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Spiders of the Genus *Dipoena* from America North of Mexico (Araneae, Theridiidae)

By Herbert W. Levi[1]

This study is based on the collection in the American Museum of Natural History, made available to me by Dr. Willis J. Gertsch. I would like to thank the following for the loan of additional specimens: the late Miss E. B. Bryant of the Museum of Comparative Zoölogy, Dr. R. V. Chamberlin of the University of Utah, Dr. E. A. Chapin of the United States National Museum, Dr. A. M. Chickering of Albion College, Dr. H. Dietrich of Cornell University, Mrs. D. L. Frizzell (Dr. Harriet Exline) of Rolla, Missouri, Dr. B. J. Kaston of the Connecticut State Teachers College, and Mr. V. Roth of the Oregon State College. Special thanks are due to Dr. R. D. Barnes of Smith College for two specimens which he had planned to describe as new, and to Dr. A. Kaestner of the Zoologisches Museum in Berlin and Dr. H. Wiehle of Dessau, Germany, for the gift of several European specimens, to Dr. A. Tullgren of the Riksmuseum, Stockholm, for information, to Dr. W. J. Gertsch for his generous help and for pointing out synonymies, to my wife who helped write this paper, and to Mrs. C. Crocker for helping me to obtain literature.

The holotypes of all the new species are deposited in the American Museum of Natural History.

Species described as *Dipoena* which belong elsewhere are:

Dipoena intrita Bishop and Crosby, 1926, Jour. Elisha Mitchell Soc., vol. 41, p. 176, fig. 21 (male). This is an *Allotheridion*. *Theridion indianorum* Gertsch and Archer, 1942, is a synonym.

Dipoena jocosa Gertsch and Mulaik, 1936, Amer. Mus. Novitates, no. 881, p. 7, fig. 20 (male and female). This species belongs in a new genus, to be named in a later paper.

Dipoena lascivula (Keyserling), Simon, 1894, Histoire naturelle des araignées,

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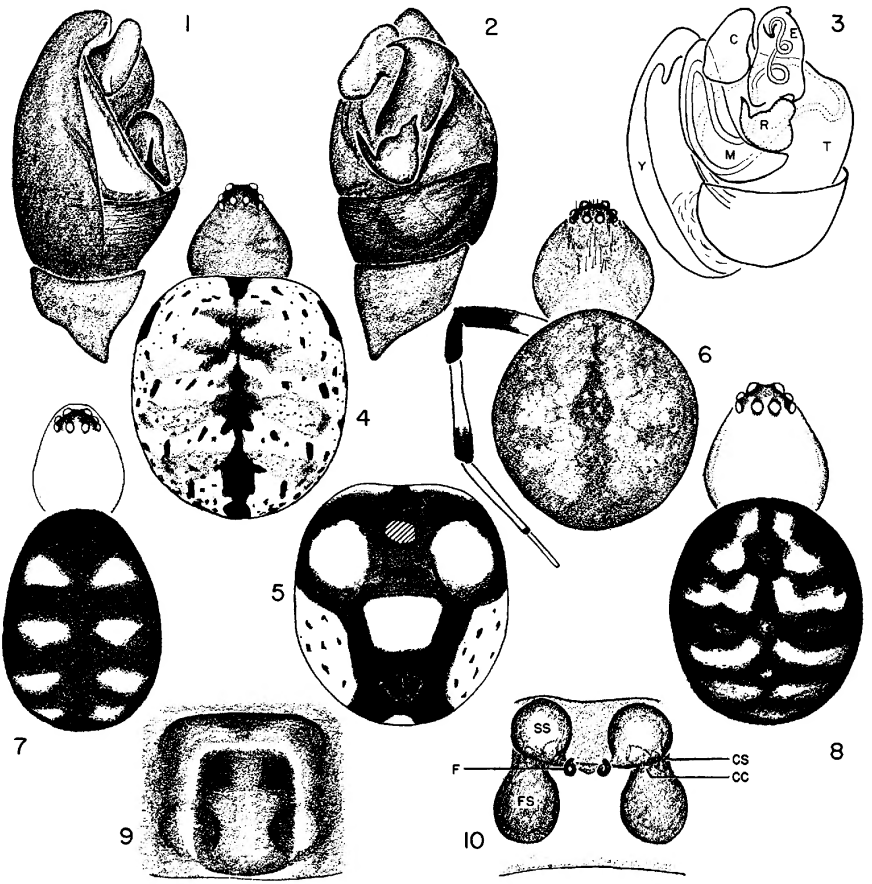


FIGS. 1–3. *Dipoena melanogaster* (C. L. Koch), left palpus. 1. Mesal view. 2. Ventral view. 3. Subventral view, expanded.

FIGS. 4–5. *Dipoena sulfurica*, new species, female. 4. Dorsal view, appendages omitted. 5. Ventral view of abdomen.

FIG. 6. *Dipoena buccalis* Keyserling, dorsal view of female.

FIG. 7. *Dipoena neotoma*, new species, dorsal view of female.

FIG. 8. *Dipoena malkini*, new species, dorsal view of female.

FIGS. 9–10. *Dipoena melanogaster* (C. L. Koch). 9. Epigynum. 10. Female genitalia.

Abbreviations: C, conductor; CC, connecting canal; CS, canal connecting first and second seminal receptacles; E, embolus; F, fertilization duct; FS, first seminal receptacles; M, median apophysis; R, radix; SS, second seminal receptacles; T, tegulum; Y, cymbium.

ed. 2, vol. 1, p. 578. *Crustulina lascivula* Keyserling, 1884, Die Spinnen Amerikas, vol. 2, Theridiidae, part 1, p. 39, pl. 12, fig. 122 (female). This species is the female of *Tholocco amputata* (Keyserling), 1884. *Theridion paradisiacum* Gertsch and Archer, 1942, is a synonym.

Dipoena munda Barrows and Ivie, 1942, Ohio Jour. Sci., vol. 42, p. 118, pl. 1, figs. 1–5 (male and female). This species is *Euryopis quinquemaculata* Banks.

Dipoena quinquemaculata (Banks), Chamberlin and Ivie, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 80. This is a *Euryopis*.

Dipoema pallida Emerton, 1913, Trans. Connecticut Acad. Arts Sci., vol. 18, p. 213, fig. 4 (male). This is a *Tholocco*. *Theridion wallacei* Gertsch and Archer, 1942, is a synonym.

Dipoena pictipes Banks, 1904, Proc. California Acad. Sci., ser. 3, vol. 3, p. 345. This is a *Tholocco*. *Theridion catalinae* Gertsch and Archer, 1942, is a synonym.

Dipoena parvula Banks, 1901, Proc. U. S. Natl. Mus., vol. 23, p. 589, fig. 4 (female). This species is not known to me. Judging by the figures, it is not a *Dipoena*.

Dipoena Thorell

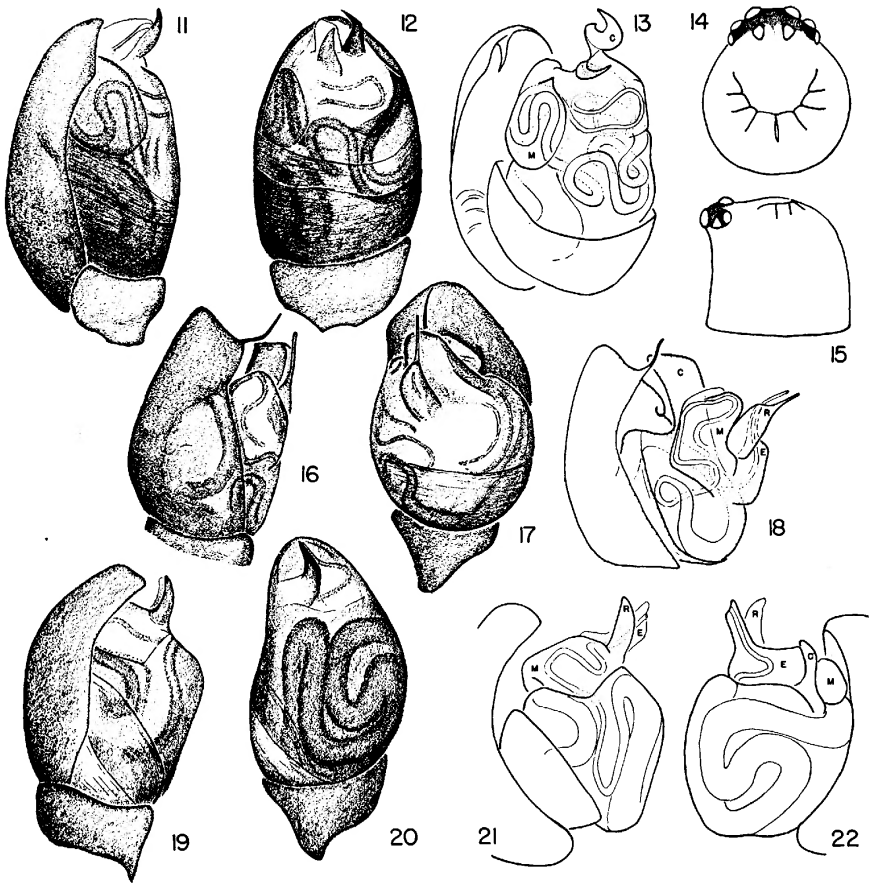
Pachydactylus MENGE, 1868, Schr. Naturf. Gesellsch. Danzig, vol. 2, p. 176. Genotype: *Pachydactylus pronus* Menge. (The name *Pachydactylus* has been used by Wiegman, 1834, for a genus of reptiles, and is therefore preoccupied.)

Dipoena THORELL, 1869, Nova Acta R. Soc. Sci. Uppsala, ser. 3, vol. 7, p. 91. Genotype: *Epeira melanogaster* C. L. Koch.

Lasaeola SIMON, 1881, Les arachnides de France, vol. 5, p. 136. (This genus was set up by Simon to replace *Pachydactylus*.)

?*Deliana* KEYSERLING, 1884, Die Spinnen Amerikas, vol. 2, Theridiidae, pt. 2, p. 35. Genotype: *Deliana spinithorax* Keyserling.

Theridiid spiders of small to medium size. Carapace usually normal in females, sometimes elevated behind eyes (fig. 101). Clypeus strongly concave (figs. 41, 79, 100), at least as high as two and one-fourth diameters of anterior median eyes, frequently higher. Carapace often modified in males, being very high and cylindrical (figs. 15, 64, 69). Sides of modified carapace finely striated (fig. 64) and the thoracic groove in a deep irregular depression, semicircular and sometimes with radiations (figs. 75–76). Clypeus of modified carapace straight, not concave. Anterior eye row procurved, when seen from in front; posterior row straight or slightly recurved when seen from above. Ocular quadrangle wider in front than behind. Anterior and posterior lateral eyes touching. Anterior lateral eyes close to anterior medians. Eyes large and subequal or anterior medians larger. In males having a high carapace, eyes are reduced in size (figs. 56–58), and posterior median eyes are closer together than in accompanying females. Chelicerae small. Labium usually separated from sternum by a seam. Sternum generally



FIGS. 11–15. *Dipoena lineatipes* Bryant. 11. Palpus, mesal view. 12. Palpus, ventral view. 13. Palpus, subventral view, expanded. 14. Carapace of male, dorsal view. 15. Carapace of male, lateral view.

FIGS. 16–18. *Dipoena buccalis* Keyserling, palpus. 16. Mesal view. 17. Ventral view. 18. Mesal view, expanded.

FIGS. 19–22. *Dipoena cathedralis*, new species, palpus. 19. Mesal view. 20. Ventral view. 21. Mesal view, expanded. 22. Ectal view, expanded.

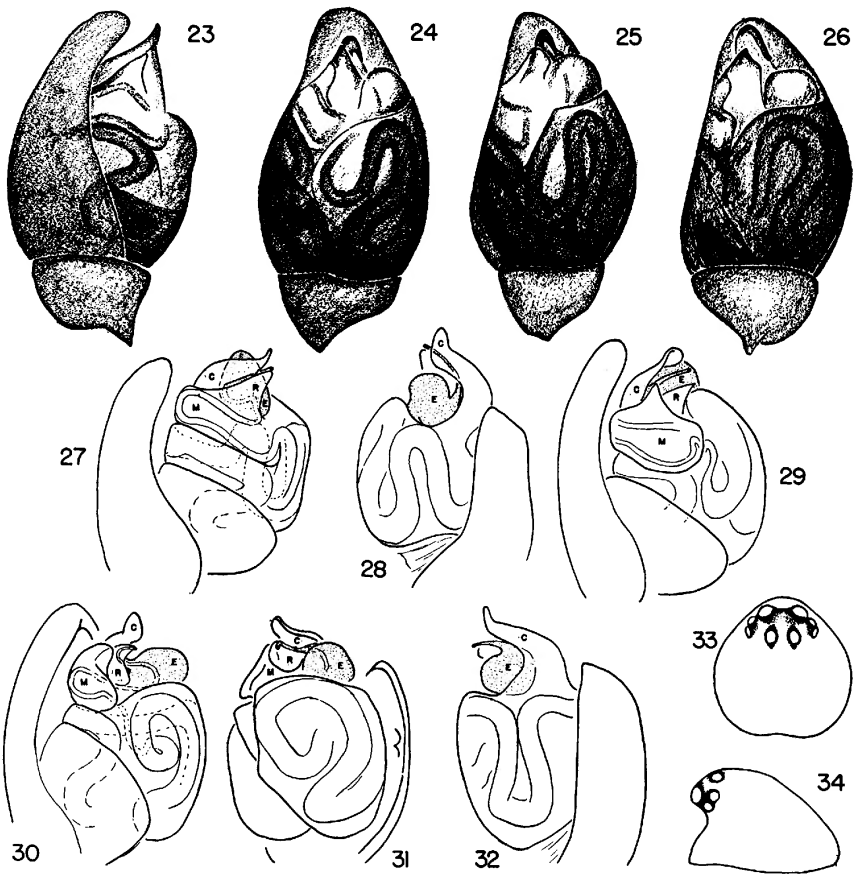
Abbreviations: C, conductor, E, embolus; M, median apophysis; R, radix.

as wide as long (very narrow in individual alcoholic specimens), widest in front and truncate between posterior coxae which are separated by their diameter. Sternum convex, legs short and fairly robust. Either first or fourth legs the longest, the third always shortest. Legs covered by hairs which may be serrate. In *D. lineatipes* males and also in some tropical American species there is a tubercle on the retrolateral face of the patella of each leg. Indications of this are present in the female of

D. lineatipes and in other North American species. No distinct tarsal comb could be found on the fourth tibae of most species, although it is present on some. Abdomen of North American species suboval to subspherical. A colulus with two small setae almost always visible. A dorsal abdominal scutum present in male *Dipoena lineatipes* Bryant.

