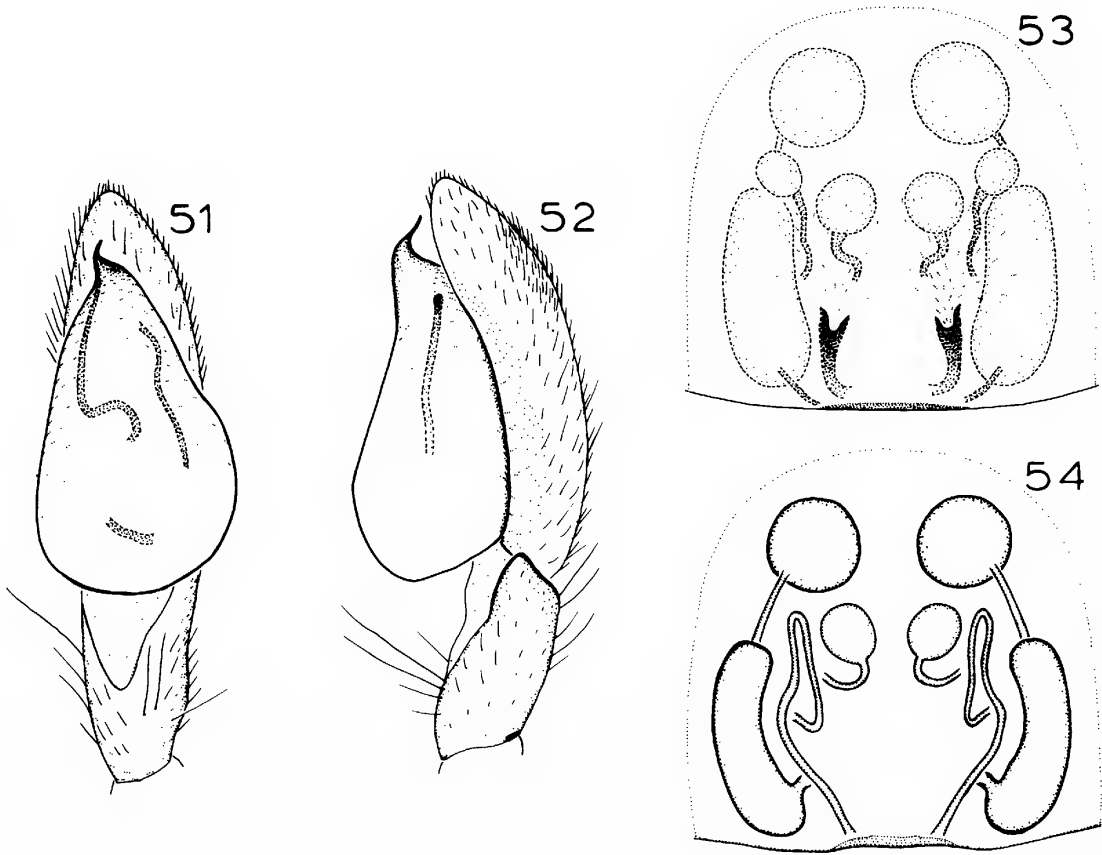
Etymology. The specific name is from the Latin *parallelus* (parallel) and refers to the arrangement of the terminal sclerites of the palp.

Diagnosis. *Trachelas parallelus* is a distinctive species easily recognizable by the closely spaced terminal sclerites of the palp (fig. 29) and the anterior epigynal openings and shortened lateral ducts of the female (figs. 31, 32).

Male. Total length 6.59 mm. Carapace 3.35



FIGS. 45, 46. *Trachelas bicolor* Keyserling. 45. Epigynum, ventral view. 46. Vulva, dorsal view.
 FIGS. 47, 48. *T. dilatatus*, new species. 47. Epigynum, ventral view. 48. Vulva, dorsal view.
 FIGS. 49, 50. *T. erectus*, new species. 49. Epigynum, ventral view. 50. Vulva, dorsal view.



FIGS. 51-54. *Trachelas tomaculus*, new species. 51. Palp, ventral view. 52. Palp, retrolateral view. 53. Epigynum, ventral view. 54. Vulva, dorsal view.

mm. long, 2.23 mm. wide. Femur I 3.02 mm. long (holotype). Terminal apophysis, embolus, and conductor closely spaced, parallel to each other (figs. 29, 30). Leg cusps: tibia I 39 or 40, II 28-30; metatarsus I 52 or 53, II 6 or 7; tarsus I 9, II 0.

Female. Total length 6.95, 7.24 mm. Carapace 3.35, 3.46 mm. long, 2.23, 2.27 mm. wide. Femur I 2.34, 2.81 mm. long (two specimens). Epigynum with widely spaced anterior openings and shortened lateral ducts (figs. 31, 32). Leg cusps: tibia I 0, II 0; metatarsus I 0-5, II 0 or 1; tarsus I 1-3, II 0.

Localities and Distribution. Known only from the type locality in Nicaragua.

THE BICOLOR GROUP

Diagnosis. Characters common to the *bicolor*

and *bispinosus* groups have been listed above. Species belonging to the *bicolor* group may be distinguished by the following characters: the male endites lack lateral spurs, the median ducts of the female lack basal enlargements, and there are generally only two retromarginal cheliceral teeth.

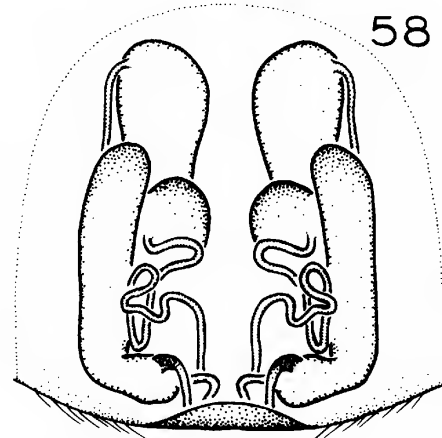
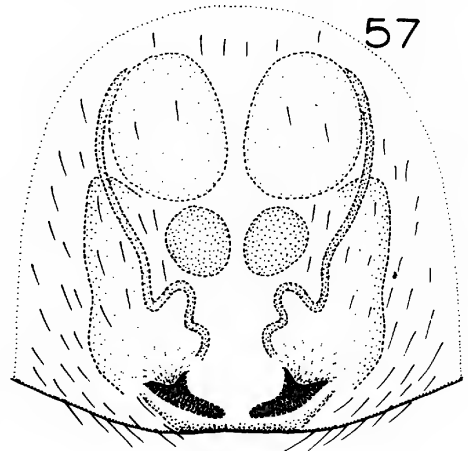
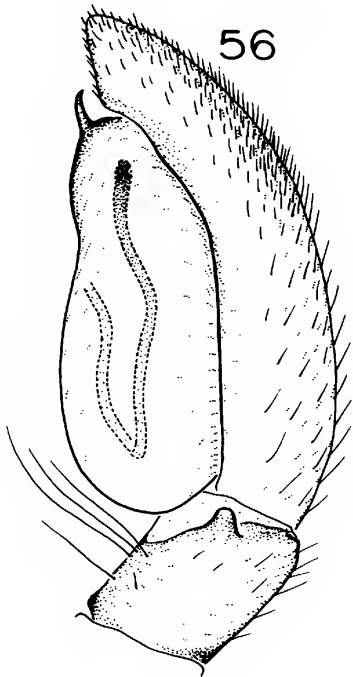
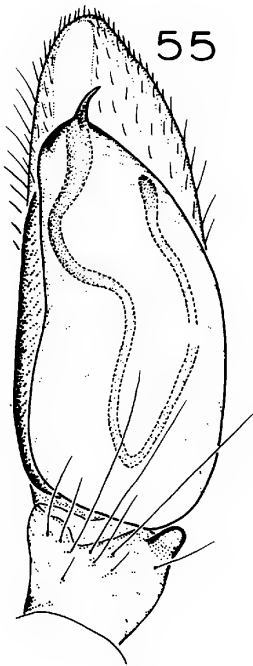
Description. As in the *bispinosus* group, except for the following: Total length 3-15 mm. Ocular area gradually narrowed. From front, anterior eye row straight or slightly procurved, posterior row straight or slightly recurved. All eyes separated by at least their diameter. Median ocular quadrangle square or wider than long. Clypeal height equal to or less than anterior median eye diameter. Chelicerae (except in a few aberrant specimens) with two retromarginal teeth. Male endites without lateral spurs. Legs with few trichobothria. Male palp usually with

small retrolateral tibial apophysis; sometimes with retrolateral patellar apophysis or conductor; terminal apophysis absent. Median ducts of epigynum without basal enlargements.

KEY TO SPECIES OF THE *BICOLOR* GROUP
IN NORTH AND CENTRAL AMERICA
AND THE WEST INDIES

- 1. North and Central America2
West Indies7
- 2. Retrolateral tibial apophysis subapical (figs. 103, 104); lateral ducts beside spermathecae and much shorter than spermathecae (figs. 105, 106) . . *deceptus*
Retrolateral tibial apophysis apical (figs. 88, 92, 96, 100, 108); lateral ducts behind spermathecae (figs. 90, 94, 98, 102) or, if beside them, nearly as long as spermathe-

- cae (fig. 110)3
- 3. Embolus as long as retrolateral tibial apophysis (figs. 107, 108); lateral ducts beside spermathecae (figs. 109, 110) .*californicus*
Embolus much shorter than retrolateral tibial apophysis (figs. 87, 91, 95, 99); lateral ducts behind spermathecae (figs. 90, 94, 98, 102)4
- 4. Palp with a conductor (figs. 41, 95, 96); epigynum with single median opening (fig. 97) *barroanus*
Palp without a conductor (figs. 87, 91, 99); epigynum with paired openings (figs. 89, 93, 101)5
- 5. Tibia III with few prolateral tubercles (fig. 44); genitalia as in figs. 87-90 . *panamanus*
Tibia III with many prolateral tubercles (fig. 42); genitalia as in figs. 91-94, 99-102 . . 6
- 6. Prolateral portion of palpal duct looping retrolaterally (fig. 91); lateral ducts each



FIGS. 55-58. *Trachelas oculus*, new species. 55. Palp, ventral view. 56. Palp, retrolateral view. 57. Epigynum, ventral view. 58. Vulva, dorsal view.

