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Spiders of the Genus *Euryopsis* from North and Central America (Araneae, Theridiidae)

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The present study is based for the most part on the large collection of *Euryopsis* in the American Museum of Natural History. This was made available to me by Dr. Willis J. Gertsch, who, further, earlier suggested the need for a revisional study of the genus. Acknowledgments are also due to the following for the loan of additional specimens: Mr. B. G. Balderston of the University of Nebraska, 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, Michigan, Dr. H. Dietrich of Cornell University, Mr. H. S. Dybas of the Chicago Natural History Museum, Mrs. D. L. Frizzell of Rolla, Missouri, Dr. R. L. Gering of Bethel College, Kansas, Dr. E. E. Haviland of the University of Maryland, Dr. D. C. Lowrie of the University of Idaho, Dr. M. H. Muma of the Florida Citrus Experiment Station, Lake Alfred, Dr. A. I. Ortenburger of the University of Oklahoma, Mr. V. Roth of Oregon State College, and Dr. H. K. Wallace of the University of Florida. Dr. A. Kaestner and Mr. W. Crome of the Zoologisches Museum in Berlin have generously contributed several European specimens. I especially want to thank Mrs. D. L. Frizzell (Dr. Harriet Exline) for reading part of the manuscript and giving many helpful suggestions, Dr. W. J. Gertsch for his kind assistance in all phases of the work and for criticizing the manuscript, and Mrs. C. Crocker for her help in supplying me with literature. The late Miss E. B. Bryant was especially helpful during the course of the study.

All the type specimens are deposited in the American Museum of Natural History, except as follows: the holotype of *Euryopsis mulaiki* is

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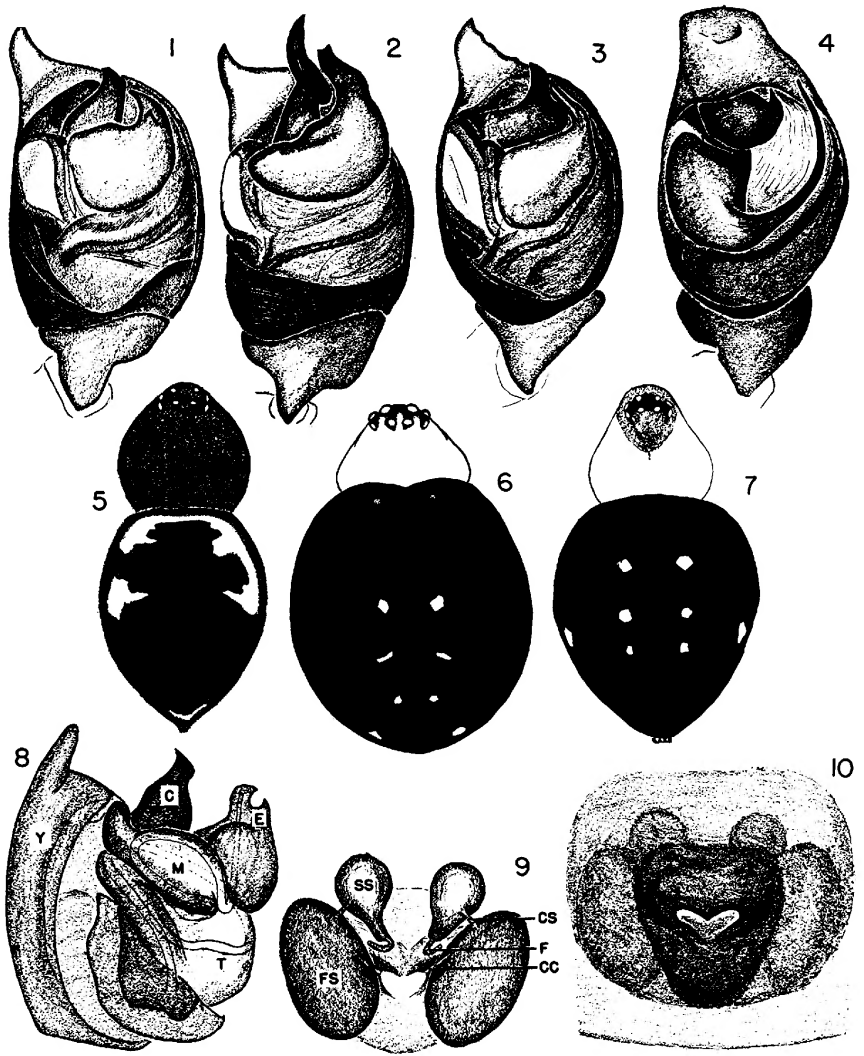


FIG. 1. *Euryopsis flavomaculata* (C. L. Koch), left male palp, ventral view.