Epigynum (external view of female genitalia) usually a simple pit. Genitalia with four seminal receptacles (FS, SS on fig. 10). Internal portions of North American species usually very weakly sclerotized (with the exception of *Dipoena sulfurica,* new species, figs. 102–104). *Dipoena hamata* Tullgren has only an indistinct mound in the region of the epigynum (fig. 105) ; *Dipoena abdita* Gertsch and Mulaik has two darker spots, the openings of the connecting canals (fig. 108).

Conductor (C on figures) of palp is in back, usually not strongly sclerotized, and frequently reduced in size. Embolus (E) usually on ectal side and with its basal portion more or less spherical. In some species, the median apophysis (M) is attached to the tegulum, either with a seam (fig. 13) or without one (figs. 18, 27). In most species, however, it is a separate sclerite. Distal end of median apophysis fits into a protuberance, which is usually on ectal wall of alveolus (the hollow portion) of cymbium, and holds bulb in alveolus. The proximal portion of median apophysis of *Dipoena lineatipes* with an outgrowth, which fits into above-mentioned protuberance (fig. 13). In *Dipoena cathedralis,* this outgrowth lies against tip of embolus (figs. 20–21). In *Dipoena appalachia* and *D. nigra,* a portion of this outgrowth breaks off and becomes a separate sclerite (figs. 27, 29–30), which I have called radix (R), as it lies in a position similar to that of the radix in argiopids. The radix becomes a very large structure in many *Dipoena,* as in many other theridiid genera, and lies against the embolus (figs 70–71). The duct in some species is decidedly coiled (fig. 13). The tegulum is a sphere in some species, probably a primitive condition (fig. 13). It tends to become a tube or ring around the duct in others (figs. 62, 70), as in many theridiids with a more complex palp such as *Latrodectus.* The palp of *D. daltoni* has an ectal accessory apophysis (A in figs. 70–71). This apophysis is very large in *D. abdita* and pushes the embolus to the back (figs. 81–82). The homology and origin of this apophysis are not known. It may be that it breaks off from the radix. Evidence for this is shown by the palp of *D. hamata* the radix of which has two lobes which may possibly be separate (fig. 59). On the other hand, the structure may have broken off the tegulum or, more likely, the embolus. Both *D. sulfurica* and *D. malkini* have the proximal portion of the embolus with a lobe which may be homologous to the accessory apophysis (figs. 49, 62).



FIGS. 23–29. *Dipoena appalachia*, new species, palpus. 23. Mesal view (North Carolina). 24. Ventral view (North Carolina). 25. Ventral view (Georgia). 26. Ventral view (Mississippi). 27. Mesal view, expanded (Georgia). 28. Ectal view, expanded (Georgia). 29. Mesal view, expanded (Mississippi).

FIGS. 30–32. *Dipoena nigra* (Emerton), palpus. 30. Submesal view, expanded (New Jersey). 31. Subventral view, expanded (New Jersey). 32. Ectal view, expanded (New Jersey).

FIGS. 33–34. *Dipoena buccalis* Keyserling, carapace of male. 33. Dorsal view. 34. Lateral view.

Abbreviations: C, conductor; E, embolus; M, median apophysis; R, radix.

The genus *Dipoena* grades into *Euryopis,* there being no sharp division between the two. In contrast to most other theridiids, both genera are characterized by having four seminal receptacles in the female genitalia and by having the duct in the male palp loop through the median apophysis. In both genera, when the palp is examined from the venter and when the embolus is situated on the surface and has a basal sclero-

tized plate, the embolic division curves from below (proximal) towards the outside (ectal) of the bulb (figs. 32, 59, 71). The curvature is, in other words, clockwise in the right palp, counterclockwise in the left palp. The embolus curves in the opposite direction in many other theridiids, particularly in those related to *Theridion*. The curvature in *Parasteatoda* is similar to that in *Euryopis* and *Dipoena* (although there is probably no close relationship). *Euryopis* and *Dipoena* differ from each other in that the abdomen of *Dipoena* is more often oval, while that of *Euryopis* is frequently subtriangular. A colulus is usually visible on the abdomen of *Dipoena*. The palp of *Dipoena* is more complex than that of *Euryopis*. The median apophysis is usually a separate sclerite or the duct is more tortuous in *Dipoena* than in *Euryopis*. All species of *Dipoena* examined have evidence of a radix in the palp, while this structure is not present in *Euryopis*.

Although no subspecies have been described here, there are indications that some species of *Dipoena* (*D. malkini*) are polytypic. The group of *D. tristis* is puzzling. *Dipoena tristis* (Hahn), 1831 (figs. 35, 89), in northern and central Europe, and *D. braccata* (C. L. Koch), 1841 (figs. 36, 90), found in central and southern Europe, are very closely related, but their ranges overlap. Wiehle (1938) considers the possibility that *D. braccata* may be a form of *D. tristis*. Unfortunately, little is known regarding the biology of the two species. The extremely variable *D. nigra* (Emerton), which is found in all parts of the United States and southern Canada, in a number of respects is intermediate between *D. tristis* and *D. braccata*. Its habits are much less specific than those of the European relatives, which build their webs in conifers. Because of our lack of knowledge regarding the relationship of *D. tristis* and *D. braccata, D. nigra* is here considered a separate species rather than a subspecies, despite the apparent similarity of the three.

Another problem which remains unsolved is that of *Dipoena appalachia,* which is found in some southeastern states. Although males in this group of spiders usually occur less commonly in collections than females, *D. appalachia* is known only from males from a number of localities. The variation of the male palpus is unusually great. It has been collected with females of *D. nigra,* of which no males have ever been collected in the region. *D. appalachia* differs from *D. nigra* not only in palpal characters, but also in the relative length of metatarsi and tarsi. It may be that *D. appalachia* is the male of *D. dorsata,* known only from two females. The metatarsal and tarsal proportions of the last two species are similar.

Members of the genus *Dipoena* have been collected by sifting leaf

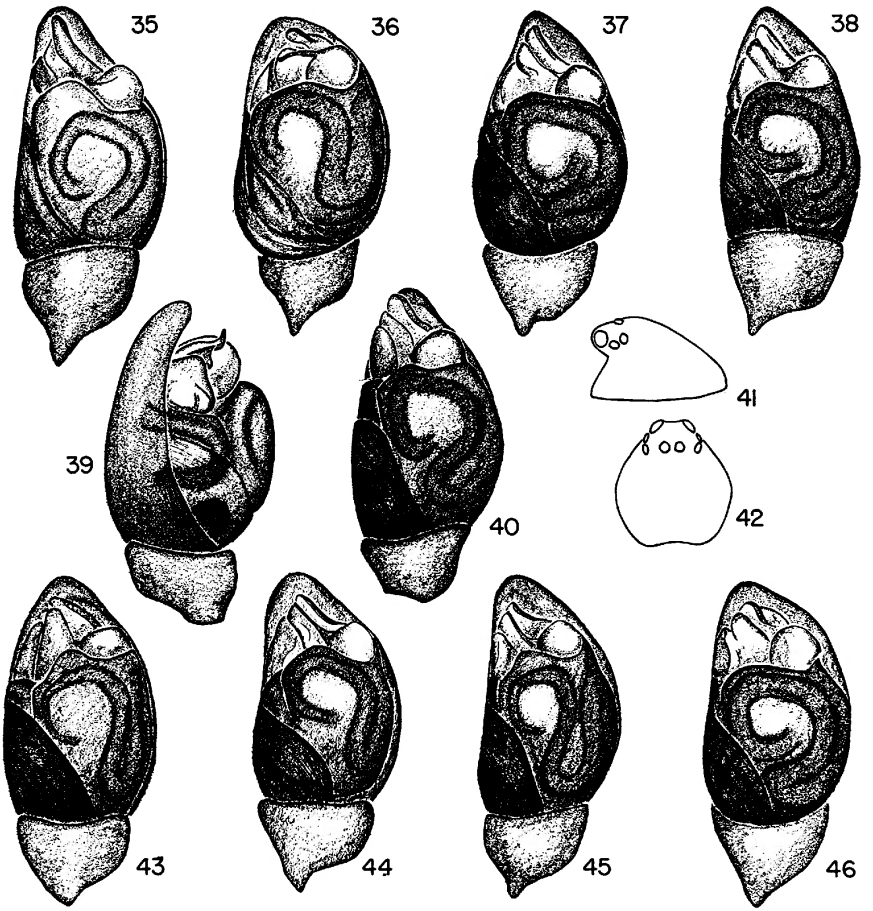


FIG. 35. *Dipoena tristis* (Hahn), palpus, ventral view (Germany).

FIG. 36. *Dipoena braccata* (C. L. Koch), palpus, ventral view (Switzerland).

FIGS. 37–46. *Dipoena nigra* (Emerton). 37. Palpus, ventral view (Florida). 38. Palpus, ventral view (Arkansas). 39. Palpus, mesal view (Vermont). 40. Palpus, ventral view (Vermont). 41. Carapace of male, lateral view. 42. Carapace of male, dorsal view. 43. Palpus, ventral view (California). 44. Palpus, ventral view (Idaho). 45. Palpus, ventral view (Utah). 46. Palpus, ventral view (Michigan).

litter, beating bushes and trees, and also by sweeping vegetation. *Dipoena tristis* feeds on ants (Wiehle, 1937), and *Dipoena nigra* has been reported as having similar feeding habits (Archer, 1946).

The internal female genitalia were studied by placing the abdomen of the specimen in clove oil. When necessary, the genitalia were cut off and placed on a microscope slide. The internal structure of the palpus

of the male became visible after boiling a few minutes in 10 per cent sodium hydroxide solution. Sometimes it was necessary to clear the palp further in terpineol. Needles were used to pull the distal portion of the bulb out of the alveolus of the cymbium.

The measurements given are the maximum lengths of the respective organs without spines. All palpi illustrated are left ones.

The North American *Dipoena* fall into a number of distinct groups.

1. The *lineatipes* group is characterized by having the duct of the palp much coiled and the embolic division very small (fig. 13). *Dipoena inornata* of Europe probably belongs to this group, as does *D. lineatipes.*

2. The *nigra* group has the posterior median eyes close together and the duct forming a prominent loop in the venter of the bulb of the palp (figs. 20, 24–26, 35–40, 43–46). The epigynum is a small shallow depression with one or more of its borders sclerotized. Members of this group are *Dipoena cathedralis, D. dorsata, D. chathami, D. appalachia,* and *D. nigra.*

3. *Dipoena buccalis* (figs. 16–18, 98–99) belongs in a group by itself; no other species known to me is closely related to it.

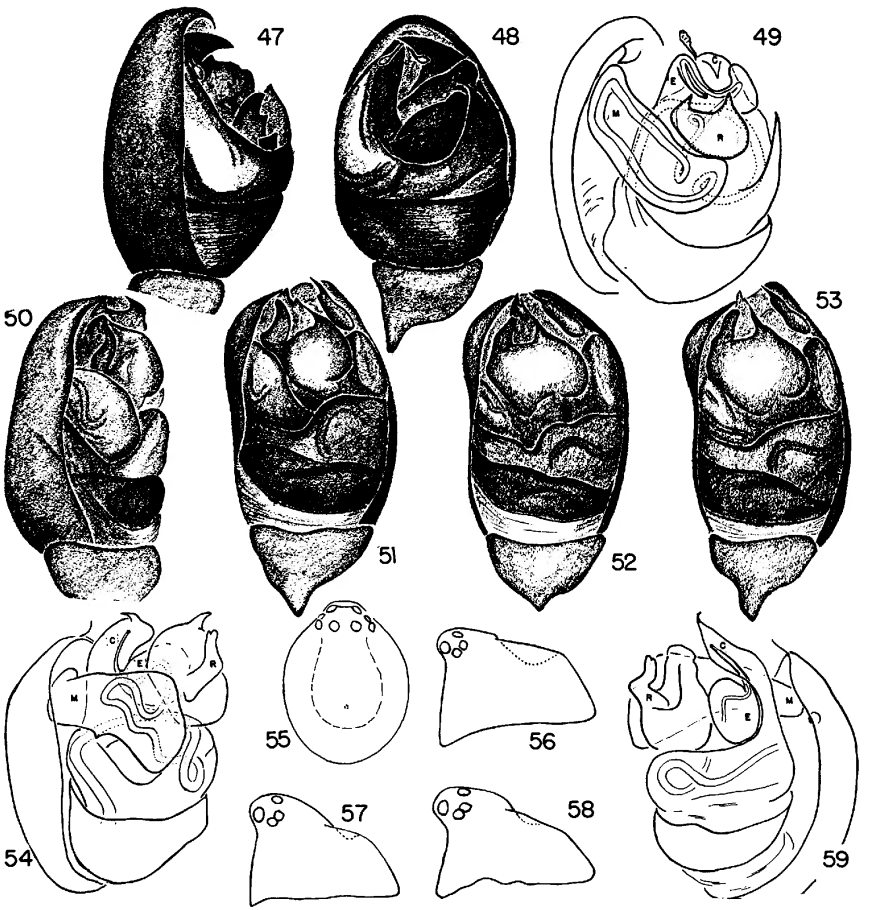
4. The *sulfurica* group has a pattern on the abdomen. The relatively flat radix lies close to the proximal end of the median apophysis (figs. 3, 49) and in the contracted palp is visible in the venter in a depression of the tegulum (figs. 2, 48). The seminal receptacles and connecting canals of the female genitalia are sclerotized (figs. 10, 103–104). *Dipoena melanogaster* of Europe belongs to this group as does *D. sulfurica.*

5. The *hamata* group usually has the carapace of the male modified. The radix is a complex and prominent sclerite in the venter of the bulb (figs. 51–54, 59, 62, 74). The tegulum is relatively narrow. The epigynum usually has a depression of distinct appearance. *Dipoena hamata, D. malkini, D. provalis, D. washougalia, D. daltoni, D. neotoma,* and *D. lana* belong to this group.