- with two enlargements (fig. 94)
 *triangulus*
 Prolateral portion of palpal duct not looping
 retrolaterally (fig. 99); lateral ducts each
 with one enlargement (fig. 102)
 *quadridens*
7. Puerto Rico and the Lesser Antilles 8
 Cuba, Hispaniola, and Jamaica 9
8. Palpal patella with a retrolateral apophysis
 (figs. 79, 80); epigynal openings situated
 posteriorly (fig. 81); Puerto Rico
 *borinquensis*
 Palpal patella without a retrolateral apophy-
 sis (figs. 83, 84); epigynal openings situ-
 ated medially (fig. 85); St. Vincent
 *femoralis*
9. Cuba and Hispaniola 10
 Jamaica 19
10. Males 11
 Females 13
11. Palpal duct widened near embolus (fig. 55)
 *oculus*
 Palpal duct not widened near embolus (figs.
 51, 59) 12
12. Tegulum widened basally (fig. 51)
 *tomaculus*
 Tegulum narrowed basally (fig. 59).
 *contractus*
13. Epigynal openings directed posteriorly (figs.
 53, 57, 65) 14
 Epigynal openings directed laterally or an-
 teriorly (figs. 45, 47, 49, 61) 16
14. Spermathecae arising from long, thin stalks
 (figs. 54, 58) 15
 Spermathecae not arising from long, thin
 stalks (fig. 66) *inclinatus*
15. Spermathecae round (figs. 53, 54)
 *tomaculus*
 Spermathecae oval (figs. 57, 58) *oculus*
16. Lateral ducts with enlarged dorsal pro-
 tuberances (figs. 46, 48, 50) 17
 Lateral ducts without enlarged dorsal pro-
 tuberances (fig. 62) *contractus*
17. Lateral ducts extending farther laterally than
 do the spermathecae (figs. 46, 50) . . . 18
 Lateral ducts not extending farther laterally
 than do the spermathecae (fig. 48). *dilatatus*
18. Epigynal openings directed anteromedially
 (fig. 45) *bicolor*
 Epigynal openings directed medially (fig. 49)
 *erectus*
19. Males 20
 Females 22
20. Embolus expanded at base (figs. 67, 71) . 21
 Embolus not expanded at base (fig. 63).
 *bravidus*
21. Embolus gradually narrowing in width dis-
 tally (fig. 67) *cadulus*
 Embolus abruptly narrowing in width dis-
 tally (fig. 71) *mulcetus*
22. Lateral ducts recurved (figs. 70, 76, 78). . 23
 Lateral ducts not recurved (fig. 74)
 *mulcetus*
23. Lateral ducts reaching only spermathecal
 base (figs. 70, 76) 24
 Lateral ducts reaching almost to spermathe-
 cal tip (fig. 78) *giganteus*
24. Median ducts recurved (fig. 69) *cadulus*
 Median ducts coiled (fig. 75) *jamaicensis*

Trachelas bicolor Keyserling
 Figures 45, 46

Trachelas bicolor Keyserling, 1887, p. 440, pl. 6,
 fig. 15 (female holotype from Haiti, no spe-
 cific locality, in the Museum of Comparative
 Zoology, examined). Roewer, 1954, p. 587.
 Bonnet, 1959, p. 4666.

Diagnosis. *Trachelas bicolor* is closest to *dila-*
tatus but may be distinguished by the large hood-
 like epigynal openings (fig. 45).

Male. Unknown.

Female. Total length 5.59, 6.26 mm. Cara-
 pace 2.41, 2.62 mm. long, 1.91, 2.39 mm. wide.
 Femur I 1.98, 2.40 mm. long (two specimens).
 Epigynum with anterior hoodlike openings
 directed anteromedially (figs. 45, 46). Leg cusps:
 tibia I 4-13, II 0; metatarsus I 20-24, II 10-16;
 tarsus I 14-16, II 6-10.

Localities. Dominican Republic: Valle Nueva.
 Haiti.

Distribution: Hispaniola.

Trachelas dilatatus, new species
 Figures 47, 48

Type. Female holotype from San José de las
 Matas, elevation 1500 feet, Dominican Republic
 (June 4, 1938; P. Darlington), deposited in the
 Museum of Comparative Zoology.

Etymology. The specific name is from the
 Latin *dilatatus* (spread out) and refers to the ex-
 panded spermathecae.

Diagnosis. *Trachelas dilatatus* is closest to *bi-*

color but may be distinguished by the tubelike epigynal openings (fig. 47).

Male. Unknown.

Female. Total length 5.44 mm. Carapace 2.34 mm. long, 1.87 mm. wide. Femur I 1.94 mm. long (holotype). Epigynum with median tubelike openings directed anteriorly (figs. 47, 48). Leg cusps: tibia I 16, II 1; metatarsus I 23, II 17; tarsus I 12, II 11.

Localities and Distribution. Known only from the type specimen from Hispaniola.

***Trachelas erectus*, new species**

Figures 49, 50

Type. Female holotype from La Visite, elevation 6000 to 7000 feet, Haiti (September 16-23, 1934; P. Darlington), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *erectus* (raised) and refers to the dorsally raised portions of the lateral ducts.

Diagnosis. *Trachelas erectus* is a distinctive species easily recognizable by the closely spaced median epigynal openings (fig. 49).

Male. Unknown.

Female. Total length 8.78 mm. Carapace 3.56 mm. long, 3.02 mm. wide. Femur I 3.38 mm. long (holotype). Epigynum with closely spaced median openings; median portions of lateral ducts raised dorsally (figs. 49, 50). Leg cusps: tibia I 19-21, II 0; metatarsus I 26-28, II 20; tarsus I 10 or 11, II 8.

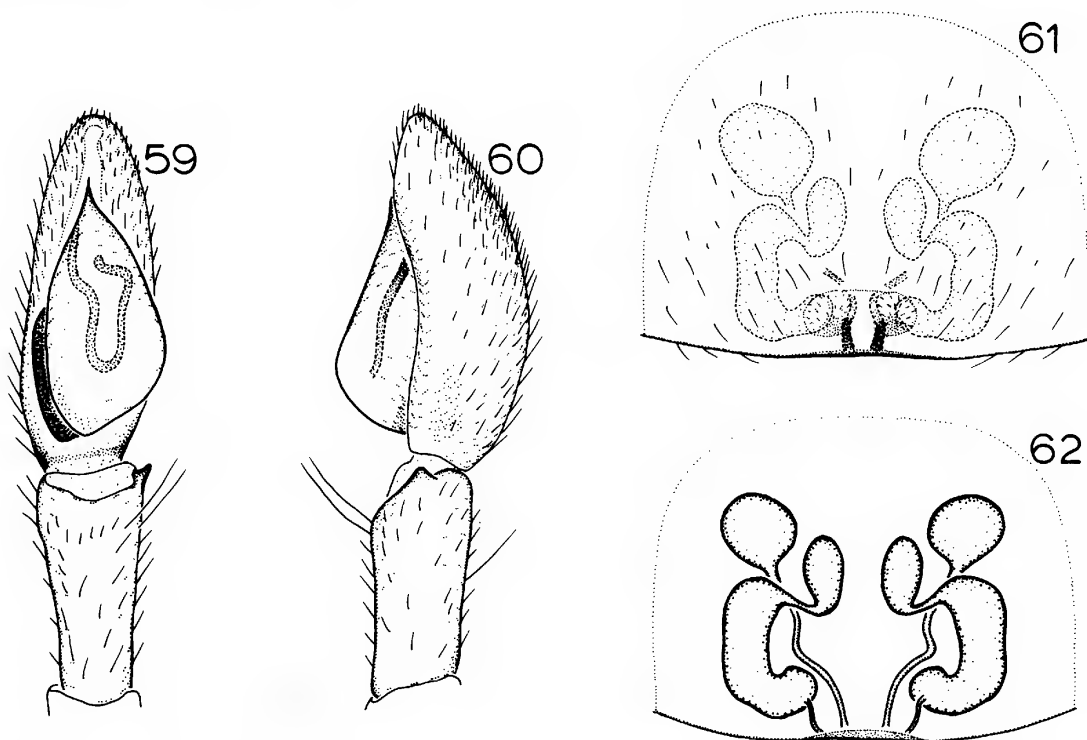
Localities and Distribution. Known only from the type specimen from Hispaniola.

***Trachelas tomaculus*, new species**

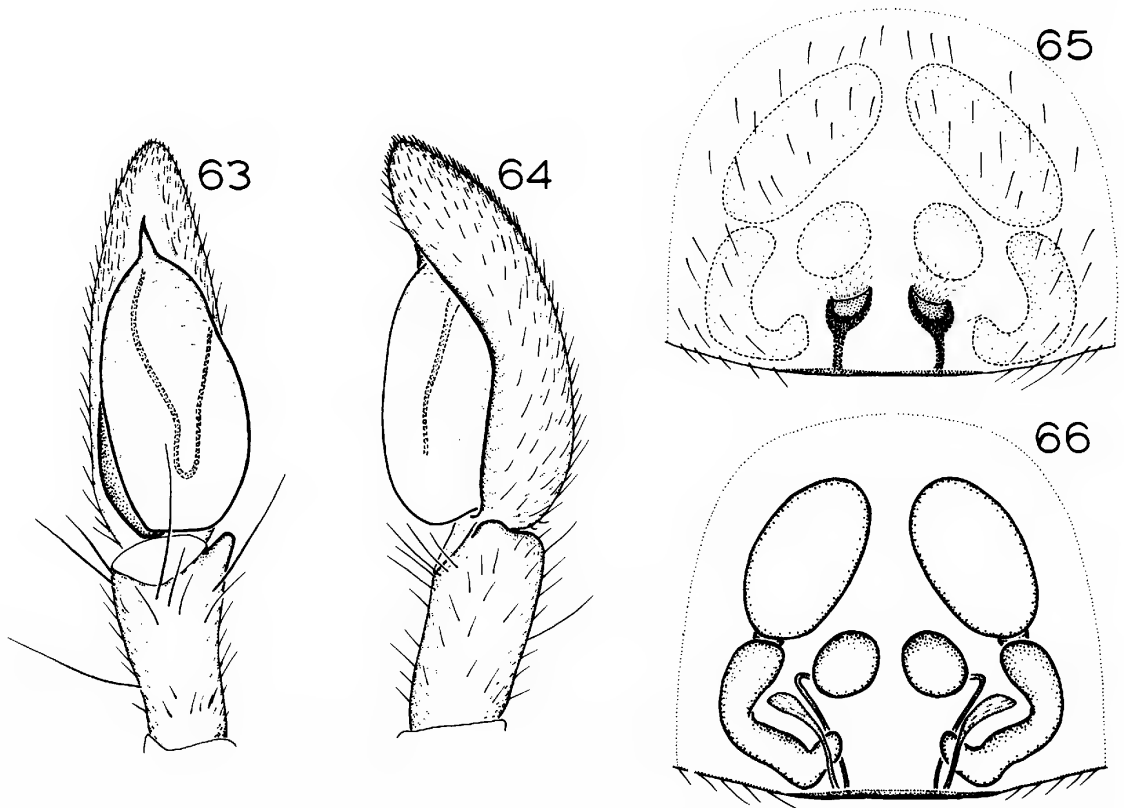
Figures 51-54

Trachelas bicolor (misidentification): Bryant, 1940, p. 443, pl. 17, fig. 224 (in part).