FIG. 2. *Euryopsis saukea* Levi, left male palp, ventral view (specimen from Minnesota).

FIG. 3. *Euryopsis gertschi* Levi, left male palp, ventral view (specimen from Michigan).

FIG. 4. *Euryopsis argentea* Emerton, left male palp, ventral view (specimen from New Jersey).

FIG. 5. *Euryopsis saukea* Levi, dorsal view of male (specimen from Wisconsin).

FIG. 6. *Euryopsis gertschi* Levi, dorsal view of female (specimen from Connecticut).

FIG. 7. *Euryopsis argentea* Emerton, dorsal view of female (specimen from New York).

FIG. 8. *Euryopsis flavomaculata* (C. L. Koch), left male palp expanded, mesal view. Abbreviations: C, conductor; E, embolus; M, median apophysis; T, tegulum; Y, cymbium.

FIG. 9. *Euryopsis flavomaculata* (C. L. Koch), female genitalia, dorsal view. Abbreviations: CC, connecting canal; CS, canal connecting first and second pairs of seminal receptacles; F, fertilization duct; FS, first pair of seminal receptacles; SS, second pair seminal receptacles.

FIG. 10. *Euryopsis flavomaculata* (C. L. Koch), epigynum.

in the United States National Museum, the allotype of *E. mulaiki* and paratypes of *E. coki* are in the collection of the University of Utah, and a paratype of *E. pepini* is in the Museum of Comparative Zoölogy.

Species described as *Euryopis* which belong elsewhere are :

Euryopis probabilis O. P. Cambridge, 1899, *Biologia Centrali-Americana*, *Araneidea*, vol. 1, p. 295, pl. 39, fig. 1 (female). This species belongs in a new genus described elsewhere.

Euryopis proxima O. P. Cambridge, 1899, *Biologia Centrali-Americana*, *Araneidea*, vol. 1, p. 296, pl. 39, fig. 2 (female). This is a synonym of *probabilis*.

Euryopis ornata Bryant, 1933, *Bull. Mus. Comp. Zool.*, vol. 74, no. 6, pp. 172-173, pl. 1, figs. 2, 3 (male). A synonym of this is *Euryopis orniceps* Chamberlin and Ivie, 1944, *Bull. Univ. Utah, biol. ser.*, vol. 8, no. 5, p. 43, figs. 86, 123 (male). This species belongs in the genus *Stemmops*.

Euryopis inornata Chamberlin and Ivie, 1944, *Bull. Univ. Utah, biol. ser.*, vol. 8, no. 5, p. 42, figs. 85, 103 (female). (Not *Dipoena inornata* O. P. Cambridge). This species is *Dipoena abdita* Gertsch and Mulaik.