6. Members of the *abdita* group are golden yellow in color except for the abdomen which is pinkish gray. The carapace is low. A large accessory apophysis has moved the embolus to the back of the palp (figs. 81–82). Only portions of the complex radix are visible in the contracted palp, the rest being hidden by the wide tegulum (fig. 78). Two dark spots, the openings of the canals, form the most distinctive feature of the epigynum (fig. 108). Besides *D. abdita,* there are several Central American species belonging to this group.

Key to *Dipoena* Females

1. Abdomen with a more or less distinct pattern on the dorsum 2
   Abdomen plain gray, black, brown, orange, or yellow without a pattern 8



FIGS. 47–49. *Dipoena sulfurica*, new species, palpus. 47. Mesal view. 48. Ventral view. 49. Subventral view, expanded.

FIGS. 50–59. *Dipoena hamata* Tullgren. 50. Palpus, mesal view (Arizona). 51. Palpus, ventral view (Arizona). 52. Palpus, ventral view (Michigan). 53. Palpus, ventral view (Rhode Island). 54. Palpus, submesal view, expanded (Arizona). 55. Carapace of male, dorsal view (Utah). 56. Carapace of male, lateral view (Utah). 57. Carapace of male, lateral view (Michigan). 58. Carapace of male, lateral view (Rhode Island). 59. Palpus, ectal view, expanded (Arizona).

Abbreviations: C, conductor; E, embolus; M, median apophysis; R, radix.

2. Abdomen mainly black or gray with eight to 10 large white spots (figs. 7, 8) 3
   Abdomen more or less spotted with a darker median line (figs. 4, 6) . . 7
3. Spots of irregular shape (fig. 8) 4
   Spots subtriangular (fig. 7) 5

4. A shallow depression on anterior border of epigynum (fig. 110) . . *malkini*
   A sclerotized plate on anterior border of epigynum (fig. 114) . . *provalis*
5. A median scape overhanging depression of epigynum (fig. 112) . . . *lana*
   No median scape present 6
6. Height of loop of connecting duct greater than width of depression of epigynum (fig. 118) . . . . . *neotoma*
   Height of loop of connecting duct equal to or less than width of depression of epigynum (fig. 116) . . . . . *daltoni*
7. Venter of abdomen with a clear white mark bordered by black (fig. 5) . . . . . *sulfurica*
   Venter of abdomen with an indistinct pattern . . . . . *buccalis*
8. Posterior median eyes closer to each other than to posterior lateral eyes 9
   Posterior median eyes about as far from each other as from posterior laterals or closer to laterals 12
9. Found in the Rocky Mountains and on the Pacific Coast . . . . . *nigra*
   Found in central, southern and eastern North America 10
10. Second (or third) metatarsus and tarsus of mature females in a ratio of about 11 to 6 . . . . . *nigra*
    Second (or third) metatarsus and tarsus about equal in length (*D. cathedralis* found in Texas, female not known, *D. dorsata*, *D. chathami*) 11
11. Epigynum a slightly sclerotized crescent, the posterior border of a depression (fig. 87) . . . . . *dorsata*
    Epigynum with two pockets facing an anterior depression (fig. 85) . . . . . *chathami*
12. Color of the whole spider yellow to orange or pinkish white . . . *abdita*
    Color brown, gray, or black (*D. washougalia*, female not known, *D. rita*, *D. lineatipes*, *D. hamata*) 13
13. Epigynum two depressions separated by a narrow bridge (fig. 107) . *rita*
    Epigynum either two very shallow indistinct depressions or only one more or less distinct depression 14
14. Epigynum a depression with an anterior overhanging sclerite; connecting duct plainly visible and forming a V pattern (fig. 120) . . . *lineatipes*
    Epigynum a very indistinct mound with two indistinct depressions on the posterior slope . . . . . *hamata*

Dipoena melanogaster (C. L. Koch)

Figures 1–3, 9–10

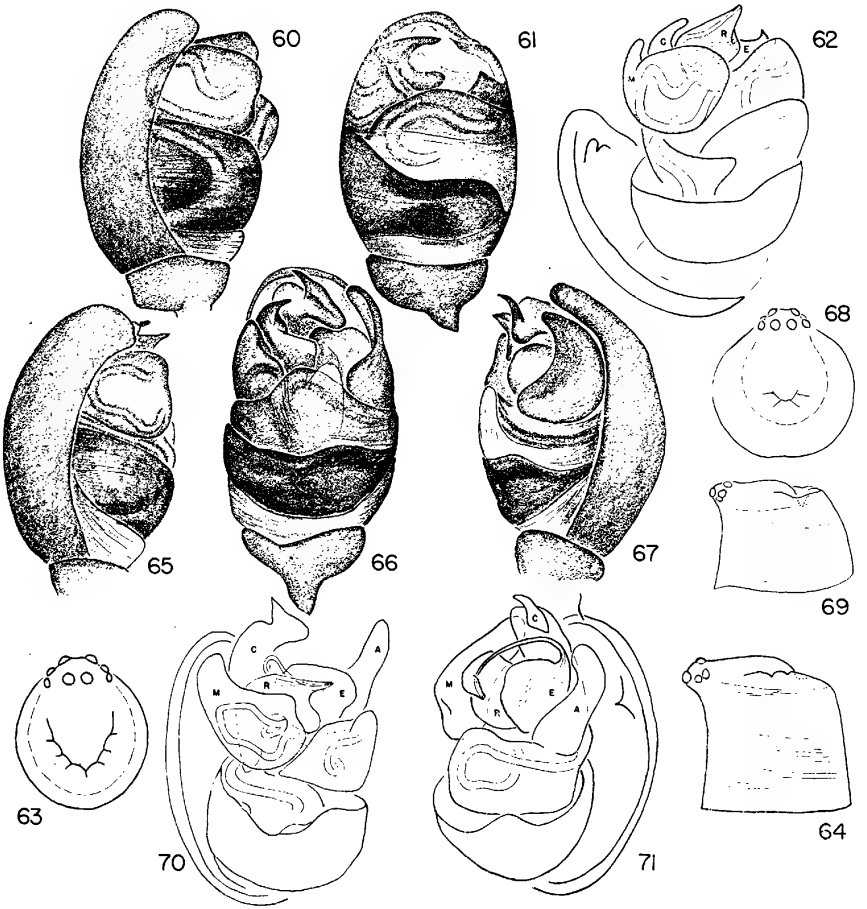
Epeira melanogaster C. L. KOCH, 1837, Uebersicht des Arachnidensystems, vol. 1, p. 4.

Atea melanogaster C. L. KOCH, 1845, Die Arachniden, vol. 11, p. 143, figs. 941, 942 (male and female).

Dipoena melanogaster THORELL, 1864, Nova Acta R. Soc. Sci. Uppsala, ser. 3, vol. 7, p. 91.

This species is close to *Dipoena sulfurica,* new species, found in the southwestern United States.

DISTRIBUTION: Europe and North Africa.



FIGS. 60-64. *Dipoena malkini*, new species. 60. Palpus, mesal view. 61. Palpus, ventral view. 62. Palpus, subventral view, expanded. 63. Carapace of male, dorsal view. 64. Carapace of male, lateral view.

FIGS. 65–71. *Dipoena daltoni*, new species. 65. Palpus, mesal view. 66. Palpus, ventral view. 67. Palpus, ectal view. 68. Carapace of male, dorsal view. 69. Carapace of male, lateral view. 70. Palpus, subventral view, expanded. 71. Palpus, subectal view, expanded.

Abbreviations: A, accessory apophysis; C, conductor; E, embolus; M, median apophysis; R, radix.

Dipoena lineatipes Bryant

Figures 11–15, 120–121

Dipoena lineatipes BRYANT, 1933, Bull. Mus. Comp. Zool., vol. 74, p. 174, fig. 7 (female). ROEWER, 1942, Katalog der Araneae, vol. 1, p. 424. ARCHER, 1946, Alabama Mus. Nat. Hist., paper 22, p. 23.

MALE: Total length, 1.1–1.8 mm.

Carapace light orange-brown, cephalic area dusky, eye region black. Sternum light orange, dusky towards sides. Legs orange, with indistinct dorsal longitudinal line. Abdominal scutum orange-brown. Abdomen light gray to metallic black.

Carapace elevated and cylindrical (figs. 14, 15). Anterior median eyes one diameter apart, a quarter of a diameter from laterals. Posterior median eyes two-thirds of their diameter apart, one and a quarter diameters from laterals. Anterior median eyes largest, diameter of anterior laterals and posterior median eyes about 0.8 of a diameter of anterior medians; posterior laterals 0.7 of a diameter of anterior medians. Fourth legs the longest. Basal quarter of dorsum of abdomen covered with scutum. Two muscle scars covered by small sclerotized plates and many bristles arising from small sclerotized spots.

Median apophysis of palp attached, but a seam present. Duct much convoluted. Proximal end of median apophysis has a hook which fastens on protuberance on upper edge of alveolus of cymbium (figs. 11–13).

Carapace of specimen from Alachua County, Florida: 0.63 mm. long, 0.58 mm. wide, 0.57 mm. high. First patella and tibia, 0.55 mm.; second patella and tibia, 0.55 mm.; third patella and tibia, 0.45 mm.; fourth patella and tibia, 0.65 mm.

FEMALE: Total length, 1.2–1.8 mm.

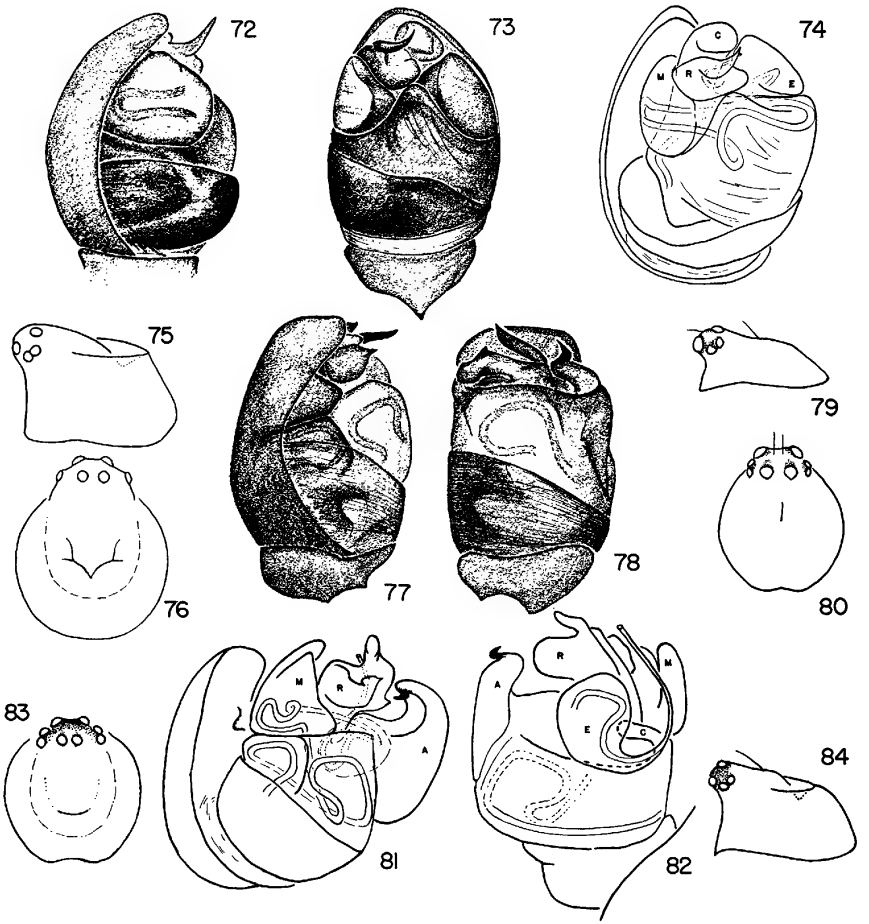
Coloration like that of male.

Carapace low. Anterior median eyes two-thirds of their diameter apart, one-quarter of a diameter from laterals. Posterior median eyes one diameter apart, one diameter from laterals. Anterior median eyes larger than others, diameter of posterior median eyes 0.6 of a diameter of anterior medians, anterior and posterior laterals half the diameter of anterior medians. Clypeus two and one-half diameters of anterior median eyes. Fourth legs the longest. Abdomen covered by many small recurved bristles arising from small sclerotized spots. Colulus not visible.

Epigynum a depression with an anterior sclerotized plate. Two connecting canals form a noticeable V whose point ends in the sclerotized spot (figs. 120–121).

Carapace of specimen from Alachua County, Florida: 0.62 mm. long, 0.62 mm. wide, 0.30 mm. high. First patella and tibia, 0.56 mm.; second patella and tibia, 0.53 mm.; third patella and tibia, 0.52 mm.; fourth patella and tibia, 0.74 mm.

Dipoena lineatipes is very close to *Dipoena inornata* (O. P. Cambridge) found in Europe, but differs in details of the genitalia. *Dipoena furtiva* Chickering *in* Roewer, 1951 (Abhandl. Naturwiss. Ver. Bremen,



FIGS. 72–76. *Dipoena washougalia*, new species. 72. Palpus, mesal view. 73. Palpus, ventral view. 74. Palpus, ventral view, expanded. 75. Carapace of male, lateral view. 76. Carapace of male, dorsal view.