Types. Male holotype and female paratype from Santiago de las Vegas, La Habana, Cuba (no



FIGS. 59-62. *Trachelas contractus*, new species. 59. Palp, ventral view. 60. Palp, retrolateral view. 61. Epigynum, ventral view. 62. Vulva, dorsal view.



FIGS. 63, 64. *Trachelas bravidus* Chickering. 63. Palp, ventral view. 64. Palp, retrolateral view. FIGS. 65, 66. *T. inclinatus*, new species. 65. Epigynum, ventral view. 66. Vulva, dorsal view.

date; Horne and Houser), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *tomaculum* (sausage) and refers to the shape of the lateral ducts.

Diagnosis. *Trachelas tomaculus* is closest to *oculus* but may be distinguished by the palpal duct being narrowed at the base of the embolus (fig. 51) and the round spermathecae (fig. 54).

Male. Total length 4.79, 5.62 mm. Carapace 2.16, 2.65 mm. long, 1.69, 2.02 mm. wide. Femur I 1.79, 2.23 mm. long (two specimens). Chelicerae with produced tubercle anteriorly. Palp with sinuous embolus; palpal duct narrowed at base of embolus (figs. 51, 52). Leg cusps: tibia I 18-32, II 3-8; metatarsus I 26-40, II 21-32; tarsus I 12-17, II 6-13.

Female. Total length 5.80 mm. Carapace 2.56 mm. long, 2.02 mm. wide. Femur I 1.94 mm. long (paratype). Epigynal openings long, directed posteriorly; spermathecae round (figs. 53, 54).

Leg cusps: tibia I 16-18, II 0; metatarsus I 18, II 9 or 10; tarsus I 12, II 6.

Localities. Haiti: La Boule. Cuba: Santiago de las Vegas.

Distribution. Cuba and Hispaniola.

Trachelas oculus, new species

Figures 55-58

Types. Male holotype from Cayamas, Oriente, Cuba (no data), deposited in the American Museum of Natural History; female paratype from the mountains north of Imías, elevation 3000 to 4000 feet, Oriente, Cuba (July 25-28, 1936; P. Darlington), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *oculus* (eye) and refers to the appearance of the spermathecae.

Diagnosis. *Trachelas oculus* is closest to *tomaculus* but may be distinguished by the palpal

duct being widened at the base of the embolus (fig. 55) and the oval spermathecae (fig. 58).

Male. Total length 4.40 mm. Carapace 2.12 mm. long, 1.76 mm. wide. Femur I 1.65 mm. long (holotype). Palp with pronglike embolus; palpal duct widened at base of embolus (figs. 55, 56). Leg cusps: tibia I 18, II 0 or 1; metatarsus I 19-23, II 10 or 11; tarsus I 10 or 11; II 3 or 4.

Female. Total length 5.80 mm. Carapace 2.48 mm. long, 2.07 mm. wide. Femur I 2.05 mm. long (paratype). Epigynal openings directed posterolaterally; spermathecae arising from long stalks (figs. 57, 58). Leg cusps: tibia I 18 or 19, II 0; metatarsus I 22 or 23, II 6; tarsus I 12 or 13, II 10.

Localities and Distribution. Known only from the type specimens from Cuba.

***Trachelas contractus*, new species**

Figures 59-62

Trachelas bicolor (misidentification): Bryant, 1940, p. 443, pl. 17, fig. 224 (in part).

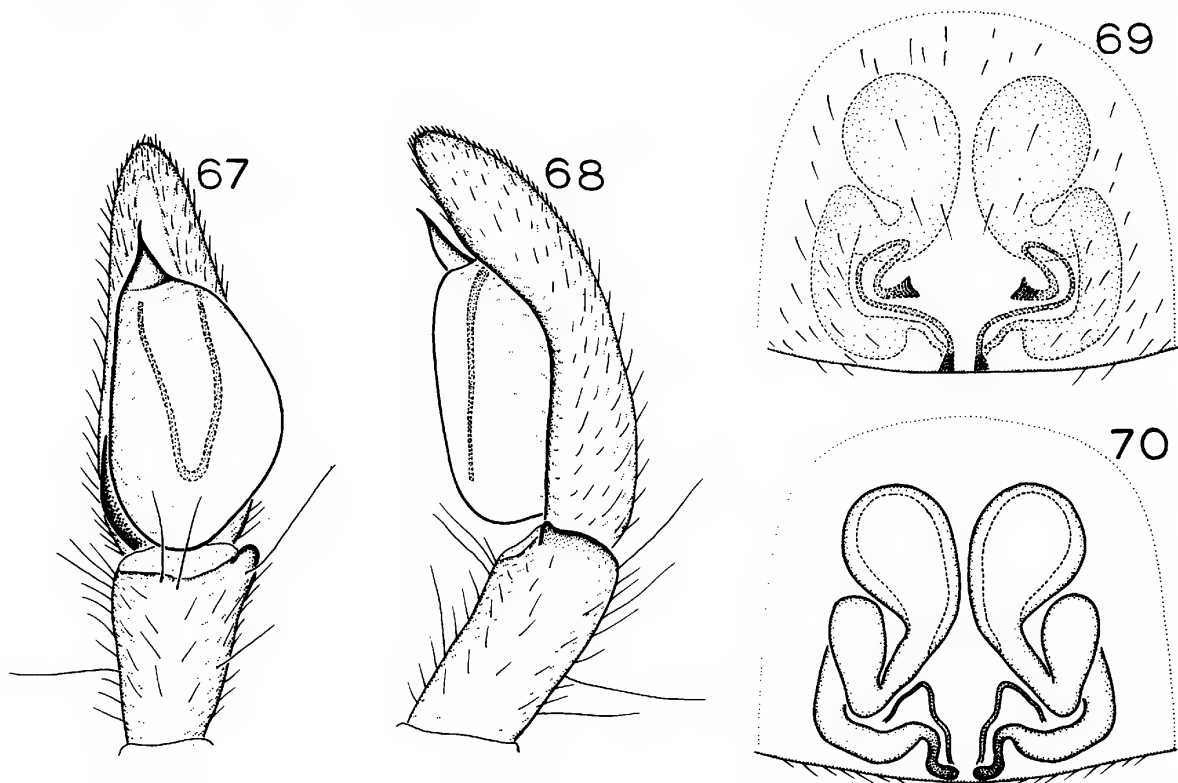
Types. Male holotype and female paratype from Buenos Aires, Trinidad Mountains, elevation 2500 to 3500 feet, Las Villas, Cuba (May 9, 1936; P. Darlington), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *contractus* (narrowed) and refers to the shape of the palp.

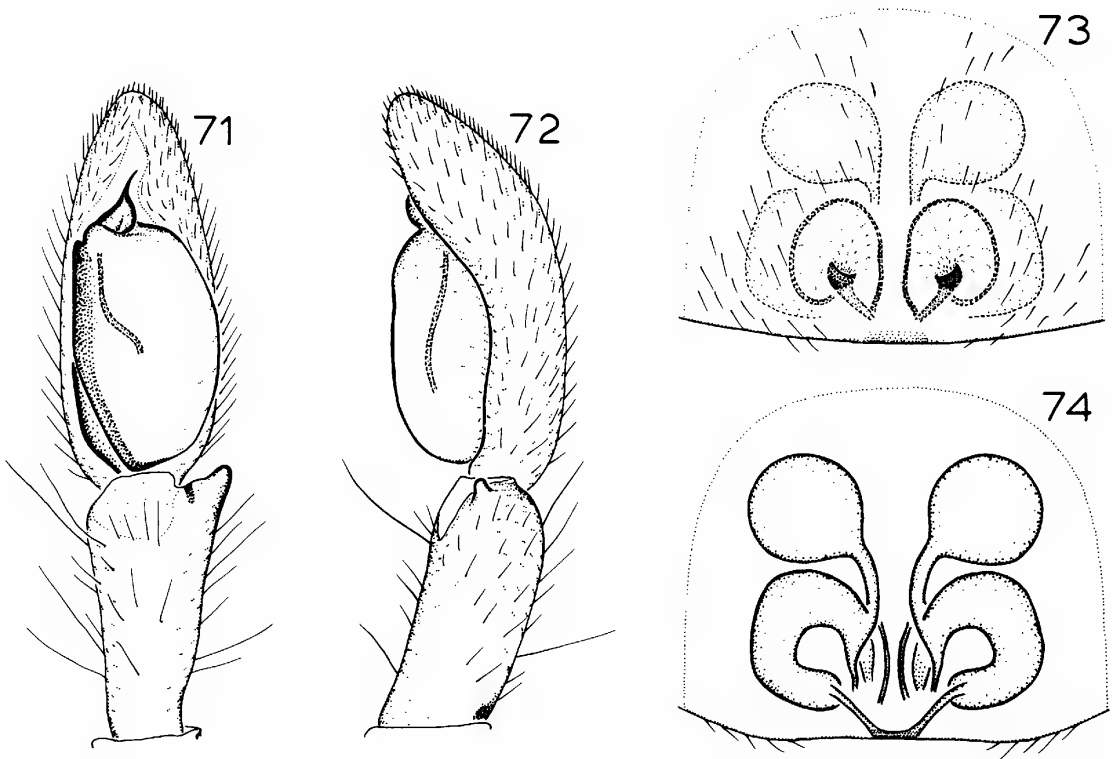
Diagnosis. *Trachelas contractus* is closest to *inclinatus* but may be distinguished by the closely spaced loops of the palpal duct (fig. 59) and the median flange of the lateral ducts (figs. 61, 62).

Male. Total length 4.25 mm. Carapace 2.09 mm. long, 1.66 mm. wide. Femur I 1.76 mm. long (holotype). Palp with small tegulum; loops of palpal duct closely spaced (figs. 59, 60). Leg cusps: tibia I 28-32, II 0; metatarsus I 20 or 21, II 16; tarsus I 11-13, II 6.

Female. Total length 6.16 mm. Carapace 2.30 mm. long, 1.94 mm. wide. Femur I 1.76 mm. long (paratype). Lateral ducts with pronounced median flange (figs. 61, 62). Leg cusps: tibia I 22



FIGS. 67-70. *Trachelas cadulus* Chickering. 67. Palp, ventral view. 68. Palp, retrolateral view. 69. Epigynum, ventral view. 70. Vulva, dorsal view.



FIGS. 71-74. *Trachelas mulcetus* Chickering. 71. Palp, ventral view. 72. Palp, retrolateral view. 73. Epigynum, ventral view. 74. Vulva, dorsal view.

or 23, II 0; metatarsus I 20-24, II 14-17; tarsus I 15 or 16, II 9-12.