GENUS EURYOPIS MENGE

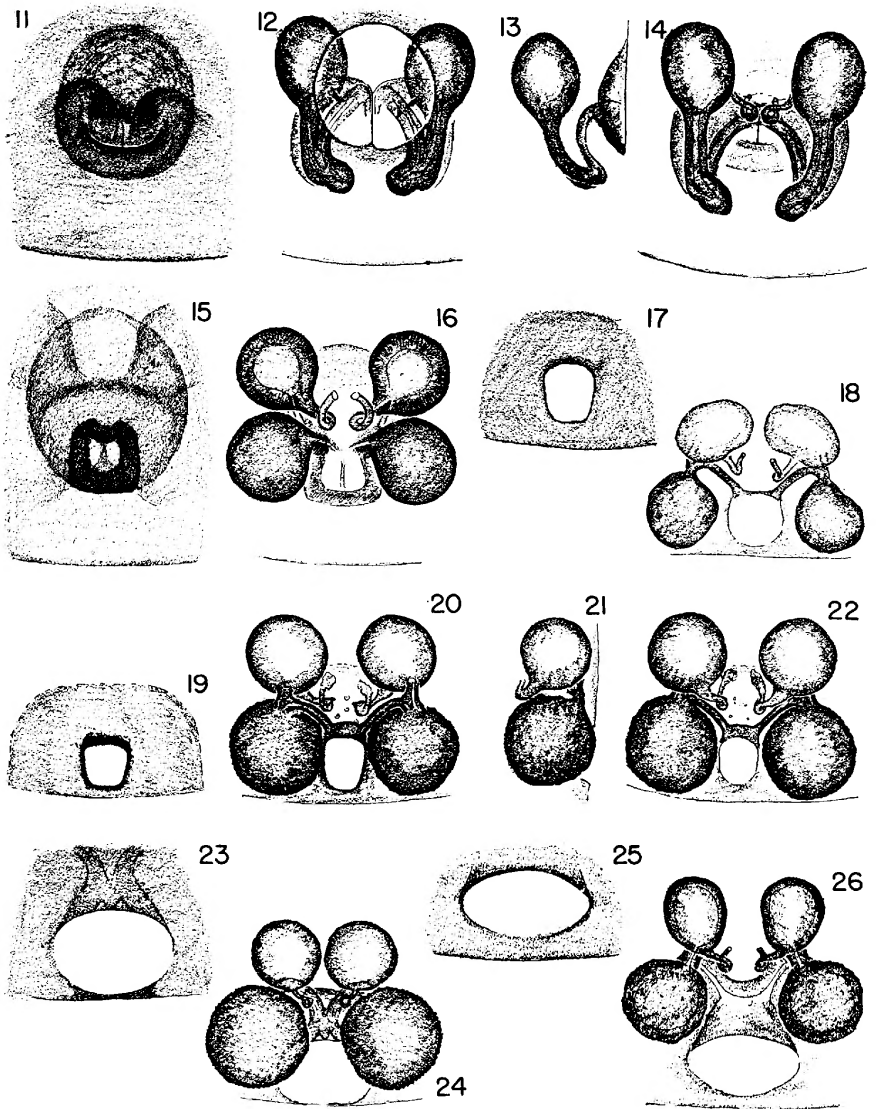
Euryopis MENGE, 1868, *Schr. Naturf. Gesellsch. Danzig*, vol. 2, p. 174. Genotype: *Micryphantes flavomaculatus* C. L. Koch.

Dipoenoides CHAMBERLIN, 1925, *Bull. Mus. Comp. Zool.*, vol. 67, no. 4, p. 215. Genotype: *Dipoenoides apacheus* Chamberlin (= *Euryopis scriptipes*).

Emertonella BRYANT, 1945, *Psyche*, vol. 52, p. 182. Genotype: *Euryopis emertoni* Bryant.

Mufila BRYANT, 1949, *Psyche*, vol. 56, p. 66. Genotype: *Mufila texana* Bryant.

Theridiid spiders of small to moderate size. Carapace quite variable in form. Clypeus frequently high in males, usually lower in females. Anterior median eyes usually slightly larger, sometimes same size or smaller than the others which are subequal. Anterior eye row procurved or straight when viewed from in front; posterior row recurved when seen from above. Anterior and posterior lateral eyes touching or nearly touching. Ocular quadrangle usually wider in front than behind. Lateral eyes usually oval. Several stout bristles frequently present in the eye region or cephalic region of the carapace. Chelicerae weak, very small in males, larger in females; fangs long and thin. Labium wider than long. Sternum roughly triangular, as wide as long, widest in front, and truncate between posterior coxae which are separated by their diameter. Fourth pair of legs usually slightly longer than others, the remaining pairs about subequal. Legs covered by hairs or sometimes with weak spines on the dorsal surfaces of patellae and tibiae. Fourth tarsus with the usual serrated bristles, the serration indistinct in some species (*Euryopis spinigera*), distinct in most. The unpaired claw present on all tarsi. Claw teeth quite variable, very long in some species, short in others; distal teeth usually slightly larger.



FIGS. 11-14. *Euryopis argentea* Emerton. 11. Epigynum (specimen from New York). 12. Female genitalia, ventral view, cleared (specimen from New York). 13. Female genitalia, lateral view (specimen from New York). 14. Female genitalia, dorsal view (specimen from Ontario).

FIGS. 15-16. *Euryopis gertschi* Levi, specimen from Connecticut. 15. Epigynum. 16. Female genitalia, dorsal view.

FIGS. 17-18. *Euryopis mulaiki*, new species, specimen from Arizona. 17. Epigynum. 18. Female genitalia, dorsal view.