FIGS. 77–82. *Dipoena abdita* Gertsch and Mulaik. 77. Palpus, mesal view. 78. Palpus, ventral view. 79. Carapace of male, lateral view. 80. Carapace of male, dorsal view. 81. Palpus, mesoventral view, expanded. 82. Palpus, dorsal view, expanded, cymbium removed.

FIGS. 83–84. *Dipoena sulfurica*, new species, carapace of male. 83. Dorsal view. 84. Lateral view.

Abbreviations: A, accessory apophysis; C, conductor; E, embolus; M, median apophysis; R, radix.

vol. 32, p. 455; = *D. pallida* Chickering, 1943), which is found in Central America and is known only from females, may be a distinct species. Only further collecting and an examination of males will tell. *Dipoena furtiva* differs in having a pattern on the dorsum of the abdomen, in having

the posterior rim of the depression of the epigynum sclerotized, and in having the first pair of seminal receptacles larger than the second pair. There are some additional differences in the ducts of the genitalia.

HABITS AND DISTRIBUTION: This species has been collected in leaf litter (Archer, 1936) and is found from Florida to Texas.

TYPE LOCALITY: Holotype from Royal Palm Park, Florida, March 15–24, 1930, collected by W. S. Blatchley; in the Museum of Comparative Zoölogy.

RECORDS: *Florida:* Alachua County, November 18, 1934, one male, two females; Lake Istokpoga, December 19, 1950, two males, one female, December 21, 1950, one female, February 28, 1951, three males, one female (A. M. Nadler); Kendall, January 3, 1951, one male, February 19, 1951, one male, two females, November 30, 1952, seven males, 10 females (A. M. Nadler); Archbold Biological Station, February 8, 1951, two males (A. M. Nadler); Highlands Hammock, February 28, 1951, one male (A. M. Nadler); Fish Eating Creek, Glades County, February 23, 1951, one female (A. M. Nadler); Sarasota, December 26, 1950, one female (A. M. Nadler). *Alabama:* Jackson Oak, Baldwin County, January 1, 1944, one female (Archer, 1946). *Louisiana:* Greenburg, March 19, 1936, one female. *Texas:* Houston, June 11, 1937, one male (D. and S. Mulaik).

Dipoena cathedralis, new species

Figures 19–22

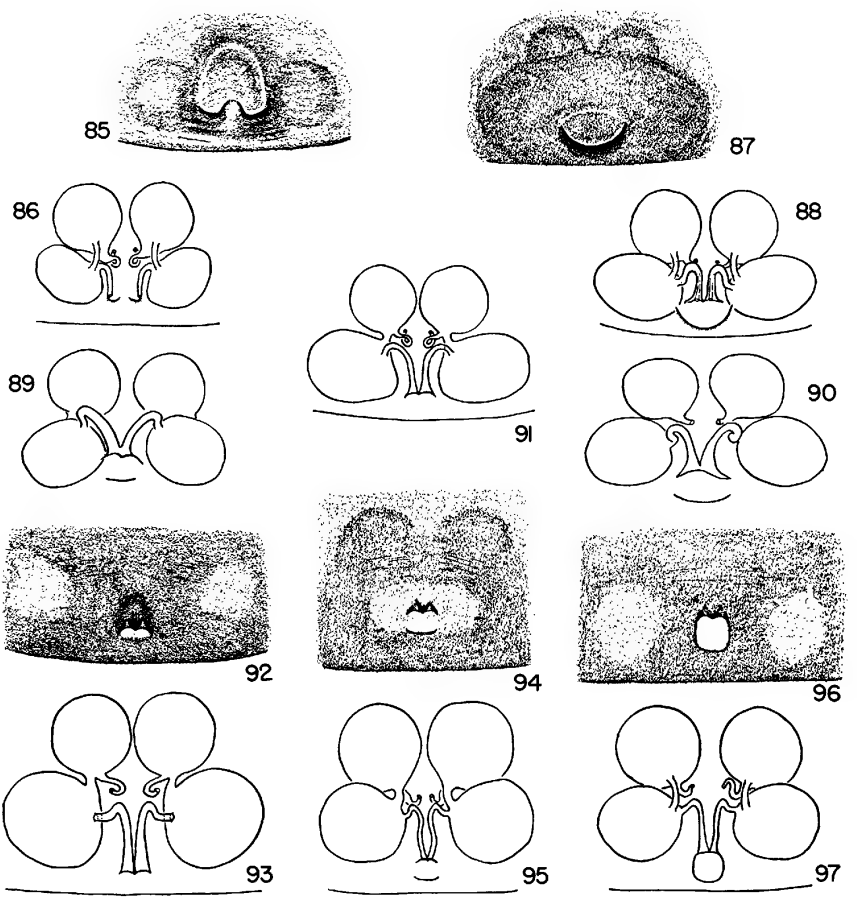
MALE: Total length, 1.2 mm.

Carapace dark brown, darker near margin and in eye region. Chelicerae light brown. Sternum brown, dusky near margin. Coxae light brown and legs whitish. Abdomen dark gray, with irregular indistinct light spots. Epigastric plates and spinnerets whitish.

Carapace not elevated, typical. Anterior median eyes separated by one diameter, almost touching laterals. Posterior median eyes separated by one-half of their diameter, and two-thirds of their diameter from laterals. Anterior median eyes largest, diameter of posterior median eyes 0.8 of a diameter of anterior medians, anterior and posterior lateral eyes 0.6 of a diameter of anterior medians. Clypeus as high as length of ocular quadrangle. Fourth legs probably longest.

The median apophysis of the palp is a separate sclerite, bearing the radix at its proximal end. The tip of the embolic division lies against the radix (figs. 20–22).

Carapace 0.58 mm. long, 0.48 mm. wide, 0.34 mm. high. First leg: femur, 0.45 mm.; patella and tibia, 0.47 mm.; metatarsus, 0.22 mm.; tarsus, 0.21 mm. Third leg: femur, 0.38 mm.; patella and tibia, 0.43



FIGS. 85–86. *Dipoena chathami*, new species. 85. Epigynum. 86. Female genitalia, ventral view.

FIGS. 87–88. *Dipoena dorsata* Muma. 87. Epigynum. 88. Female genitalia, ventral view.

FIG. 89. *Dipoena tristis* (Hahn), female genitalia, ventral view (after Wiehle).

FIG. 90. *Dipoena braccata* (C. L. Koch), female genitalia, ventral view (after Wiehle).

FIGS. 91–97. *Dipoena nigra* (Emerton). 91. Female genitalia, ventral view (British Columbia). 92. Epigynum (Wyoming). 93. Female genitalia, ventral view (Wyoming). 94. Epigynum (Ontario). 95. Female genitalia, ventral view (Ontario). 96. Epigynum (California). 97. Female genitalia, ventral view (California).

mm.; metatarsus, 0.22 mm.; tarsus, 0.21 mm. Fourth leg: femur, 0.55 mm. Other leg segments are broken off.

COMPARISON: This species differs from *Dipoena appalachia* and

Dipoena nigra in the shape of the embolus and the position of the duct in the bulb, and from the latter species in that the radix is attached to the median apophysis.

TYPE LOCALITY: Twenty-five miles south of Alpine, Brewster County, Texas.

Dipoena dorsata Muma

Figures 87–88

Dipoena dorsata MUMA, 1944, Amer. Mus. Novitates, no. 1257, p. 6, fig. 8 (female). MUMA, 1945, Maryland Agr. Exp. Sta. Bull., no. A38, p. 25.

FEMALE: Total length, 1.6–1.8 mm.

Carapace dark brown, eye region black. Chelicerae, labium, maxillae, and sternum dark brown. Coxae and legs light brown. Abdomen black except for spinnerets and epigastric region which is brown.

Carapace typical of the *Dipoena nigra* group. Anterior median eyes two-thirds of their diameter apart, almost touching laterals. Posterior median eyes separated by two-thirds of their diameter, and by more than one diameter from laterals. Anterior median eyes largest, diameter of posterior medians 0.8 of the diameter of the anterior medians. Anterior and posterior laterals 0.7 of a diameter of anterior medians. Clypeus two and one-half diameters of anterior median eyes. First legs the longest.

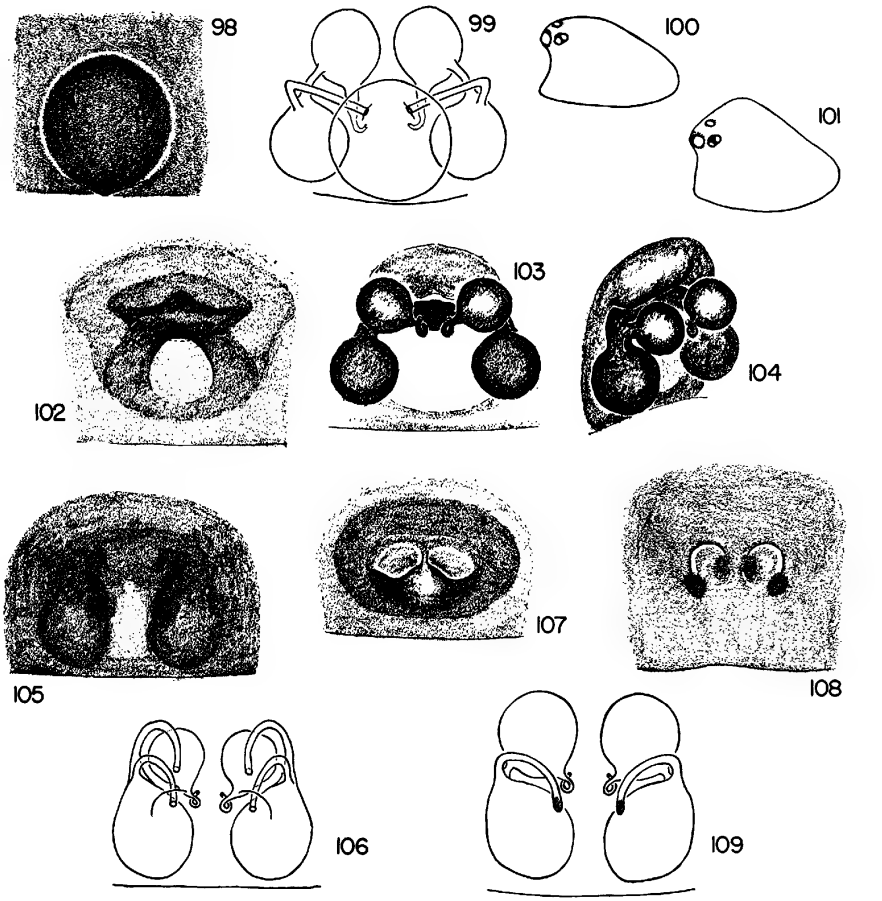
Epigynum a slight depression, with the posterior margin sclerotized. The opening of the ducts in the anterior margin is difficult to see (fig. 87). The internal genitalia (fig. 88) are much like those of *D. nigra* (figs. 91, 93, 95, 97).

Measurements of a specimen from Florida: Total length, 1.8 mm. Carapace, 0.75 mm. long, 0.66 mm. wide, 0.44 mm. high. Second leg: femur, 0.56 mm.; patella and tibia, 0.55 mm.; metatarsus, 0.34 mm.; tarsus, 0.31 mm. Third leg: femur, 0.46 mm.; patella and tibia, 0.48 mm.; metatarsus, 0.21 mm.; tarsus, 0.21 mm. Fourth leg: femur, 0.65 mm.; patella and tibia, 0.65 mm.; metatarsus, 0.45 mm.; tarsus, 0.31 mm. Other leg segments broken off.

VARIATION AND COMPARISONS: A specimen from Arizona may belong to this species. It differs, however, in being larger in size (2.4 mm.), in having the semicircular posterior rim of the epigynum more sclerotized, and in having the openings of the duct near the posterior rim of the depression. Furthermore, the metatarsi are longer than the tarsi.

Dipoena dorsata can be distinguished from *D. nigra* by the epigynum and, from eastern specimens of the latter species, by the proportional lengths of the metatarsi and tarsi.

TYPE LOCALITY: Female holotype found under a board in Churchville,



FIGS. 98–101. *Dipoena buccalis* Keyserling. 98. Epigynum. 99. Female genitalia, ventral view. 100. Carapace of female, lateral view (New Jersey). 101. Carapace of female, lateral view (Durango).

FIGS. 102–104. *Dipoena sulfurica*, new species. 102. Epigynum. 103. Female genitalia, dorsal view. 104. Female genitalia, dorsolateral view.

FIGS. 105–106. *Dipoena hamata* Tullgren. 105. Epigynum (New Mexico). 106. Female genitalia, ventral view.

FIG. 107. *Dipoena rita*, new species, epigynum.

FIGS. 108–109. *Dipoena abdita* Gertsch and Mulaik. 108. Epigynum. 109 Female genitalia, ventral view.

Maryland, on June 28, 1944; in the collection of the American Museum of Natural History.

RECORDS: *Florida:* Quincy, April 19, 1938, one female (W. J. Gertsch). *Arizona:* Alamo Canyon, 2200 feet, Ajo Mountains, Organ

Pipe Cactus National Monument, March 19–29, 1952, one female, which may be *D. dorsata* (W. S. Creighton).

Dipoena appalachia, new species

Figures 23–29

Dipoena nigra, CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 40 (in part, record of male).

MALE: Total length, 1.1–1.6 mm.

Color of carapace dark gray to dark brown; eye region black. Chelicerae, labium, and sternum dark brown. Coxae whitish, legs brownish white to light yellow-brown. Abdomen dark gray to black.

Shape of carapace typical but variable, in some cases appearing narrow and long, in others rather wide. Anterior median eyes about 0.7 of a diameter apart, almost touching laterals. Posterior median eyes one-half to three-fourths of a diameter apart, three-fourths to one diameter from laterals. Anterior median eyes larger than others, diameter of anterior lateral eyes 0.6 of a diameter of anterior medians, posterior medians and laterals 0.7 of a diameter of anterior medians. Clypeus two diameters of anterior median eyes. First legs longer than fourth.