Localities and Distribution. Known only from the type specimens from Cuba.

***Trachelas inclinatus*, new species**

Figures 65, 66

Type. Female holotype from Gran Piedra, Oriente, Cuba (June 29, 1955; A. Archer), deposited in the American Museum of Natural History.

Etymology. The specific name is from the Latin *inclinatus* (inclined) and refers to the angled lateral ducts.

Diagnosis. *Trachelas inclinatus* is closest to *contractus* but may be distinguished by the lack of median flanges on the lateral ducts and the large cup-shaped epigynal openings (figs. 65, 66).

Male. Unknown.

Female. Total length 6.90 mm. Carapace 3.23 mm. long, 2.77 mm. wide. Femur I 2.63 mm.

long (holotype). Epigynum with cup-shaped openings directed posteriorly; lateral ducts angled (figs. 65, 66). Leg cusps: tibia I 32-37, II 0; metatarsus I 27 or 28, II 21 or 22; tarsus I 14, II 10-12.

Localities and Distribution. Known only from the type specimen from Cuba.

***Trachelas bravidus* Chickering**

Figures 63, 64

Trachelas bravidus Chickering, 1972, p. 216, figs. 1-4 (male holotype from Hardwar Gap, Portland Parish, Jamaica, in the Museum of Comparative Zoology, examined).

Diagnosis. *Trachelas bravidus* is closest to *cadulus* but may be distinguished by the narrow embolus (fig. 63).

Male. Total length 3.02, 3.74 mm. Carapace 1.33, 1.91 mm. long, 1.22, 1.51 mm. wide. Femur I 1.19 mm. long (two specimens). Palp with

narrow, pronglike embolus (figs. 63, 64). Leg cusps: tibia I 9 or 10, II 0-8; metatarsus I 13-18, II 7-14; tarsus I 2-4, II 0-5.

Female. Unknown.

Localities and Distribution. Known only from the type locality in Jamaica.

Trachelas cadulus Chickering

Figures 67-70

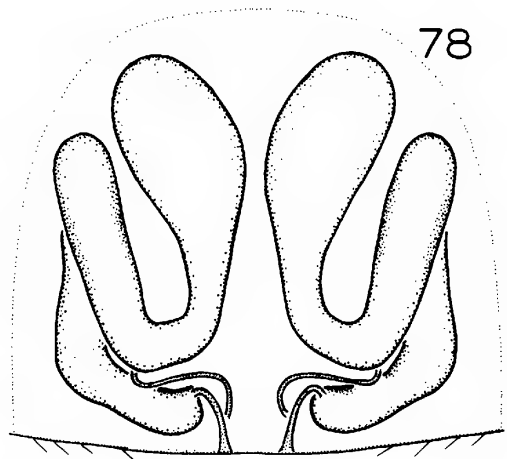
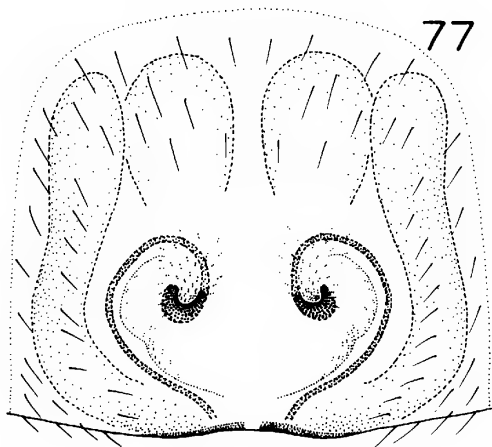
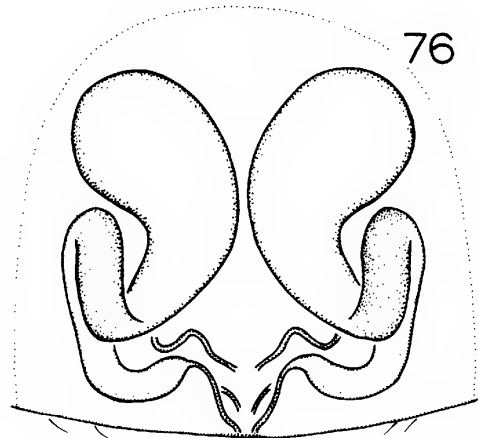
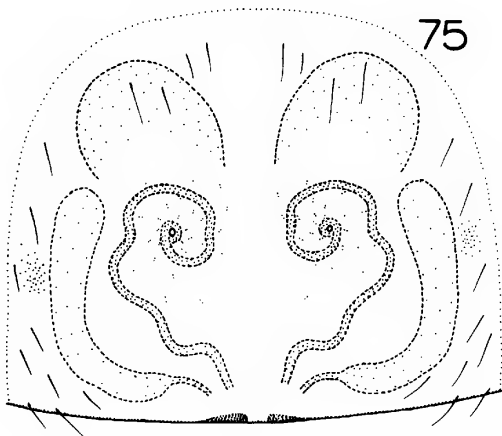
Trachelas cadulus Chickering, 1972, p. 218, figs. 5-8 (male holotype and male paratype from Stony Hill, St. Andrew Parish, Jamaica, in the Museum of Comparative Zoology, examined).

Diagnosis. *Trachelas cadulus* is closest to

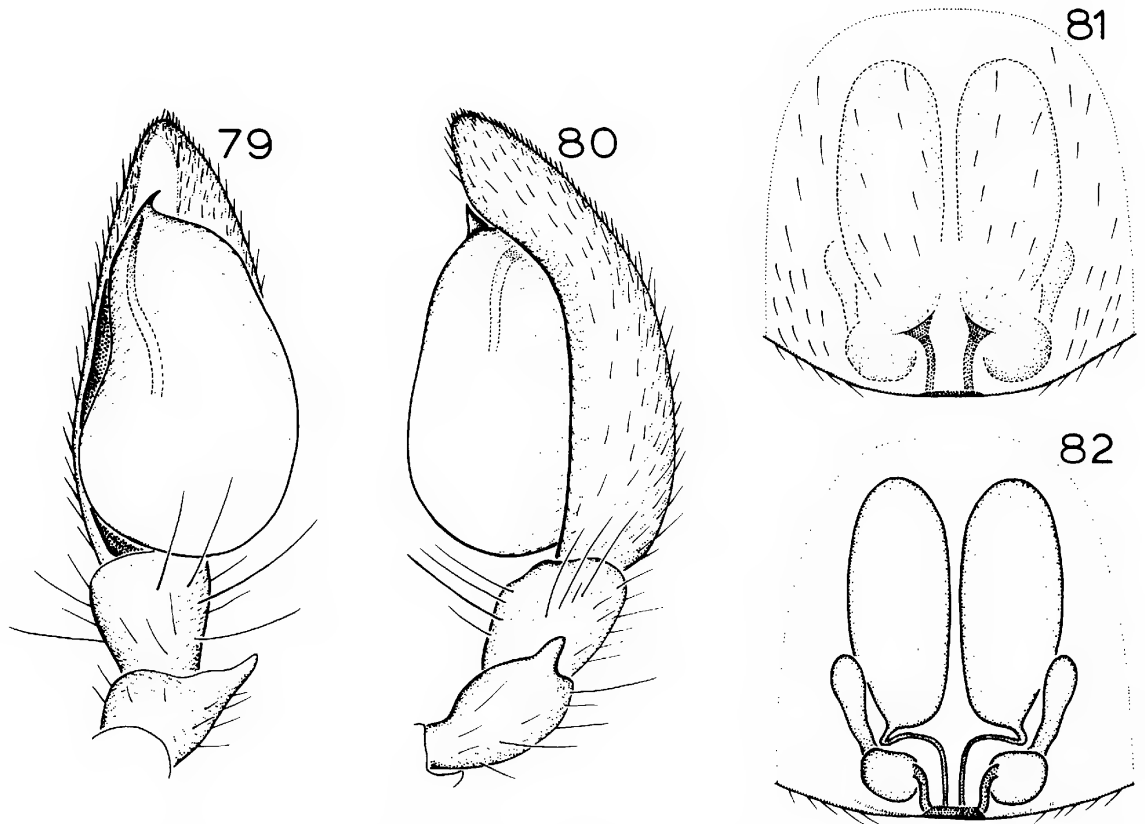
bravidus but may be distinguished by the wide embolus (fig. 67) and the recurved median ducts (fig. 69).

Male. Total length 4.57, 5.08 mm. Carapace 2.30, 2.52 mm. long, 1.80, 1.98 mm. wide. Femur I 1.94, 2.16 mm. long (two specimens). Palp with wide embolus tapering gradually toward tip (figs. 67, 68). Leg cusps: tibia I 24-31, II 9-11; metatarsus I 25-30, II 15-24; tarsus I 10-20, II 4-10.

Female. Total length 5.87 mm. Carapace 2.38 mm. long, 1.94 mm. wide. Femur I 2.02 mm. long (one specimen). Epigynum with recurved median ducts (figs. 69, 70). Leg cusps: tibia I 19, II 9-13; metatarsus I 26-28, II 21; tarsus I 12 or 13, II 7 or 8.



FIGS. 75, 76. *Trachelas jamaicensis* Gertsch. 75. Epigynum, ventral view. 76. Vulva, dorsal view. FIGS. 77, 78. *T. giganteus*, new species. 77. Epigynum, ventral view. 78. Vulva, dorsal view.



FIGS. 79-82. *Trachelas borinquensis* Gertsch. 79. Palp, ventral view. 80. Palp, retrolateral view. 81. Epigynum, ventral view. 82. Vulva, dorsal view.

Localities. Jamaica: St. Andrew Parish: Stony Hill. St. Catherine Parish: Innswood Estate.

Trachelas mulcetis Chickering
Figures 71-74

Trachelas mulcetis Chickering, 1972, p. 227, figs. 23-27 (male holotype and female paratype from the Blue Mountains, Portland Parish, Jamaica, in the Museum of Comparative Zoology, examined).

Trachelas domandus Chickering, 1972, p. 220, figs. 9-13 (male holotype from Hardwar Gap, Portland Parish, Jamaica, in the Museum of Comparative Zoology, examined). NEW SYNONYMY.

Diagnosis. *Trachelas mulcetis* is a distinctive species easily recognizable by the sinuous embolus (fig. 71) and the circular median ducts (fig. 73).

Male. Total length 5.58, 5.90 mm. Carapace 3.07, 3.20 mm. long, 2.48, 2.50 mm. wide. Femur I 2.59, 2.81 mm. long (holotypes). Palp with sinuous embolus; tegulum abruptly terminated prolaterally (figs. 71, 72). Leg cusps: tibia I 28-80, II 13-45; metatarsus I 36-42, II 30-35; tarsus I 8-16, II 3-8.

Female. Total length 6.01 mm. Carapace 2.95 mm. long, 2.42 mm. wide. Femur I 2.30 mm. long (paratype). Epigynum with rounded spermathecae and circular median ducts (figs. 73, 74). Leg cusps: tibia I 64-68, II 44-47; metatarsus I 24-26, II 19 or 20; tarsus I 4, II 2.

Localities and Distribution. Known only from the type localities in Jamaica.

Synonymy. No genitalic differences were detected between the holotypes of *mulcetis* and

domandus. As first revisers, we choose *mulcetus*, as both sexes were described under that name.

Trachelas jamaicensis Gertsch
Figures 75, 76

Trachelas jamaicensis Gertsch, 1942, p. 9, fig. 28 (female holotype from Cinchona, Jamaica, in the American Museum of Natural History, examined). Roewer, 1954, p. 587.

Diagnosis. *Trachelas jamaicensis* is closest to *giganteus* but may be distinguished by the short lateral ducts (fig. 75).

Male. Unknown.

Female. Total length 10.30 mm. Carapace 4.14 mm. long, 3.49 mm. wide. Femur I 3.59 mm. long (holotype). Lateral ducts reaching only slightly beyond epigynal openings; median ducts with pronounced undulations (figs. 75, 76). Leg cusps: tibia I 49-54, II 7; metatarsus I 31-35, II 18-21; tarsus I 15 or 16, II 10-14.

Localities and Distribution. Known only from the type specimen from Jamaica.

Trachelas giganteus, new species
Figures 77, 78

Trachelas jamaicensis (misidentification): Chickering, 1972, p. 227.

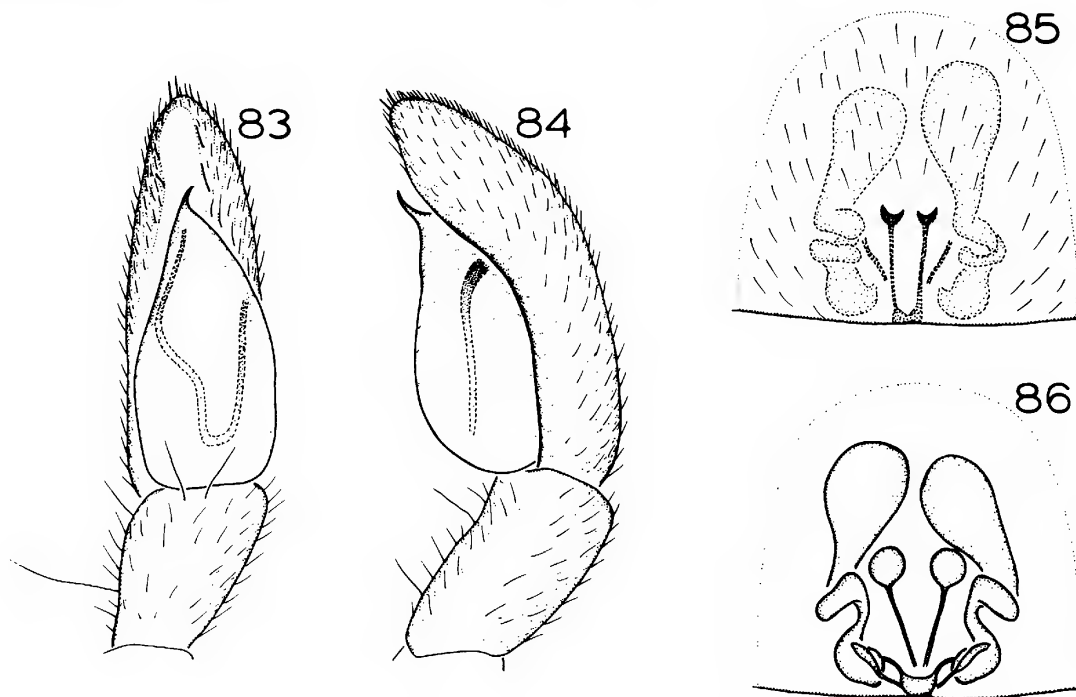
Type. Female holotype from Nierels Gap, Jamaica (July 16, 1941; S. C. Bishop), deposited in the American Museum of Natural History.

Etymology. The specific name is from the Latin *giganteus* (giant) and refers to the tremendous size of this species.

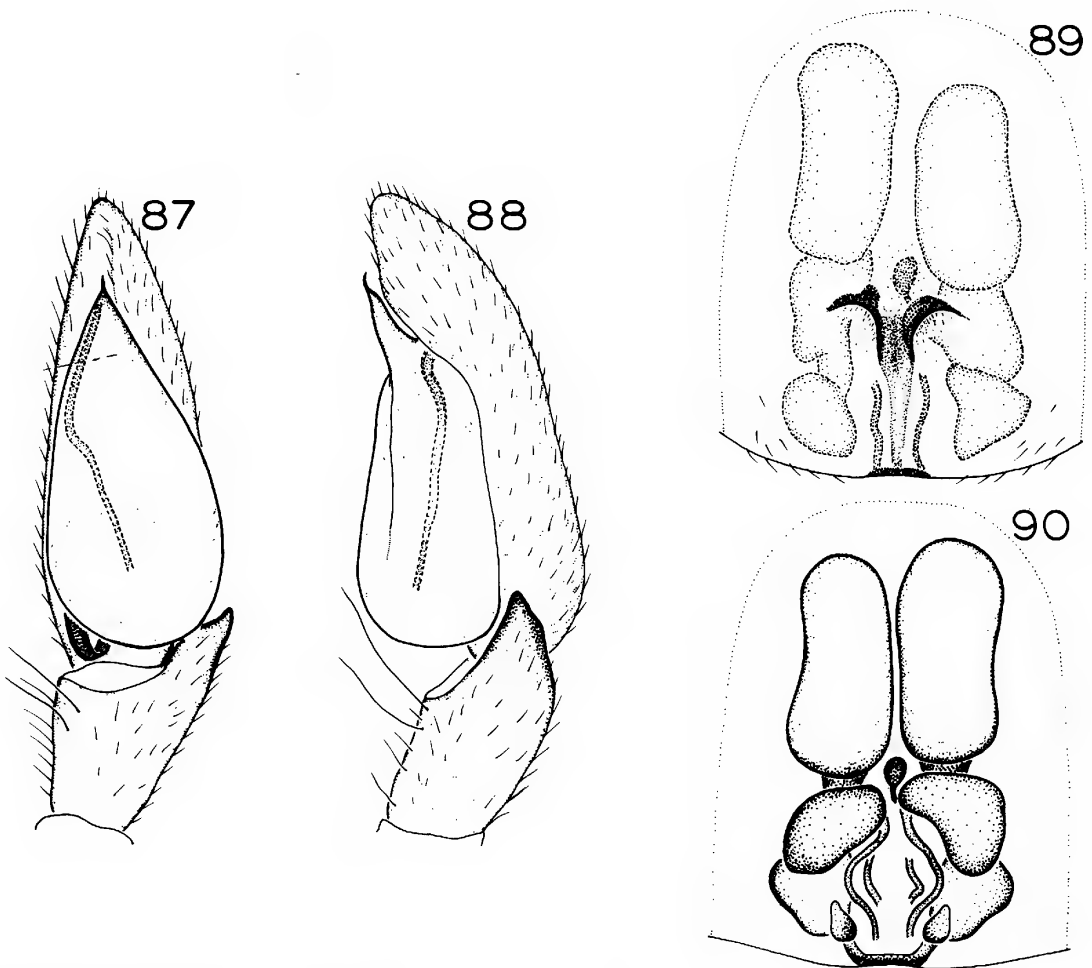
Diagnosis. *Trachelas giganteus* is closest to *jamaicensis* but may be distinguished by the long lateral ducts (fig. 77).

Male. Unknown.

Female. Total length 12.46, 14.90 mm. Carapace 5.29, 5.78 mm. long, 4.36, 4.72 mm. wide. Femur I 4.32, 4.38 mm. long (two specimens). Lateral ducts reaching far beyond epigynal openings; median ducts without undulations (figs. 77, 78). Abdomen with posterior chevrons. Leg cusps: tibia I 100-118, II 39-65; metatarsus I 48-57, II 39-45; tarsus I 18-27, II 13-16.



FIGS. 83-86. *Trachelas femoralis* Simon. 83. Palp, ventral view. 84. Palp, retrolateral view. 85. Epigynum, ventral view. 86. Vulva, dorsal view.



FIGS. 87-90. *Trachelas panamanus* Chickering. 87. Palp, ventral view. 88. Palp, retrolateral view. 89. Epigynum, ventral view. 90. Vulva, dorsal view.

Localities. Jamaica: Portland Parish: Blue Mountain Peak. Nierels Gap.

Distribution: Jamaica.

Trachelas borinquensis Gertsch
Figures 79-82

Trachelas bicolor (misidentification): Petrunkevitch, 1930, p. 108, fig. 90.

Trachelas borinquensis Gertsch, 1942, p. 9 (female holotype from Aibonito, Guayama, Puerto Rico, in the American Museum of Natural History, examined). Roewer, 1954, p. 587. Chickering, 1972, p. 216.

Diagnosis. *Trachelas borinquensis* is a distinctive species easily recognizable by the retrolateral

patellar apophysis (fig. 80) and the elongate spermathecae (fig. 82).

Male. Total length 3.55-4.49 mm. Carapace 1.75-1.94 mm. long, 1.37-1.51 mm. wide. Femur I 1.26-1.75 mm. long (three specimens). Palp with sinuous tegulum and retrolateral patellar apophysis (figs. 79, 80). Leg cusps: tibia I 5-13, II 0-10; metatarsus I 12-22, II 8-16; tarsus I 7-16, II 5-9.

Female. Total length 3.72-6.01 mm. Carapace 1.58-2.38 mm. long, 1.30-1.91 mm. wide. Femur I 1.20-1.99 mm. long (five specimens). Epigynum with wide openings and elongate spermathecae (figs. 81, 82). Leg cusps: tibia I 11-25, II 0-2; metatarsus I 12-31, II 7-16; tarsus I 3-18, II 1-11.

Localities. Puerto Rico: Aguadilla: Maricao

National Forest; Monte El Estado. *Arecibo*: Cam-balache Forest. *Guayama*: Aibonito. *Mayagüez*: Mayagüez.

Distribution. Puerto Rico.

Trachelas femoralis Simon

Figures 83-86

Trachelas femoralis Simon, 1897b, p. 883 (male lectotype here designated from St. Vincent, British West Indies, in the British Museum [Natural History], examined.) Roewer, 1954, p. 587. Bonnet, 1959, p. 4667. Chickering, 1972, p. 225, figs. 20-22.

Diagnosis. *Trachelas femoralis* is a distinctive species easily recognized by the ventrally projecting embolus (fig. 84) and the straight median ducts (fig. 86).