Palp variable. Extremes are illustrated in figures 25 and 26. In some specimens the median apophysis and radix are attached (figs. 24–25, 27), while in others one or both are separate sclerites (figs. 26, 29). The course of the duct is slightly different in almost every specimen examined.

Measurements of holotype: Total length, 1.4 mm. Carapace, 0.54 mm. long, 0.49 mm. wide, 0.35 mm. high. First leg: femur, 0.57 mm.; patella and tibia, 0.62 mm.; metatarsus, 0.35 mm. Second leg: femur, 0.42 mm.; patella and tibia, 0.44 mm.; metatarsus, 0.27 mm.; tarsus, 0.27 mm. Third leg: femur, 0.32 mm.; patella and tibia, 0.40 mm.; metatarsus, 0.25 mm.; tarsus, 0.25 mm. Fourth leg: femur, 0.52 mm.; patella and tibia, 0.52 mm.; metatarsus, 0.35 mm.; tarsus, 0.22 mm.

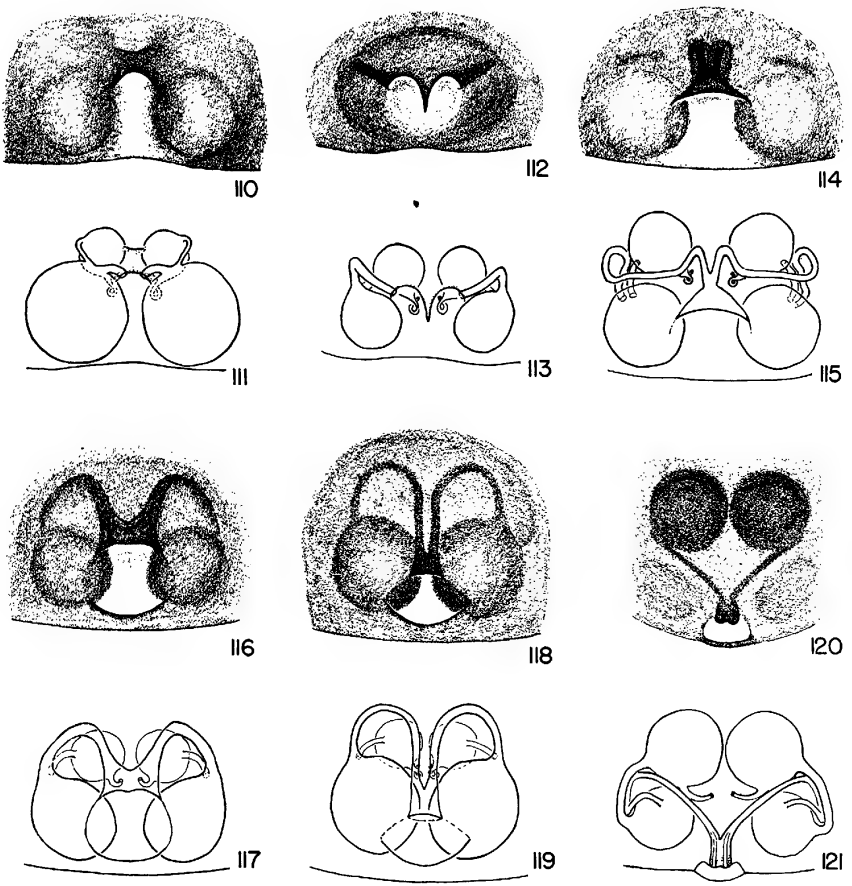
COMPARISONS: The problem of the relationship of this species with *Dipoena nigra,* with the females of which it has been collected, is discussed above under the generic heading.

Dipoena appalachia (figs. 24, 27–28) differs from *Dipoena nigra* (figs. 31–32) in the position of the duct in the tegulum, and also from eastern specimens of the latter species in having the metatarsi and tarsi about equal in length.

DISTRIBUTION: Southeastern United States.

TYPE LOCALITY: Male holotype from Carrot Island, Beaufort, North Carolina, October 14, 1951, collected by R. D. Barnes.

RECORDS: *Maryland:* Linnieville, January 1, 1914, one male from a



FIGS. 110–111. *Dipoena malkini*, new species. 110. Epigynum. 111. Female genitalia, ventral view.

FIGS. 112–113. *Dipoena lana*, new species. 112. Epigynum. 113. Female genitalia, ventral view.

FIGS. 114–115. *Dipoena provalis*, new species. 114. Epigynum. 115. Female genitalia, ventral view.

FIGS. 116–117. *Dipoena daltoni*, new species. 116. Epigynum. 117. Female genitalia, ventral view.

FIGS. 118–119. *Dipoena neotoma*, new species. 118. Epigynum. 119. Female genitalia, ventral view.

FIGS. 120–121. *Dipoena lineatipes* Bryant. 120. Epigynum. 121. Female genitalia, ventral view.

bird's old nest (R. C. Shannon). *District of Columbia:* Washington, four male paratypes in United States National Museum, 1889 (Fox); Washington, one male (Fox). *Virginia:* Falls Church, two male paratypes,

with five females of *Dipoena nigra,* in the Museum of Comparative Zoölogy (N. Banks). *Tennessee:* Cedars of Lebanon State Park, Wilson County, August, 1943, one male paratype (A. F. Archer); Rockwood, Roane County, July 15, one male paratype. *Georgia:* Clayton to Tallulah Falls, April 28, 1943, one male paratype belonging to the University of Utah (W. Ivie). *Mississippi*: Vancleave, Jackson County, March 15, 1936, one male (S. C. Bishop); Starkville, December 24, 1924, one male (Bailey).

Dipoena chathami, new species

Figures 85–86

Dipoena crassiventris, CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 39 (not *Dipoena crassiventris* Keyserling).

FEMALE: Total length, 2.5 mm.

Coloration like that of *Dipoena appalachia.*

Carapace typical. Anterior median eyes separated by two-thirds of their diameter, almost touching laterals. Posterior median eyes three-quarters of a diameter from each other, one diameter from laterals. Anterior median eyes largest, diameter of posterior median eyes 0.6 of a diameter of anterior medians, anterior and posterior laterals about half a diameter of anterior medians. Height of clypeus equaling two diameters of anterior median eyes.

This species differs from *Dipoena nigra* in that the epigynum has two pockets opening into an anterior depression (fig. 85). The internal genitalia (fig. 86) are similar to those of *Dipoena nigra* (fig. 86).

Carapace 0.91 mm. long, 0.80 mm. wide, 0.45 mm. high. All legs of the type are broken off.

TYPE LOCALITY: Female holotype from 3 miles southeast of Savannah, Georgia, May 3, 1943 (W. Ivie), in the collection of the University of Utah.

Dipoena nigra (Emerton)

Figures 30–32, 37–46, 91–97

Steatoda nigra EMERTON, 1882, Trans. Connecticut Acad. Arts Sci., vol. 6, p. 21, pl. 4, fig. 4 (female). KEYSERLING, 1886, Die Spinnen Amerikas, vol. 2, Theridiidae, pt. 2, p. 284. MARX, 1884, Proc. U. S. Natl. Mus., vol. 12, p. 521. BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., vol. 7, p. 16. EMERTON, 1913, Appalachia, vol. 12, p. 155.

Dipoena crassiventris KEYSERLING, 1886, Die Spinnen Amerikas, vol. 2, Theridiidae, pt. 2, p. 41, pl. 12, fig. 156 (female). MARX, 1889, Proc. U. S. Natl. Mus., vol. 12, p. 526. BANKS, 1910, Bull. U. S. Natl. Mus., no. 72, p. 22. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 173. COMSTOCK, 1912,

The spider book, p. 357; 1940, The spider book, rev. ed., p. 372. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 423. [*Dipoena crassiventris* = *Dipoena abdita*, following authors: BANKS, 1904, Proc. Acad. Nat. Sci. Philadelphia, 1904, p. 127; 1906, Bull. Amer. Mus. Nat. Hist., vol. 22, p. 743. CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 39. ARCHER, 1946, Alabama Mus. Nat. Hist., paper 22, p. 23.]

Dipoena nigra, BANKS, 1892, Proc. Acad. Nat. Sci. Philadelpha, 1892, p. 31; 1895, Jour. New York Ent. Soc., vol. 3, p. 152; 1903, Proc. U. S. Natl. Mus., vol. 25, p. 505; 1910, Bull. U. S. Natl. Mus., no. 72, p. 23; 1911, Proc. Acad. Nat. Sci. Philadelphia, 1911, p. 445. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 174. COMSTOCK, 1912, The spider book, p. 357. EMERTON, 1918, Canadian Ent., vol. 50, p. 129; 1920, Trans. Roy. Canadian Inst., vol. 12, p. 312. BISHOP AND CROSBY, 1926, Jour. Elisha Mitchell Sci. Soc., vol. 41, p. 177. CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Mem., no. 101, p. 1039. EMERTON, 1930, Publ. Nantucket Maria Mitchell Assoc., vol. 3, p. 250. BANKS, NEWPORT, AND BIRD, 1932, Publ. Univ. Oklahoma Biol. Surv., vol. 4, p. 21. KASTON, 1938, Connecticut Geol. Nat. Hist. Surv. Bull., no. 60, p. 185. KURATA, 1939, Canadian Field Nat., vol. 53, p. 81. COMSTOCK, 1940, The spider book, rev. ed., p. 372. KURATA, 1941, Univ. Toronto Studies, biol. ser., no. 48, p. 109. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 424. KURATA, 1941, Canadian Field Nat., vol. 57, p. 10. CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 80 (in part, females only). MUMA, 1945, Maryland Agr. Exp. Sta. Bull., no. A38, p. 25. ARCHER, 1946, Alabama Mus. Nat. Hist., paper 22, p. 23. KASTON, 1948, Connecticut Geol. Nat. Hist. Surv. Bull., no. 70, p. 90, pl. 4, figs. 88–90 (male and female). (Not *Dipoena nigra* Keyserling, 1886, Die Spinnen Amerikas, vol. 2, Theridiidae, pt. 2, p. 43.)

Dipoena tibialis BANKS, 1905, Proc. Ent. Soc. Washington, vol. 7, p. 96; 1910, Bull. U. S. Natl. Mus., no. 72, p. 23. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 174. BANKS, 1916, Proc. U. S. Natl. Mus., vol. 51, p. 68. EMERTON, 1920, Trans. Roy. Canadian Inst., vol. 12, p. 312. WORLEY, 1932, Univ. Washington Publ. Biol., vol. 1, no. 1, p. 24. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 424.

MALE: Total length, 1.3–2.0 mm.

Carapace brown with dusky maculations, eye region almost black. Chelicerae white to yellow brown. Sternum dusky, legs orange to brown, distal ends of segments usually darker. Abdomen gray to black.

Structure of carapace typical, usually fairly high (figs. 41, 42). Anterior median eyes one diameter apart, almost touching laterals, Posterior median eyes separated by one-half of their diameter, one diameter from laterals. Anterior median eyes the largest, the diameter of other eyes about 0.7 of a diameter of the anterior medians. Height of clypeus equals one and one-quarter of the length of the ocular quadrangle. First legs the longest.

Median apophysis and radix of palp both separate sclerites. Duct shows a prominent single coil on venter of bulb (figs. 31, 37–38, 40, 43–46).

Total length of a male from New Jersey: 1.8 mm. The carapace is 0.74 mm. long, 0.66 mm. wide, 0.51 mm. high. First leg: femur, 0.96 mm.; patella and tibia, 0.90 mm.; metatarsus, 0.71 mm.; tarsus, 0.39 mm. Second leg: femur, 0.71 mm.; patella and tibia, 0.59 mm.; metatarsus, 0.54 mm.; tarsus, 0.36 mm. Third leg: femur, 0.59 mm.; patella and tibia, 0.53 mm.; metatarsus, 0.44 mm.; tarsus, 0.32 mm. Fourth leg: femur, 0.81 mm.; patella and tibia, 0.80 mm.; metatarsus, 0.60 mm.; tarsus, 0.35 mm.

FEMALE: Total length, 2.1–4.3 mm.

Cephalothorax and legs yellow brown; carapace, sternum, and distal ends of leg segments with dusky markings. Coloration extremely variable, abdomen gray to black.

Carapace slightly highest behind the eyes. Highest point in eastern specimens above second coxae, in western specimens just behind eye region. Anterior median eyes one diameter apart and almost touching laterals. Posterior median eyes separated by one-third of their diameter, one and one-quarter diameters from laterals. Anterior median eyes the largest, the diameter of other eyes 0.8 that of anterior median eyes. Height of clypeus equals about one and one-quarter times the length of ocular quadrangle. First or sometimes fourth legs the longest.

Epigynum a very indistinct small opening but extremely variable. Sometimes a depression with one to four sclerotized walls. In specimens from the northeast the epigynum is located in a lighter colored area (fig. 94); in specimens from most other regions there is a light spot on each side of the epigynum (figs. 92, 96).

Measurements of a specimen from Connecticut: Total length, 3.2 mm. Carapace, 1.10 mm. long, 0.85 mm. wide, 0.60 mm. high. First leg: femur, 1.07 mm.; patella and tibia, 1.10 mm.; metatarsus, 0.83 mm.; tarsus, 0.41 mm. Second leg: femur, 0.78 mm.; patella and tibia, 0.84 mm.; metatarsus, 0.61 mm.; tarsus, 0.41 mm. Third leg: femur, 0.70 mm.; patella and tibia, 0.72 mm.; metatarsus, 0.57 mm.; tarsus, 0.32 mm. Fourth leg: femur, 0.91 mm.; patella and tibia, 1.04 mm.; metatarsus, 0.78 mm.; tarsus, 0.39 mm.