Male. Total length 3.79 ± 0.43 mm. Carapace 2.06 ± 0.22 mm. long, 1.55 ± 0.16 mm. wide. Femur I 1.54 ± 0.16 mm. long (10 specimens). Palp

with ventrally projecting embolus; retrolateral tibial apophysis greatly reduced (figs. 83, 84). Leg cusps: tibia I 7-16, II 0-13; metatarsus I 9-21, II 0-8; tarsus I 4-11, II 0.

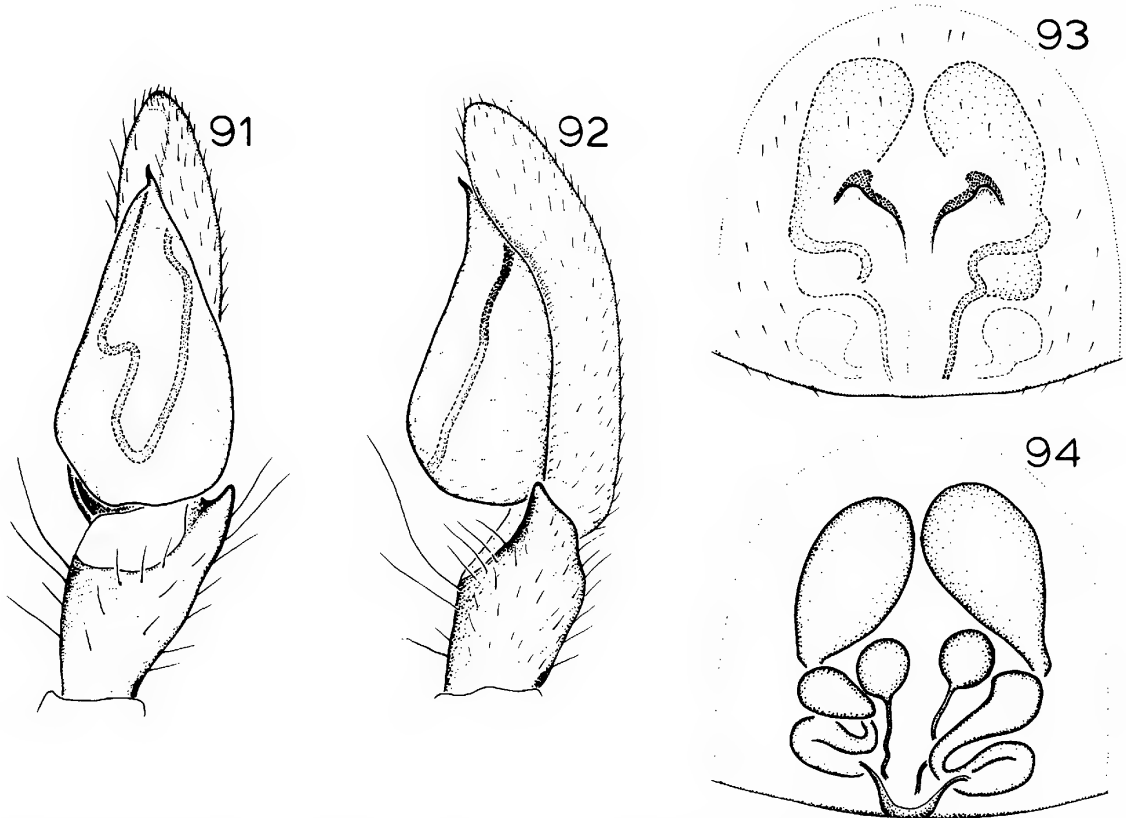
Female. Total length 3.94-4.36 mm. Carapace 1.91-2.08 mm. long, 1.51-1.62 mm. wide. Femur I 1.43-1.62 mm. long (four specimens). Epigynum with semicircular openings and straight median ducts (figs. 85, 86). Leg cusps absent.

Localities and Distribution. Known only from the type locality, St. Vincent (British West Indies).

Trachelas panamanus Chickering

Figures 37, 44, 87-90

Trachelas panamanus Chickering, 1937, p. 45, figs. 5, 63 (male holotype from Barro Colorado Island, Panama Canal Zone, in the Museum of Comparative Zoology, examined). Roewer, 1954, p. 588. Bonnet, 1959, p. 4670 (not female allotype [= *barroanus*]).



FIGS. 91-94. *Trachelas triangulus*, new species. 91. Palp, ventral view. 92. Palp, retrolateral view. 93. Epigynum, ventral view. 94. Vulva, dorsal view.

Diagnosis. *Trachelas panamanus* is closest to *triangulus* but may be distinguished by the presence of only five prolateral tubercles on tibia III (fig. 44).

Male. Total length 6.21 ± 0.48 mm. Carapace 3.12 ± 0.27 mm. long, 2.24 ± 0.29 mm. wide. Femur I 2.38 ± 0.16 mm. long (26 specimens examined). Palpal duct without loops (figs. 37, 87, 88). Tibia III with only five prolateral tubercles (fig. 44). Leg cusps: tibia I 28-58, II 22-45; metatarsus I 33-50, II 24-35; tarsus I 11-21, II 5-13.

Female. Total length 6.90 ± 0.65 mm. Carapace 3.14 ± 0.20 mm. long, 2.28 ± 0.12 mm. wide. Femur I 2.44 ± 0.12 mm. long (35 specimens examined). Epigynum with median hoodlike openings and elongate spermathecae (figs. 89, 90). Tibia III as in male. Leg cusps: tibia I 14-26, II 0-2; metatarsus I 32-50, II 5-19; tarsus I 12-19, II 5-13.

Localities. Panama: Portobelillo. Canal Zone: Barro Colorado Island; Forest Preserve; Fort Randolph; Summit Gardens.

Distribution. Panama.

Trachelas triangulus, new species

Figures 38, 91-94

Trachelas barroanus (misidentification): Chickering, 1937, p. 43, figs. 16, 37 (female only).

Types. Male holotype and female paratype from Barro Colorado Island, Panama Canal Zone (February 8, 1958; A. M. Chickering), deposited in the Museum of Comparative Zoology.

Etymology. The specific name is from the Latin *triangulus* (triangular) and refers to the shape of the retrolateral tibial apophysis.

Diagnosis. *Trachelas triangulus* is closest to *panamanus* but may be distinguished by the looped palpal duct (fig. 91) and the rounded spermathecae (fig. 94).

Male. Total length 3.88 ± 0.31 mm. Carapace 1.98 ± 0.21 mm. long, 1.47 ± 0.17 mm. wide. Femur I 1.44 ± 0.16 mm. long (103 specimens examined). Palpal duct with loops (figs. 38, 91, 92). Leg cusps: tibia I 7-17, II 0-17; metatarsus I 4-23, II 1-15; tarsus I 0-12, II 0-3.

Female. Total length 4.43 ± 0.10 mm. Carapace 2.02 ± 0.13 mm. long, 1.54 ± 0.07 mm. wide. Femur I 1.49 ± 0.07 mm. long (90 specimens exam-

ined). Epigynum with median hoodlike openings and rounded spermathecae (figs. 93, 94). Leg cusps absent.

Localities. Panama Canal Zone: Barro Colorado Island; Forest Preserve; Madden Dam.

Distribution. Panama.

Trachelas barroanus Chamberlin

Figures 41, 42, 95-98

Trachelas barroana Chamberlin, 1925, p. 222 (male holotype from Barro Colorado Island, Panama Canal Zone, in the Museum of Comparative Zoology, examined).

Trachelas barroanus: Banks, 1929, p. 59. Chickering, 1937, p. 43, fig. 81 (not female = *triangulus*). Roewer, 1954, p. 589. Bonnet, 1959, p. 4666.

Trachelas panamanus (misidentification): Chickering, 1937, p. 45, fig. 34 (female only).

Diagnosis. *Trachelas barroanus* is closest to *quadridens* but may be distinguished by the presence of a palpal conductor (figs. 41, 95) and the single epigynal opening (fig. 97).

Male. Total length 4.68-5.83 mm. Carapace 2.30-2.99 mm. long, 1.61-1.94 mm. wide. Femur I 2.12-2.39 mm. long (nine specimens). Palp with conductor (figs. 41, 95, 96). Leg cusps: tibia I 16-34, II 14-23; metatarsus I 28-40, II 17-25; tarsus I 3-13, II 0-4.

Female. Total length 5.53 ± 0.39 mm. Carapace 2.62 ± 0.07 mm. long, 1.72 ± 0.07 mm. wide. Femur I 2.33 ± 0.06 mm. long (15 specimens examined). Epigynum with single median opening (figs. 97, 98). Leg cusps absent.

Localities and Distribution. Known only from the type locality, Barro Colorado Island (Panama Canal Zone).

Trachelas quadridens Kraus

Figures 99-102

Trachelas quadridens Kraus, 1955, p. 45, figs. 119-120 (male holotype [missing both palpi] from San Salvador, El Salvador, in the Natur-Museum und Forschungs-Institut Senckenberg, examined; not female paratypes [= *bispinosus*]).

Diagnosis. *Trachelas quadridens* is closest to *barroanus* but may be distinguished by the lack

of a palpal conductor (fig. 99) and the paired epigynal openings (fig. 101).

Male. Total length 3.96-5.54 mm. Carapace 2.05-2.95 mm. long, 1.44-1.98 mm. wide. Femur I 1.55-2.09 mm. long (three specimens). Palp without conductor; palpal ducts without loops (figs. 99, 100). Leg cusps; tibia I 9-32, II 3-13; metatarsus I 16-33, II 7-18; tarsus I 0-23, II 0 or 1.

Female. Total length 4.39-5.44 mm. Carapace 2.10-2.37 mm. long, 1.48-1.58 mm. wide. Femur I 1.62-1.87 mm. long (seven specimens). Epigynum with paired openings and straight median ducts (figs. 101, 102). Leg cusps absent.

Localities. El Salvador: San Salvador. Costa Rica: San José.

Distribution. El Salvador south to Costa Rica.

Discussion. As the holotype of *quadridens* is missing both palpi, and seems to be an aberrant

specimen (there are four retromarginal cheliceral teeth), it is only tentatively matched (by the published illustrations) with the Costa Rican specimens held in the American Museum of Natural History.