VARIATIONS AND COMPARISONS: Individuals of this species vary greatly in size, color, and shape. The lightest specimens come from California, the darkest from the northwest. The legs of specimens from the northwest have the proximal portions of their segments bright orange in color. The height of the carapace varies somewhat in both males and females. The epigynum may be only the small openings of the ducts, or the openings may lead into the anterior wall of a well-defined depression, as in some specimens from Oregon and California (fig. 96). The promi-

nent coil of the duct on the venter of the palp is slightly different in almost every specimen examined (figs. 37–38, 40, 43–46). In males from the Pacific coast the portion of the duct forming the coil is noticeably narrower (fig. 43). The positions of the various parts of the palp look different in almost every male, but this difference disappears when the palp is expanded.

Dipoena nigra differs from *D. tristis* (Hahn), found in Europe, in that the males of *D. tristis* are of larger size (2.6 mm.), in that the legs of the latter species are all dark brown except for the proximal half of the fourth femur, and in that, although the carapace of *D. tristis* is bigger, the eyes are smaller and thus farther apart. The cymbium of the palpus is longer than in *D. nigra* (fig. 35).

Dipoena nigra differs from *D. braccata* (C. L. Koch), found in Europe, in that the cymbium of the palpus of males of *D. braccata* is more rounded (fig. 36) than that of *D. nigra*. The connecting ducts of the female genitalia of *D. braccata* have a loop (fig. 90) which is not present in *D. nigra*.

HABITS AND DISTRIBUTION: *Dipoena nigra* has been collected from trees and sphagnum moss, and by sifting leaves and sweeping vegetation. Archer (1946) reports it feeding on ants.

This species is found in all parts of the United States and southern Canada.

TYPE LOCALITIES: The cotypes of *Steatoda nigra* are from Portland, Maine, and Beverly and Holyoke, Massachusetts. Keyserling reported *Dipoena crassiventris* from Georgia, Florida, and the Bahamas. The holotype of *Dipoena tibialis* Banks is from Olympia, Washington.

RECORDS: *Maine:* Town Hill, Mt. Desert Island, June 8, 1943, one female (W. Procter); Bar Harbor, August, 1933, one female (Brower); Belgrade Lakes, July 9, three females (N. Banks); Eastbrook, July 15, 1922, six females; Ogunquit, June 28, 1913, one female (J. H. Emerton). *New Hampshire:* Woodstock, June 20, 24–28, 1938, two females (L. M. Bartlett). *Vermont:* Hartland, July 10, 1911, three females (J. H. Emerton); South Newfane, June 17–26, 1935, one male (E. B. Bryant). *Massachusetts:* Woods Hole, July 15, 1901, seven females and two males (H. W. Britcher collection), July, 1919, one female; Nantucket (Emerton, 1930); Cambridge, two females. *Connecticut:* Orange, July 26, 1935, one female (B. J. Kaston); July 1, 1935, one female (B. J. Kaston), July 4, 1935, one juvenile female (B. J. Kaston); Cobalt, August 2, 1936, one female (B. J. Kaston); South Meriden, July–August, 1938, one female (H. L. Johnson), July, 1939, one female (H. L. Johnson); New Canaan, August 1–15, 1950, one female (M. Statham); July, 1950,

two females (M. Statham); Hamden, June 29, 1949, one female (H. Fisher); Union, June 24, 1937, one male (B. J. Kaston); Gilead, June 18, 1936, one female (M. P. Zappe); Southbury, August, 1936, two females (T. Loosanoff); Eastford, May 23, 1936, one male, two juvenile females (B. J. Kaston); Voluntown, June 30, 1935, one female (B. J. Kaston). *New York:* Darwins Spring, September, 1900, one female (H. W. Britcher collection); McColloms, June 13, 1933, one male, four females (S. C. Bishop collection); Tompkins County, two females; Trenton Falls, one male; Long Pond, Suffolk County, June 29, 1924, one male; Staatsburg, June 23, 1934, one male; Labrador Pond, in sphagnum, June 25, 1922, one male; Newcomb, July 5, 1918, one female; Waddington, June 28, 1934, one female; Letchworth Park, July 9, 1922, one female; Westview, Livingston County, July 8, 1922, one female; Ithaca, August, 1903, one female, August 21, 1917, one female. *New Jersey:* Ramsey, July, 1944, one male (W. J. Gertsch). *Pennsylvania:* Shillington, June 20, 1937, one female (L. Hook); Rockview, July, one female (W. J. Gertsch); Marksville, September, 1887, several females (L. M. Underwood). *West Virginia:* Minnehaha Springs, Pocahontas County, July, 1947, females (K. W. Haller). *District of Columbia:* June, one female (Marx). *Virginia:* Marksville, 1887, five females (L. M. Underwood). *Tennessee:* Erwin, August 8, 1933, one female. *Georgia:* Atlanta, May, 1899, one female (J. H. Emerton); Folkston, February 18, 1936, one male. *Florida:* Lake Placid, March 2, 1943, one female (M. Cazier); Miakka River State Park, near Sarasota, April 6, 1938, one female (W. J. Gertsch); Alachua County, April 8, 1949, one male (H. K. Wallace); Fish Eating Creek, Glades County, February 23, 1951, one male (A. M. Nadler); 3 miles south of Lake Istokpoga, February 28, 1951, one male (A. M. Nadler); Gainesville, March 8, 1935, one male (W. M. Barrows), March 12, 1927, one female; Royal Palm Park, March 15–24, 1930, one female (Blatchley), March 6–24, 1925, one female (W. S. Blatchley). *Mississippi:* Lucedale, May, 1930, one female (H. Dietrich). *Texas:* Austin, August, 1935, one female (L. I. Davis). *Arkansas:* Forest City, August 22, 1939, one male (R. V. Chamberlin). *Oklahoma:* Delaware County, July 15, 1929, (Banks, Newport, and Bird, 1932). *Illinois:* Camp Grant, Rockford, summer of 1942, one female (A. F. Archer); Springfield, June 10, 1933, one female (W. Ivie). *Wisconsin:* Riverside, Burnett County, July 17, 1949, in a bog, one female (L. R. and H. W. Levi); Potawatomi State Park, Door County, July 25, 1949, two females (L. R. and H. W. Levi); Madison, Dane County, July, 1946, one female (H. W. Levi); Port Wing, Bayfield County, July 20, 1949, two females (L. R. and H. W. Levi). *Michigan:*

Moshaville, July 3, 1933, one female (A. M. Chickering); Pickerel Lake, August 2, 1937, one female (A. M. Chickering); Bay View, July 23, 1940, one female, September 20, 1937, one female (A. M. Chickering); Waterton Recreation Area, June 12, 1949, one female, one male (A. M. Chickering); Ypsilanti, June 29, 1935, one male (A. M. Chickering). *Manitoba:* Le Pas (Emerton, 1920). *Quebec:* Chelsea (Emerton, 1920). *Ontario:* Port Credit, July 16–31, 1942, two females. Pottageville, York County, common in leaf mold (Kurata, 1939); Prince Edward County, seven localities, among fallen leaves (Kurata, 1941); Lake Nipissing, July 26, 1931, one female (Kurata, 1943); Orillia, July 15, 1938, one female (C. H. Curran); South Tea Lake, Algonquin Park, July 3–10, 1945, two females; Minioki, July 23, 1931, one male and one female (T. B. Kurata). *South Dakota:* Deadwood, July 2, 1933, one female (Crosby). *Montana:* Ravalli County, May 30, 1931, one female (W. L. Jellison); Ole Creek, Glacier National Park, June 30, 1934, one female (L. P. Schultz). *Wyoming:* Cottonwood Lake, Lincoln County, July 30, 1952, one female (B. Malkin); Cottonwood, Lincoln County, July 11, 1952, one female (B. Malkin); Mt. Baldy, Teton County, August 8, 1950, two females (L. R. and H. W. Levi); Pilgrim Creek, Teton County, July 12, 1950, two females in an old oil drum (D. C. Lowrie); Death Canyon, 6700 feet, Teton Range, August 6, 1950, two females (D. C. Lowrie). *Idaho:* Saint Maries, June, 1934, one female (W. L. Jellison); Pocatello, July 12, 1952, one female (B. Malkin); Cup River Canyon, Wasatch Mountains, Franklin County, July 5, 1952, three females (B. Malkin); Bloomington Lake, Wasatch Mountains, Franklin County, July 8, 1952, one male and one female (B. Malkin); Rock Creek Ranger Station, Magic Mountain, Twin Falls County, 6500 feet, July 20, 1952, one female (B. Malkin); Fruitland, July 9, 1941, one female (W. Ivie). *Utah:* City Creek Canyon, Salt Lake City, June 20, 1928, one female (W. J. Gertsch); Beaver Canyon, October 7, 1942, one female (G. F. Knowlton); Wanship, June 20, 1941, two females; City Creek Canyon, April 13, 1934, one male; Government Creek, Tooele County, June 19, 1946, one male (L. Miller). *Colorado:* West fork of Wolf Creek, San Juan Mountains, Mineral County, 7800 feet, July 20, 1952, sweeping coniferous forest, one female (L. R. and H. W. Levi); Beaver Creek, San Juan Mountains, Rio Grande County, 8000 feet, July 13, 1952, one female (L. R. and H. W. Levi); Squaw Creek, San Juan Mountains, Hinsdale County, 9800 feet, July 18, 1952, one female (L. R. and H. W. Levi). *New Mexico:* Tejano Canyon, Sandia Mountains, Bernalillo County, one male (C. C. Hoff); Sandia Mountains, Sandoval County, one female (C. C. Hoff). *Arizona:* 17 miles northeast of White-

river, White Mountains, July 8–10, 1940, two females (W. J. Gertsch); Williams, July, two females (Barber and Schwartz). *California:* Grass Lake, Siskiyou County, July 4, 1952, one female (W. J. Gertsch); Hastings Natural History Reservation, Monterey County, Big Creek, April 4, 1946, one male, April 14, one juvenile male (J. Linsdale); Monterey County, June 3, 1940, one female; Moraine Meadows, 8600 feet, Yosemite National Park, July 29, 1941, one female (E. O. Essig); San Juan Hot Springs, July 3, 1931, one female; Santa Ana, July 17, 1931, one male (W. Ivie). *Oregon:* Canyon City, June 17, 1938, one female (Hatch); Emigrant Hill State Park, May 19, 1938, one male and nine females (Hatch); Prineville, Ochoco National Forest, May 28, 1949, one female (V. Roth and F. Beer); Philomat, February 6, 1949, one juvenile male (V. Roth); Scott Lake, 6 miles south of McKenzie Pass, Lane County, August 17, 1941, one female (B. Malkin); Lunch Creek, Dixie Pass, Blue Mountains, 5100 feet, June 24, 1952, four females (B. Malkin); Lakeview, Lake County, June 27, 1951, one female (B. Malkin); Charleston, Coos County, June 17, 1952, one female (B. Malkin); Sisikyou Summit, Jackson County, 4500 feet, July 5, 1951, one female (B. Malkin); Triangle Lake, July 16, 1952, three females (B. Malkin); Pine Creek, 10 miles northwest of Baker, 4000 feet, June 26, 1952, one female (B. Malkin); Sprague River near Bly, Klamath County, June 22, 1952, four females (B. Malkin); Kamela, June 19, 1938, one male and one juvenile female (Hatch), June, July, 1946, one female (K. H. Fender). *Washington:* Seattle, May, 1952, one female (B. Malkin); Tenino, one female. *British Columbia:* Vancouver Island, one female; junction of Snow Mountain Lookout and Shingle Creek Road, July 15, 1942, one female (C. R. Downing); Vancouver, six females (N. Banks); Kaslo, 1903 (Cowdell); Victoria, two females (Emerton, 1920); Kaslo, one female, six females; Victoria, July, 1905, two females (J. H. Emerton).

Dipoena buccalis Keyserling

Figures 6, 16–18, 33–34, 98–101

Dipoena buccalis KEYSERLING, 1886, Die Spinnen Amerikas, vol. 2, Theridiidae, pt. 2, p. 42, pl. 12, fig. 157 (female). MARX, 1889, Proc. U. S. Natl. Mus., vol. 12, p. 526; 1891, Proc. Ent. Soc. Washington, vol. 2, p. 156. BANKS, 1910, Bull. U. S. Natl. Mus., no. 72, p. 22. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 173. COMSTOCK, 1912, The spider book, p. 356. EMERTON, 1913, Trans. Connecticut Acad. Arts Sci., vol. 18, p. 213, pl. 1, fig. 3 (juvenile female). CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta. Mem., no. 101, p. 1039. KASTON, 1938, Connecticut Geol. Nat. Hist. Surv. Bull., no. 60, p. 185. COMSTOCK, 1940, The spider book, rev. ed., p. 371. FOX,

1940, Proc. Biol. Soc. Washington, vol. 53, p. 40. KURATA, 1941, Univ. Toronto Studies, biol. ser., no. 48, p. 109. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 424. CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 39. MUMA, 1945, Proc. Biol. Soc. Washington, vol. 58, p. 96. ARCHER, 1946, Alabama Mus. Nat. Hist., paper 22, p. 23. KASTON, 1948, Connecticut Geol. Nat. Hist. Surv. Bull., no. 70, p. 91, pl. 4, figs. 91, 92 (male and female).

MALE: Total length, 1.4–1.8 mm.

Carapace brown with dusky markings, black rings around eyes. Chelicerae, labium, maxillae, and sternum dusky. Coxae white, legs white except for black bands on distal portions of femora, patellae, tibiae, and metatarsi. Dorsum of abdomen gray with white pattern (fig. 6), venter brownish gray.

Structure of carapace typical, but variable. Anterior median eyes separated by one diameter, almost touching laterals. Posterior median eyes three-quarters to one diameter apart and one to one and one-half diameters from laterals. Anterior median eyes largest, the diameter of the posterior medians 0.7 of a diameter of anterior medians, posterior laterals 0.5 of a diameter of anterior medians, anterior laterals 0.4 of a diameter of anterior medians. Height of clypeus equaling two to four diameters of anterior median eyes. First legs the longest.

The median apophysis of the palp is broadly attached. Radix a separate sclerite, holding the tip of the embolus. Spine near apex of cymbium very large.

Measurements of a male from Oxford, Mississippi: Total length, 1.6 mm. Carapace, 0.70 mm. long, 0.59 mm. wide, 0.48 mm. high. First patella and tibia, 1.05 mm.; second patella and tibia, 0.67 mm.; third patella and tibia, 0.47 mm.; fourth patella and tibia, 0.70 mm.

FEMALE: Total length, 4.0–5.0 mm.

Carapace very light brown, frequently with dusky markings which are broken by light stripes going to side (fig. 6); otherwise like male.

Structure of carapace sometimes typical, sometimes much elevated behind the eyes. Anterior median eyes one diameter apart, almost touching laterals. Posterior median eyes one diameter apart, one and one-quarter diameters from laterals. Anterior median eyes the largest, diameter of posterior median eyes 0.7 of a diameter of anterior median eyes, lateral eyes 0.6 of a diameter of anterior medians. Height of clypeus about three and one-half diameters of anterior median eyes.

Epigynum a circular depression showing the openings of the ducts near the center.

Measurements of a female from New Jersey: Total length, 4.0 mm. Carapace, 1.3 mm. long, 1.3 mm. wide, 0.80 mm. high. First patella and

tibia, 2.6 mm.; second patella and tibia, 1.8 mm.; third patella and tibia, 1.3 mm.; fourth patella and tibia, 2.0 mm.

VARIATIONS: The carapace is extremely variable. Females from the southern Appalachian region sometimes have the carapace elevated behind the eyes, and a female from Durango has a hump behind the eyes (fig. 101). A still higher carapace was found in a juvenile female from Sonora. The clypeus of females with modified carapace is straight.

DISTRIBUTION AND HABITS: The Atlantic coastal states to New England, Gulf states and northern Mexico. Archer (1946) reports sifting this species from leaf litter.

TYPE LOCALITIES: "From Philadelphia, Fortress Monroe and Atlantic City," collected by Marx. A specimen labeled "paratype" and coming from Fort Monroe, Virginia, is in the United States National Museum.

RECORDS: *Ontario:* Consecon Lake, Prince Edward County, in shrubs close to the ground (Kurata, 1941). *Connecticut:* Bethany, September 5, 1936, one male (B. J. Kaston); New Haven, August 12, 1884, one immature male (J. H. Emerton). *New York:* Enfield Glen, August 23, 1925, one male (Wolf and Taub); Long Pond, September 19, 1926, one male (Boyce and Chapman). *New Jersey:* Ramsey, September 4, 1952, one female (M. A. Gertsch). *Maryland:* Beltsville, August 31, 1944, one male, sweeping woodland (M. H. Muma). *District of Columbia:* One female (Marx). *Alabama:* Chattahoochee State Park, Houston County, October 18, 1939, one male (Archer, 1946). *Mississippi:* Oxford, June, one male (S. C. Bishop); Camp Shelby, near Hattiesburg, October, November, 1943, one male (C. D. Michener), November, December, 1945, one male with two mites attached to its abdomen (A. F. Archer). *Chihuahua:* Matachic, July 6, 1947, one male (W. J. Gertsch). *Durango:* Nombre de Dios, August 13, 1947, one female (W. J. Gertsch). *Sonora:* Agiabampo, April 28, 1949, juvenile female (G. M. Bradt).

Dipoena sulfurica, new species

Figures 4–5, 47–49, 83–84, 102–104

MALE: Total length, 2.8 mm.

Carapace brown, dusky on sides, eye region black. Clypeus, chelicerae, and sternum brown. Coxae dirty yellow, legs dirty yellow with irregular dark bands which are broken on venter. Abdomen white, with black marks (figs. 4–5).

Carapace with a deep depression (figs. 83–84). Anterior median eyes separated by one and one-half diameters, almost touching laterals. Posterior median eyes one-quarter of a diameter from each other, one and

one-half diameters from laterals. Eyes subequal in size. Clypeus concave. First legs the longest.

Radix of palp a prominent sclerite situated on the venter of the bulb. Median apophysis a separate sclerite. Conductor thorn-shaped (fig. 47–49).

Carapace 1.2 mm. long, 1.1 mm. wide, 0.80 mm. high. First patella and tibia, 1.4 mm.; second patella and tibia, 1.2 mm.; third patella and tibia, 0.80 mm.; fourth patella and tibia, 1.2 mm.

FEMALE: Total length, 3.0–3.7 mm.

Coloration like that of male.

Carapace typical. Anterior median eyes separated by one and one-half diameters, one-third of a diameter from laterals. Posterior median eyes separated by one-half a diameter, almost one diameter from laterals. Eyes subequal in size. First legs the longest. The internal female genitalia are sclerotized (figs. 103–104).

Measurements of a female: Total length, 3.6 mm. Carapace, 1.3 mm. long, 1.1 mm. wide, 0.48 mm. high. First patella and tibia, 1.4 mm.; second patella and tibia, 1.2 mm.; third patella and tibia, 0.96 mm.; fourth patella and tibia, 1.4 mm.

COMPARISONS: *Dipoena sulfurica* is related to *Dipoena melanogaster* of Europe. It differs, however, in its coloration and in the structure of the genitalia, especially the shape of the conductor and embolus of the palp.

TYPE LOCALITY: Male holotype, female allotype, and male and female paratypes from 10 miles east of El Salto, Durango, Mexico, collected August 8, 1947 (W. J. Gertsch).

RECORDS: *New Mexico:* Sulphur Dam, Jemez Canyon, two female paratypes, July 17, 1950 (M. A. Cazier); 12 miles south of Cebolla, two males, one female, one juvenile female (C. C. Hoff).

Dipoena hamata Tullgren

Figures 50–59, 105–106

Dipoena hamata TULLGREN, 1949, Ent. Tidskrift, vol. 70, p. 50, figs. 10, 11 (male); 1952, Ent. Tidskrift, vol. 73, p. 177.

MALE: Total length, 1.5–1.8 mm.

Carapace gray to dark brown, eye region black. First coxae dark brown or white, other coxae white. Palps dark brown. Color of legs in western specimens light except for first femora which are dusky; second, third, and fourth femora have dusky patches on each side, and the distal ends of first and second tibiae are also dusky. A male from Michigan has all legs light except for dusky patches on femora and distal portions of first and fourth tibiae.

Structure of carapace variable, usually of medium height with a pit in the thoracic region (figs. 55–58). Anterior median eyes separated by one to one and one-half diameters; almost touching to three-quarters of a diameter from laterals. Posterior median eyes separated by one diameter, two-thirds to one diameter from laterals. Eyes subequal in size. Clypeus straight, of varying height. Fourth legs the longest.

Palp with a very large prominent radix, which displaces embolus to ectal side. Conductor tipped with a spine (figs. 50–54, 59).

Total length of a specimen from Arizona, 1.8 mm. Carapace, 0.71 mm. long, 0.63 mm. wide, 0.56 mm. high. First patella and tibia, 0.78 mm.; second patella and tibia, 0.65 mm.; third patella and tibia, 0.55 mm.

FEMALE: Total length, 1.9–2.2 mm.

Coloration like that of male.

Carapace typical. Anterior median eyes separated by 0.8 to one and one-half diameters, almost touching to one-quarter of a diameter from laterals. Posterior median eyes separated by 0.9 to one and one-quarter diameters, one-third to one-half diameter from laterals. Eyes subequal in size, or anterior medians slightly larger. Height of clypeus 2.5–4.0 diameters of anterior median eyes. Fourth legs the longest.

Epigynum with two indistinct depressions separated by their diameter, both depressions on the posterior slope of an elevation. Lateral and posterior to each depression the seminal receptacles are visible; area between depressions lighter in color (fig. 105). The internal genitalia are shown in figure 106.

Total length of a female from North Carolina: 2.1 mm. Carapace, 0.71 mm. long, 0.61 mm. wide, 0.36 mm. high. First patella and tibia, 0.69 mm.; second patella and tibia, 0.65 mm.; third patella and tibia, 0.52 mm.; fourth patella and tibia, 0.80 mm.

VARIATIONS: The carapace is highly variable, being slightly different in each male examined. A male from California has no pit. Eastern males have the carapace noticeably lower in the thoracic region. Eastern males and females have larger eyes than western ones. The radix of the male palp, the duct in the median apophysis, and the ventral border of the tegulum vary in shape (figs. 51–53). Dr. A. Tullgren, who compared the type with my figures writes that figure 51 from Arizona looks most like the holotype. His figure of the carapace resembles the specimen from California.

DISTRIBUTION: This species, which has also been collected in Sweden, is apparently found in all parts of the United States, though very rarely.

TYPE LOCALITY: St. Karlsö, Sweden; in the Riksmuseum, Stockholm.

RECORDS: *Sweden:* Greby on Oland, June 26-30, 1948 (Tullgren,

1952). *Massachusetts*: Holliston, November 29, 1923, one juvenile male, one juvenile female (J. H. Emerton and N. Banks). *Rhode Island*: Matunuck, June 10, 1927, one male (J. H. Emerton). *New York*: McLean, July 16, 1924, one female. *North Carolina*: Carrot Island, Beaufort, July 12, 1951, one female (R. D. Barnes). *Michigan*: Albion, May 30, 1933, one male (A. M. Chickering). *Illinois*: Litchfield, June 6, 1943, one female (C. and M. Goodnight). *South Dakota*: Hill City, two females. *New Mexico*: Camp Mary White, Otero County, August 9, 1935, one female (S. Mulaik). *Utah*: Moab, May 9, 1933, one male and one female. *Arizona*: Black Forest, Drake County, April 24, 1936, one male (S. C. Bishop); Kaibab Forest in Grand Canyon, June 14, 1934, one male (W. Ivie). *California:* East base of Mt. Whitney, August 8, 1931, one female (W. Ivie); San Luis Obispo, July 12, 1934, one female (W. Ivie); Aliso Canyon near Laguna Beach, July 1, 1931, one female (W. Ivie); Laguna Beach, July 22, 1931, one female (W. Ivie); Isabella, Kern County, March 18, 1941, one female (D. and S. Mulaik). San Juan Hot Springs, San Diego County, June 18, 1941, one female (R. V. Chamberlin); Sepulveda Canyon, Los Angeles County, August 17, 1941, one female and five juvenile females (W. Ivie); Walker Pass, Kern County, March 30, 1952, one male (E. I. Schlinger).

Dipoena rita, new species

Figure 107

FEMALE: Total length, 2.3 mm.

Carapace brown, darker around margin and in cephalic area; eye region dusky to black. Clypeus dark brown with black underneath anterior median eyes. Sternum brown, coxae light brown, legs dark brown, and abdomen black.

Carapace typical, maxillae large, and labium appears to be a separate sclerite. Chelicerae relatively large. Anterior median eyes separated by one diameter, almost touching lateral eyes. Posterior median eyes separated from each other by three-quarters of their diameter and from laterals by two-thirds of a diameter. Eyes subequal in size. Height of clypeus equals two and one-half diameters of anterior median eyes.

The epigynum of this species, which shows two depressions separated by a narrow bridge (fig. 107) distinguishes it from all other species of *Dipoena*. Between and below the depressions is a round elevation. The ducts open into the center of the lower margin of the depression. The anterior seminal receptacles are separated from each other by their diameters; they are, however, difficult to discern even in cleared specimens because of the presence of pigment.

Carapace, 0.84 mm. long, 0.78 mm. wide, 0.33 mm. high. First patella

and tibia, 1.05 mm. long. The other legs are broken off in the specimen.

TYPE LOCALITY: White House Canyon, Santa Rita Mountains, Arizona, October 15, 1936 (O. Bryant).

Dipoena malkini, new species

Figures 8, 60–64, 110–111

MALE: Total length, 2.1–2.3 mm.

Carapace yellow to brown, dusky on sides; eye region dusky and clypeus yellow. Sternum and coxae yellow. Abdomen dark gray to black with a pattern of white spots on the dorsum (fig. 8).

Carapace cylindrical, with thoracic groove approximately V-shaped and very deep (figs. 63–64). Anterior median eyes about one diameter apart, almost touching laterals. Posterior median eyes one-half their diameter apart, one diameter from laterals. Eyes subequal in size. Height of clypeus equaling about four lengths of the ocular quadrangle. First legs longer than fourth.

In the ventral view the radix of the contracted palp appears as a prominent, horseshoe-shaped sclerite. The base of the embolic division is visible on the ectal side (fig. 61).

Measurements of the holotype: Total length, 2.1 mm. Carapace, 1.1 mm. long, 1.0 mm. wide, 1.0 mm. high. First patella and tibia, 1.2 mm.; second patella and tibia, 0.91 mm.; third patella and tibia, 0.66 mm.; fourth patella and tibia, 1.0 mm.

FEMALE: Total length, 1.5–3.0 mm.

Coloration like that of male.

Carapace typical. Anterior median eyes separated by one diameter, almost touching laterals. Posterior median eyes separated by half their diameter, 0.8 of a diameter from laterals. Eyes subequal in size or anterior medians slightly smaller. Height of clypeus about three and one-half diameters of anterior median eyes. First pair of legs longest.

Epigynum a central longitudinal trough lending into a large opening facing posteriorly (fig. 110). There is a depression anteriorly. The internal genitalia are shown in figure 111.

Total length of female allotype: 2.1 mm. Carapace, 0.91 mm. long, 0.75 mm. wide, 0.38 mm. high. First patella and tibia, 1.1 mm.; second patella and tibia, 0.84 mm.; third patella and tibia, 0.71 mm.; fourth patella and tibia, 1.0 mm.

DISTRIBUTION: Southwestern United States and the Pacific coast.

TYPE LOCALITY: Male holotype, female allotype, and one male paratype from Rogue River, 6 miles east of Gold Beach, Curry County. Oregon, May 28, 1952 (B. Malkin).