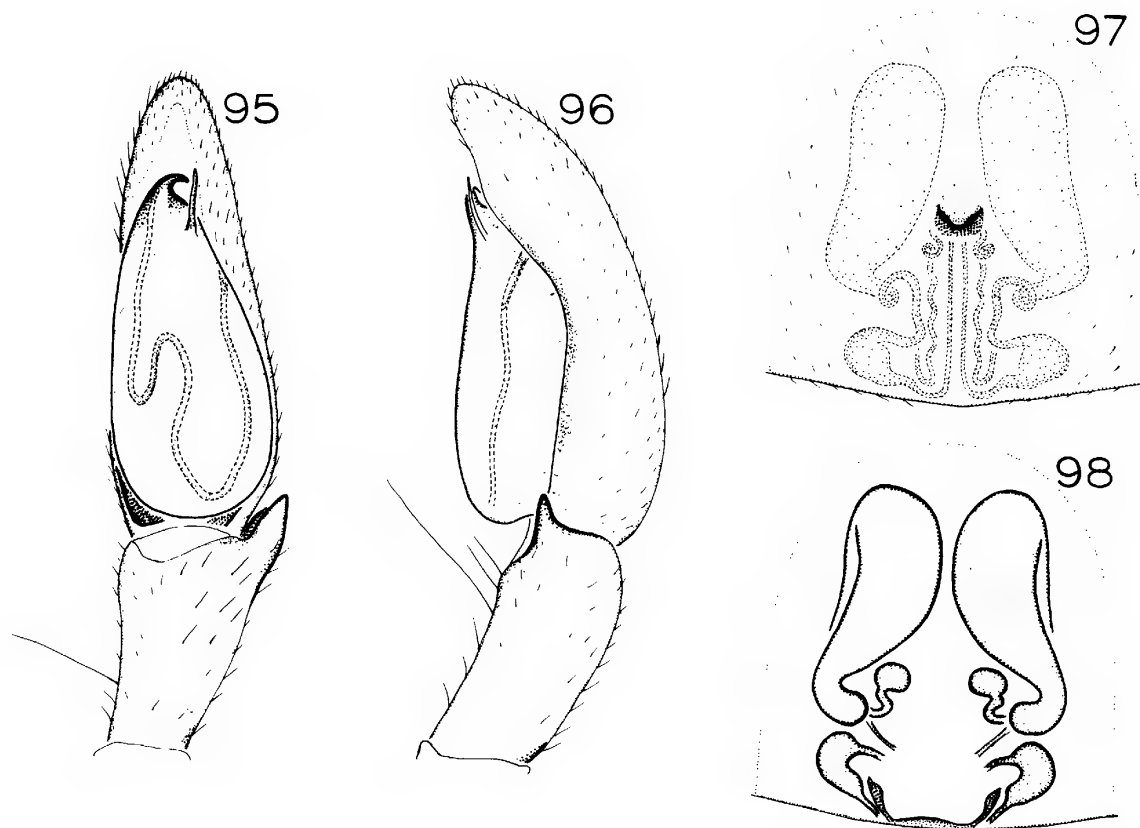
Trachelas deceptus (Banks)

Figures 39, 103-106

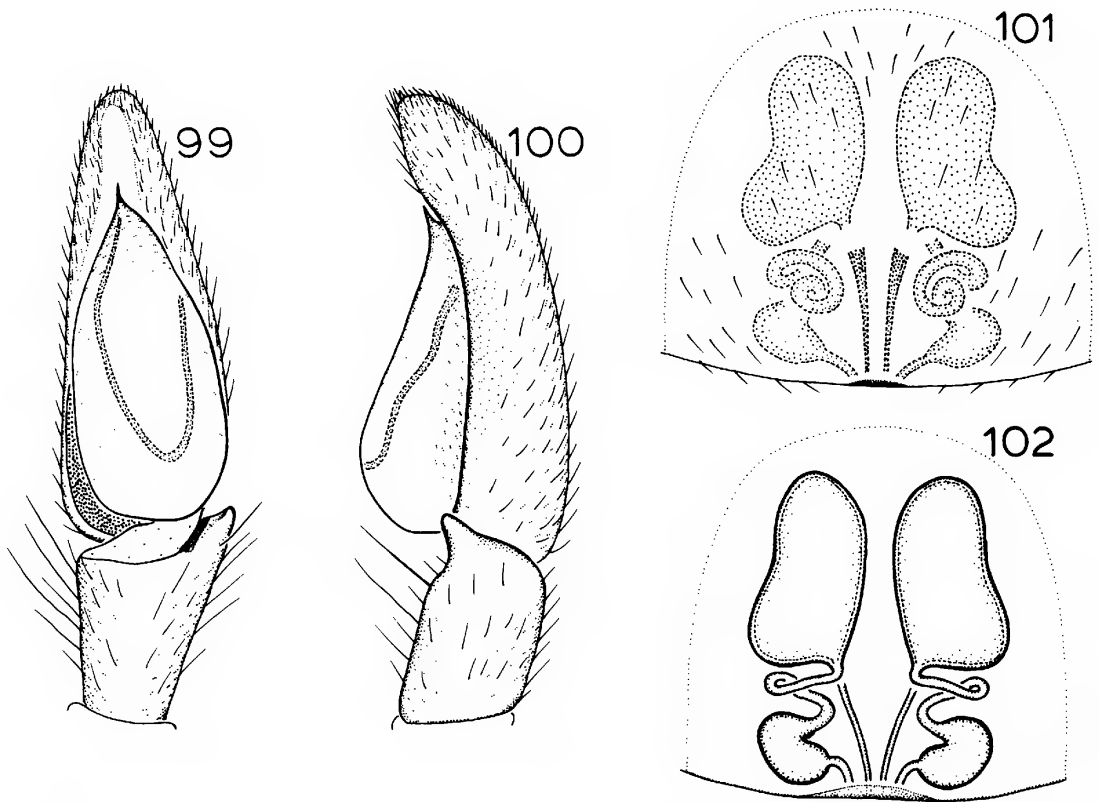
Meriola decepta Banks, 1895, p. 81 (nine female syntypes from Sea Cliff, Long Island, Nassau County, New York, in the Museum of Comparative Zoology, examined).

Trachelas deceptus: Simon, 1897a, p. 180. Roewer, 1954, p. 589. Bonnet, 1959, p. 4667.

Trachelas parvulus Banks, 1898, p. 225, pl. 13, fig. 28 (female holotype from Mexico, no specific locality, in the California Academy of Sciences, destroyed). Roewer, 1954, p. 588. Bonnet, 1959, p. 4670. NEW SYNONYMY.



FIGS. 95-98. *Trachelas barroanus* Chamberlin. 95. Palp, ventral view. 96. Palp, retrolateral view. 97. Epigynum, ventral view. 98. Vulva, dorsal view.



FIGS. 99-102. *Trachelas quadridens* Kraus. 99. Palp, ventral view. 100. Palp, retrolateral view. 101. Epigynum, ventral view. 102. Vulva, dorsal view.

Meriola inornata Banks, 1901, p. 574, fig. 6 (female holotype from Albuquerque, Bernalillo County, New Mexico, in the Museum of Comparative Zoology, examined). NEW SYNONYMY.

Trachelas inornatus: Petrunkevitch, 1911, p. 523. Roewer, 1954, p. 589. Bonnet, 1959, p. 4668.

Meriola decepta floridana Chamberlin and Ivie, 1935, p. 40, pl. 13, fig. 107 (male holotype from Dunedin, Pinellas County, Florida, in the University of Utah, lost). NEW SYNONYMY.

Trachelas deceptus floridanus: Roewer, 1954, p. 589.

Diagnosis. *Trachelas deceptus* is closest to *californicus* but may be distinguished by the subapical retrolateral tibial apophysis (fig. 104) and the short lateral ducts (fig. 106).

Male. Total length 3.61 ± 0.51 mm. Carapace 1.73 ± 0.19 mm. long, 1.35 ± 0.18 mm. wide. Fe-

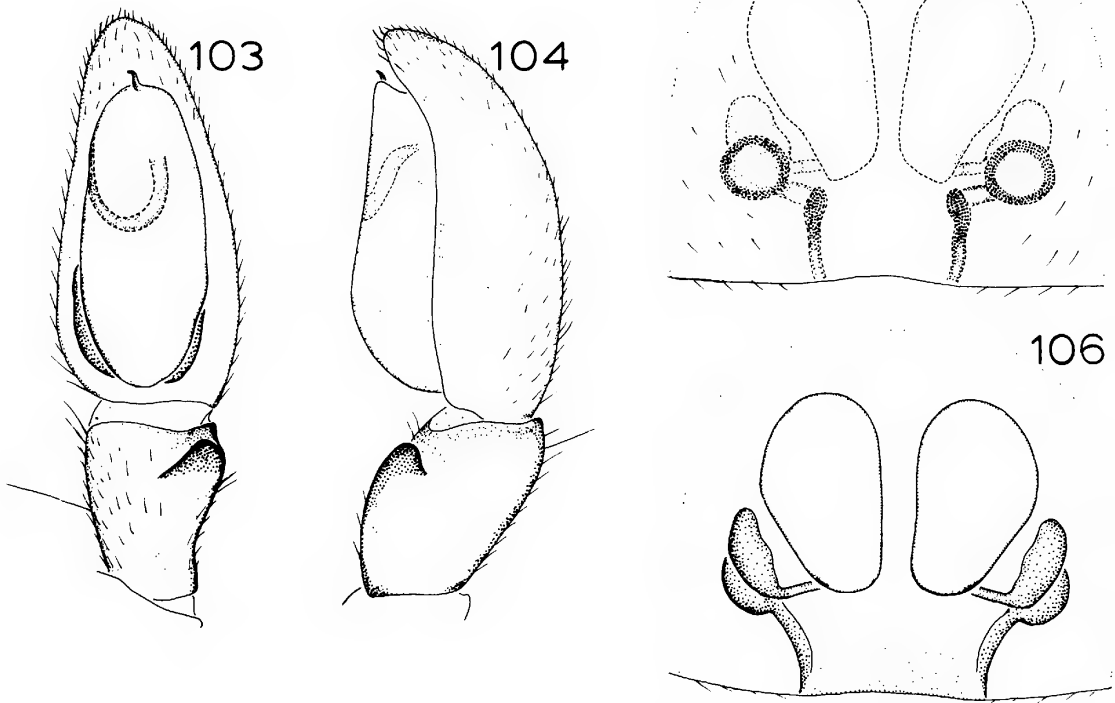
mur I 1.47 ± 0.18 mm. long (104 specimens examined). Palp with short embolus and subapical retrolateral tibial apophysis (figs. 39, 103, 104). Leg cusps: tibia I 1-9, II 0-5; metatarsus I 7-16, II 5-19; tarsus I 4-13, II 0-7.

Female. Total length 3.78 ± 0.36 mm. Carapace 1.61 ± 0.16 mm. long, 1.28 ± 0.09 mm. wide. Femur I 1.30 ± 0.12 mm. long (150 specimens examined). Epigynum with oval spermathecae and short lateral ducts (figs. 105, 106). Leg cusps absent.