RECORDS: *Oregon*: McKenzie Bridge, Lake County, May 3, 1947,

one male paratype, June 15, 1952, one female paratype (B. Malkin); Philomath, in oak leaves and moss, February 6, 1949, one juvenile female (V. Roth). *California:* Idyllwild, San Jacinto Mountains, Riverside County, June 18, 1952, one female (W. J. Gertsch); Chicquito Creek, Madera County, 4100 feet, August, 1920, one female (H. Dietrich); Glacier Point, Yosemite National Park, May 22, 1936, one female (S. C. Bishop). *Utah:* Government Creek, Tooele County, June 14, 1946, one female (L. Miller); Mill Creek Canyon, Salt Lake County, August 13, 1941, one juvenile female (J. C. Chamberlin). *Arizona:* Carr Canyon, Huachuca Mountains, August 26, 1950, one male (M. A. Cazier); Rustler Park, Chiricahua Mountains, September 15, 1952, one male (B. Malkin); Miami, 1936, one female (Ball). *New Mexico:* Twelve miles south of Cebolla, one male, two juvenile males (C. C. Hoff).

Dipoena provalis, new species

Figures 114–115

FEMALE: Total length, 1.5–2.0 mm.

Carapace dusky yellow, eye region black. Sternum dusky yellow, legs yellow. Dorsum of abdomen black, with pattern similar to that of *Dipoena malkini* (fig. 8), venter lighter than dorsum.

Carapace typical. Anterior median eyes separated by one diameter, almost touching laterals. Posterior median eyes separated by two-thirds of their width, by one width from laterals. Eyes subequal in size, posterior medians slightly oval in shape.

Epigynum a depression, the anterior margin of which has a sclerotized plate (fig. 114). Shape of this plate varies in different individuals. The internal genitalia are shown in figure 115.

Total length of holotype, 1.9 mm. Carapace, 0.78 mm. long, 0.70 mm. wide, 0.36 mm. high. Second patella and tibia, 0.71 mm.; fourth patella and tibia, 0.84 mm. long.

COMPARISON: This species can be distinguished from *Dipoena malkini* by the shape of the epigynum. Juveniles of the two species can be distinguished by the position of the spiracle which, in *Dipoena provalis,* is two and one-half times as far from the epigastric furrow as from the spinnerets, while in *Dipoena malkini* it is immediately anterior to the spinnerets.

TYPE LOCALITY: Female holotype from Cobble Rest, north fork of Provo River, Utah, September 24, 1932.

RECORDS: *Utah:* Hughes Canyon near Salt Lake City, May 10, 1932, one female paratype. *Oregon*: La Grande, October 25, 1940, one female, one juvenile female.

Dipoena washougalia, new species

Figures 72–76

MALE: Total length, 1.8 mm.

Carapace and sternum brown, legs whitish, and abdomen black without pattern except for spinnerets which are whitish.

Carapace high with a deep depression (figs. 75–76). Anterior median eyes separated by one and one-third diameters, one-third of a diameter from laterals. Posterior median eyes less than one width apart, one and one-quarter width from laterals. Eyes subequal in size. Height of clypeus equals five and one-half diameters of the anterior median eyes.

This species can be distinguished by the palp, the radix of which has a hook which holds tip of embolus (figs. 72–74).

Carapace, 0.85 mm. long, 0.78 mm. wide, 0.65 mm. high. Second patella and tibia, 0.79 mm.; third patella and tibia, 0.65 mm.; fourth patella and tibia, 0.91 mm.

TYPE LOCALITY: Holotype from Washougal, Washington, June 15, 1948 (V. Roth).

Dipoena daltoni, new species

Figures 65–71, 116–117

MALE: Total length, 2.4 mm.

Carapace, sternum, and legs golden yellow. Eye region dusky to black. Abdomen gray to black, dorsum with five pairs of white spots as in *Dipoena neotoma* (fig. 7), venter lighter gray.

Carapace high and conical, thoracic groove semicircular in a deep pit (figs. 68–69). Anterior median eyes separated by one diameter, almost touching laterals. Posterior median eyes separated by two-thirds of their diameter, by half of their diameter from laterals. Eyes subequal in size. Height of clypeus equals about five lengths of ocular quadrangle.

This species is distinguished by the shape of the accessory apophysis of the palp (figs. 66–67, 71).

Carapace, 1.10 mm. long, 0.94 mm. wide, 0.78 mm. high. Second patella and tibia, 0.97 mm.; third patella and tibia, 0.80 mm.

FEMALE: Total length, 2.4-3.0 mm.

Coloration like that of male.

Structure of carapace typical. Anterior median eyes separated by one diameter, almost touching laterals. Posterior median eyes separated by their width and three-quarters of their width from laterals. Eyes subequal in size. Posterior median eyes oval. Height of clypeus equals about three

and one-half diameters of anterior median eyes. Fourth legs the longest.

Epigynum and internal genitalia illustrated in figures 116 and 117.

Measurements of paratype from Utah: Total length, 2.5 mm. Carapace, 0.85 mm. long, 0.74 mm. wide, 0.41 mm. high. First patella and tibia, 0.98 mm.; second patella and tibia, 0.78 mm.; third patella and tibia, 0.72 mm.; fourth patella and tibia, 1.17 mm.

TYPE LOCALITY: Female holotype and paratype from Dalton Creek, Fresno County, California, 4800 feet, May, 1920 (H. Dietrich), in the S. C. Bishop collection.

RECORDS: *Utah*: Salt Lake City, Dry Canyon, October 30, 1932, one female paratype in the University of Utah collection (W. Ivie); Salt Lake City, City Creek Canyon, April 13, 1934, one female paratype in the University of Utah collection; Timpanagos Park, American Fork Canyon, June 13, 1941, one female paratype in the University of Utah collection; Salt Lake County, October, 1931, male allotype.

Dipoena neotoma, new species

Figures 7, 118–119

FEMALE: Total length, 2.4 mm.

Coloration similar to that of *Dipoena daltoni,* although border of carapace and sternum are slightly dusky.

Structure of carapace typical. Anterior median eyes separated by one diameter, almost touching laterals. Posterior median eyes separated from each other by 0.9 of their width and from laterals by 0.7 of their width. Anterior median eyes the largest, posterior median eyes 0.9 of a diameter of anterior medians, laterals 0.8 of a diameter of anterior medians. Height of clypeus equaling about four diameters of anterior median eyes. Lower edge of clypeus projecting. Fourth legs the longest.

Epigynum similar to that of *Dipoena daltoni* except for connecting ducts which are thinner and longer in *Dipoena neotoma* (fig. 118). Internal genitalia are illustrated in figure 119.

Carapace 0.78 mm. long, 0.65 mm. wide, 0.34 mm. high. First patella and tibia, 1.00 mm.; second patella and tibia, 0.74 mm.; third patella and tibia, 0.62 mm.; fourth patella and tibia, 1.05 mm.

TYPE LOCALITY: Female holotype from Hastings Natural History Reservation, Monterey County, California, January 8, 1940, near the house of a wood rat (J. Linsdale).

Dipoena lana, new species

Figures 112–113

FEMALE: Total length, 2.3 mm.

Carapace yellow or dusky yellow, with a black line around the margin; eye region black. Clypeus dusky gray. Labium, maxillae, and sternum dusky. Legs orange, ends of tibiae slightly dusky. Abdomen gray to black, with pairs of white spots similar to those of *Dipoena neotoma* (fig. 7) but slightly smaller and less distinct. The paratype from California appears to have had a dorsal central longitudinal light band on the abdomen.

Structure typical. Anterior median eyes separated by one diameter, almost touching laterals. Posterior median eyes separated from each other by their width and from laterals by two-thirds their width. Eyes subequal in size. Posterior median eyes oval. Height of clypeus equals two and one-half diameters of anterior median eyes. First legs the longest.

Epigynum a depression divided by a triangular sclerotized scape (fig. 112) which distinguishes *Dipoena lana* from all other species of *Dipoena*. All seminal receptacles are visible without clearing in the lighter colored female from California. Internal genitalia are illustrated in figure 113.

Carapace 0.78 mm. long, 0.65 mm. wide, 0.34 mm. high. First patella and tibia, 0.83 mm.; second patella and tibia, 0.68 mm.; third patella and tibia, 0.60 mm.; fourth patella and tibia, 0.78 mm.

TYPE LOCALITY: Female holotype from McKenzie Bridge, Lane County, Oregon, June 15, 1952 (B. Malkin).

RECORDS: *California*: Emigrant Pass, Placer County, July 11, 1937, one female paratype in the University of Utah collection (R. V. Chamberlin).

Dipoena abdita Gertsch and Mulaik

Figures 77–82, 108–109

Dipoena crassiventris, BANKS, 1904, Proc. Acad. Nat. Sci. Philadelphia, 1904, p. 127; 1906, Bull. Amer. Mus. Nat. Hist., vol. 22, p. 743. ARCHER, 1946, Alabama Mus. Nat. Hist., paper 22, p. 23. [Not *Dipoena crassiventris* Keyserling, 1886, Die Spinnen Amerikas, vol. 2, Theridiidae, pt. 2, p. 41, pl. 12, fig. 156 (female).]

Dipoena abdita GERTSCH AND MULAIK, 1936, Amer. Mus. Novitates, no. 863, p. 6, fig. 28 (female). ROEWER, 1942, Katalog der Araneae, vol. 1, p. 423.

Euryopis inornata CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 82, figs. 85, 103 (female). [Not *Dipoena inornata* (O. P. Cambridge), 1861, Ann. Mag. Nat. Hist., ser. 3, vol. 7, p. 433.]

MALE: Total length, 1.4–1.8 mm.

Carapace golden yellow with black rings around eyes, dusky yellow between anterior median eyes. Chelicerae, labium, maxillae, sternum, and legs golden yellow. Abdomen white with a pinkish or grayish cast, except for epigastric area which is yellow.

Carapace very low (figs. 79–80). Anterior median eyes separated by three-fourths of their diameter, almost touching laterals. Posterior median eyes separated by three-fourths of their diameter, half a diameter from laterals. Anterior median eyes the largest. The diameter of the posterior median eyes 0.8 of a diameter of anterior median, the laterals 0.7 of a diameter of anterior medians. Height of clypeus equals about two and three-fourths diameters of anterior median eyes. Fourth legs the longest.

Conductor very small. Accessory apophysis (A on figs. 81–82) on ectal side of palp very prominent, culminating in a hook. Embolus rotated into back of bulb, and radix a complex sclerite (fig. 82).

Measurements of a male from Florida: Total length, 1.8 mm. Carapace, 0.69 mm. long, 0.62 mm. wide, 0.47 mm. high. First patella and tibia, 0.78 mm.; second patella and tibia, 0.68 mm.; third patella and tibia, 0.56 mm.; fourth patella and tibia, 0.85 mm.

FEMALE: Total length, 1.9–2.6 mm.

Coloration like that of male.

Carapace very low. Anterior and posterior median eyes separated by their respective diameters. Anterior medians almost touching laterals, posterior medians a little more than half a diameter from laterals. Eyes similar in size to those of male, except for posterior lateral eyes of which the diameter is about 0.6 of a diameter of anterior medians. Height of clypeus equals two and one-fourth diameters of anterior median eyes. Abdomen broadly oval, with widest point near spinnerets.

Epigynum with two small dark spots below a slight portrusion. On careful examination two circular depressions can be seen between the spots (fig. 108). Internal genitalia are shown in figure 109.

Total length of a specimen from Texas, 2.3 mm. Carapace, 0.85 mm. long, 0.65 mm. wide, 0.31 mm. high. First patella and tibia, 0.85 mm.; second patella and tibia, 0.72 mm.; third patella and tibia, 0.65 mm.; fourth patella and tibia, 0.95 mm.

COMPARISONS: The structure of the genitalia and the coloration make it easy to distinguish this species from others occurring in the same region.

DISTRIBUTION: Southern United States to California, Mexico, and the West Indies.

TYPE LOCALITIES: Female holotype of *Dipoena abdita* from Edinburg, Texas, December 7, 1935 (S. Mulaik), in the American Museum of Natural History. Female holotype of *Euryopis inornata* from 4 miles northeast of Sylvania, Georgia, April 9, 1943 (W. Ivie), in the University of Utah collection.

RECORDS: *Florida:* Dunedin, December 15, 1925, to January 8, 1926,

one male (W. S. Blatchley); Newman's Lake, June 13, 1935, one male; Lake County, June, 1935, one male (H. K. Wallace); Eau Gallie, February 24, 1936, one male (S. C. Bishop); Gainesville, March 12, 1927, one male, June 13, 1935, one female (W. Ivie); Punta Gorda, one female (N. Banks); Tampa, August 26, 1933, one male, three females (W. Ivie). *Alabama*: Grove Hill, Clarke County, April, 1940 (Archer, 1946). *Mississippi*: Centreville, Wilkinson County, 1944, one male (A. F. Archer); Lucedale, August, 1931 (H. Dietrich). *Texas*: Edinburg, December 7, 1935, one juvenile female, May, 1936, one female, April 12, 1937, one female, April 23, 1938, two females, January 15, 1939, one female, February 5, 1939, one female, June 8, 1939, one female, December, 1939, one female (S. Mulaik); Rio Grande City, October 31, 1936, one female (S. Mulaik); Hays County, April 15, 1939, one female (D. and S. Mulaik); east bank of Nueces River, San Patricio County, June 7, 1937, one juvenile male (S. Mulaik); Llano County, July 10–12, 1936, one female, one juvenile male (L. I. Davis); Hot Springs, June 7–10, 1938, one female (D. and S. Mulaik). *Arizona*: Tucson, March 7, 1935, two females, March 15, 1940, one female (O. Bryant); Sacaton, March 16, 1934, one male (F. S. Stickney). *Nevada*: Las Vegas, 1945, one female (D. J. Zinn). *California*: Laguna Beach, July 1, 1931 (W. Ivie). *Hidalgo*: Jacala, June 9, 1941, one male (L. I. Davis). *Jalisco*: Guadalajara, June 20, 1941, one female (L. I. Davis). *Veracruz*: Nautla, May 23, 1945, one female (F. Bonet). *Bahama Islands*: Fort Charlotte near Nassau, New Providence, June 25, one female.

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