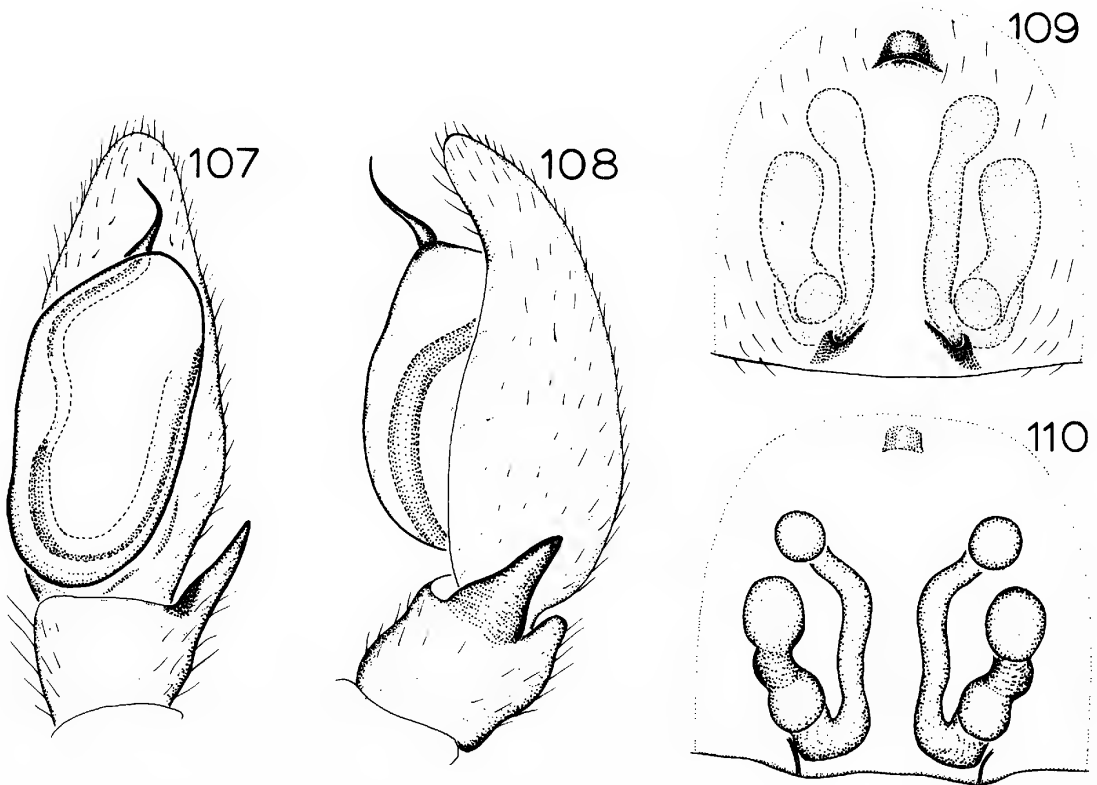
Localities: **United States:** *Arizona:* Cochise Co.: Garden Canyon, Huachuca Mountains; Portal; Rustler's Park, Chiricahua Mountains. *Cocconino Co.:* Mormon Lake. *Maricopa Co.:* Mesa; Phoenix. *Navajo Co.:* Show Low. *Pima Co.:* Santa Catalina Mountains. *Santa Cruz Co.:* Nogales. *Yavapai Co.:* Prescott. *Yuma Co.:* Gila Valley; Yuma. *Arkansas:* Bradley Co.: Sumpter. *Conway Co.:* Crawford Co.: Van Buren. *Lonoke Co.:* Randolph Co. *Washington Co.:* Cove Creek.

California: Inyo Co.: Tecopa Hot Springs. Los Angeles Co.: Whittier. Orange Co.: Anaheim; Laguna Beach; Orange; San Clemente. Riverside Co.: Indian Wells; Riverside. San Diego Co.: Boulevard; El Cajon; San Diego; Silver Strand. Santa Barbara Co.: Santa Barbara. Tulare Co.: Deer Creek. Ventura Co.: Oxnard. *Colorado*: Boulder Co.: Boulder. Mesa Co.: Fruita; Grand Junction. *District of Columbia*: Washington. *Florida*: Alachua Co.: Gainesville. Dade Co.: Homestead; Kendall. Highlands Co.: Archbold Biological Station. Leon Co.: Tall Timbers Research Station. Nassau Co.: Fernandina Beach. Pinellas Co.: Dunedin. Polk Co.: Lake Alfred; Winter Haven. Volusia Co.: De Land. *Georgia*: Chatham Co.: Savannah Beach. Dougherty Co.: Albany. Habersham Co.: Clarksville. Screven Co.: Sylvania. *Illinois*: Jackson Co.: Carbondale; Little Grand Canyon; Worthen Bayou. Macoupin Co.: Gillespie. Williamson Co.: Crab Orchard Lake. *Kansas*: Bourbon Co.: Fort Scott; Red-

field. Meade Co.: Meade County State Park. *Kentucky*: Warren Co.: Bowling Green. *Louisiana*: Avoyelles Par.: Hamburg. East Baton Rouge Par.: Baton Rouge. *Maryland*: Prince Georges Co.: Lanham. *Michigan*: Calhoun Co.: Ott Biological Preserve. *Mississippi*: Jackson Co.: Horne Island. Wilkinson Co.: Centreville. *Missouri*: Johnson Co.: Warrensburg. Phelps Co.: Rolla. Vernon Co.: Nevada. *Nevada*: Clark Co.: Las Vegas; Moapa. *New Jersey*: Ocean Co.: Brick Town; Lakehurst. *New Mexico*: Lincoln Co.: Ruidosa. Santa Fe Co.: Santa Fe. Valencia Co.: Bluewater. *New York*: Suffolk Co.: Huntington. *North Carolina*: Carteret Co.: Beaufort. Durham Co.: Duke Forest. Orange Co.: Barbour Farm. *Ohio*: Wayne Co.: Orrville. *Oklahoma*: Cimarron Co.: Black Mesa State Park. Creek Co.: Shamrock. *Pennsylvania*: Adams Co.: Gettysburg. Bucks Co.: Jamison. Philadelphia Co.: Mount Airy. Washington Co. *South Carolina*: Oconee Co.: Clemson. *Tennessee*: Roane Co.: Kingston.



FIGS. 103-106. *Trachelas deceptus* (Banks). 103. Palp, ventral view. 104. Palp, retrolateral view. 105. Epigynum, ventral view. 106. Vulva, dorsal view.



FIGS. 107-110. *Trachelas californicus* Banks. 107. Palp, ventral view. 108. Palp, retrolateral view. 109. Epigynum, ventral view. 110. Vulva, dorsal view.

Texas: Bexar Co.: San Antonio. Brooks Co.: Fal-furias. Cameron Co.: Brownsville; Harlingen. Col-lingsworth Co.: Wellington. Dallas Co.: Dallas. Denton Co.: Decatur Road. Gonzales Co.: Palmetto State Park. Grayson Co.: Pottsboro; Sadler; Sherman. Hidalgo Co.: Edinburg. Jim Wells Co.: Alice; Premont. Kleberg Co.: Kings-ville. Llano Co.: Llano. San Patricio Co.: Lake Corpus Christi State Park; Nueces River; Sinton. Taylor Co.: Abilene. Tom Green Co.: San An-gelo. Travis Co.: Austin; Upper Bull Creek. Williamson Co.: Georgetown. *Utah*: Grand Co.: Moab. Salt Lake Co.: Salt Lake City. Washington Co.: St. George; Zion National Park. *Virginia*: Fairfax Co.: Falls Church. *Mexico*: *Baja Cali-fornia Norte*: San José. *Chihuahua*: Catarinas; Las Delicias; Santa Bárbara. *Coahuila*: Saltillo. *Distrito Federal*: Contreras. *Durango*: Otinapa; Villa Ocampo. *Hidalgo*: Guerrero Mill; Jacala; Taxquillo. *Jalisco*: Ajijic. *México*: Toluca. *Nuevo León*: Monterrey. *Oaxaca*: Tamazulapan. *Puebla*:

Ozumbilla. *San Luis Potosí*: Ciudad del Maíz. *Sinaloa*: Culiacán. *Tamaulipas*: Reinosá. *Guate-mala*: Antigua Guatemala.

Distribution. New York and Michigan west to Utah and California, south to Guatemala.

Synonymy. The genitalia of the holotype of *inornatus*, and the illustration of *parvulus*, show no significant differences from those of *deceptus*. No character has been found which distinguishes the Florida population of *deceptus*; the differ-ences in the width of the male palpus noted by Chamberlin and Ivie represent individual rather than geographic variation.

Trachelas californicus Banks
Figures 40, 107-110

Trachelas californica Banks, 1904, p. 339, pl. 40, fig. 47 (female holotype from Claremont, Los Angeles County, California, in the Museum of Comparative Zoology, examined).

Trachelas californicus: Petrunkevitch, 1911, p.

523. Roewer, 1954, p. 589. Bonnet, 1959, p. 4667.

Diagnosis. *Trachelas californicus* is closest to *deceptus* but may be distinguished by the apical retrolateral tibial apophysis (fig. 108) and the long lateral ducts (fig. 110).

Male. Total length 3.25 ± 0.41 mm. Carapace 1.59 ± 0.21 mm. long, 1.33 ± 0.16 mm. wide. Femur I 1.31 ± 0.25 mm. long (19 specimens examined). Palp with long embolus and apical retrolateral tibial apophysis (figs. 40, 107, 108). Leg cusps: tibia I 0-3, II 0; metatarsus I 0-10, II 0-7; tarsus I 0-9, II 0-4.

Female. Total length 4.22 ± 0.54 mm. Carapace 1.65 ± 0.10 mm. long, 1.50 ± 0.17 mm. wide. Femur I 1.30 ± 0.11 mm. long (44 specimens examined). Epigynum with anterior hood and long lateral ducts (figs. 109, 110). Leg cusps absent.

Localities. **United States:** *California:* Alameda Co.: Berkeley; Oakland; Strawberry Creek. Contra Costa Co.: Orinda. Humboldt Co.: Scutia. Los Angeles Co.: Beverly Glen Canyon. Marin Co.: Geronimo; Inverness; Muir Woods. Monterey Co.: Pacific Grove; Pebble Beach; Salinas. Riverside Co.: Prado Dam. San Diego Co.: San Diego. San Francisco Co.: San Francisco. San Luis Obispo Co.: Oceano; San Simeon. San Mateo Co.: Daly City; Miramar; Woodside. Santa Clara Co.: Palo Alto. *Oregon:* Lane Co.: Eugene. Marion Co.: Salem. Multnomah Co.: Portland. Yamhill Co.: McMinnville; Peavine Ridge. *Washington:* King Co.: Seattle. Snohomish Co.: Everett. *Mexico:* *Baja California Norte:* 40 mi. N Tecate.

Distribution. Pacific Coast from Washington south to Baja California Norte.

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