FIGS. 19-22. *Euryopis emertoni* Bryant, specimen from Tennessee. 19. Epigynum. 20. Female genitalia, ventral view, cleared. 21. Female genitalia, lateral view. 22. Female genitalia, dorsal view.

FIGS. 23-24. *Euryopis spinigera* O. P. Cambridge, specimen from Texas. 23. Epigynum. 24. Female genitalia, dorsal view.

FIGS. 25-26. *Euryopis variabilis* Keyserling, specimen from Florida. 25. Epigynum. 26. Female genitalia, dorsal view.

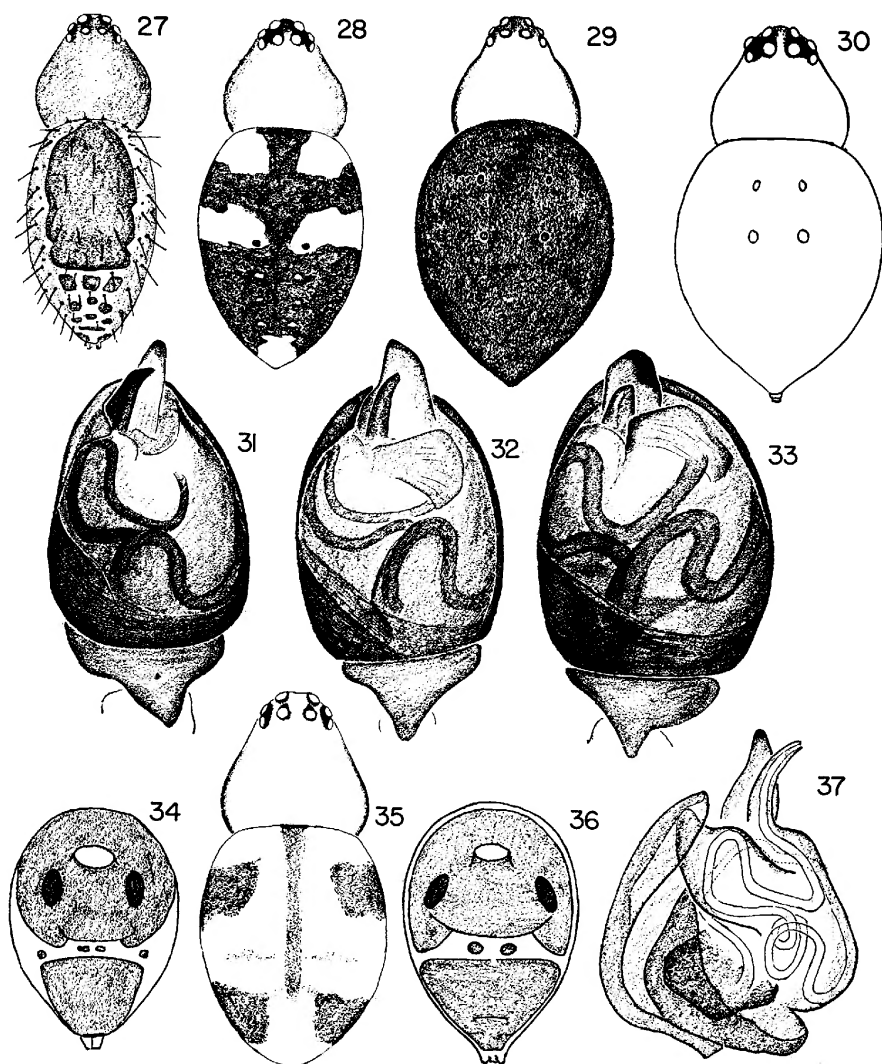
Abdomen overhanging carapace, usually pointed behind, frequently covered with strong bristles, which break off easily. No colulus visible. Males of several smaller species with ventral abdominal scuta, one species with dorsal scutum. Abdomen frequently with silvery spots or other markings.

Epigynum a simple pit or depression more or less sclerotized. Two pairs of seminal receptacles present. Palp simple; conductor irregular in shape and frequently the only strongly sclerotized portion of bulb. The median apophysis is a lobe which is broadly attached to the tegulum (fig. 8). In *Euryopsis nigripes* Banks and *Euryopsis tavara*, new species, a suture is present, although the lobe remains attached to the tegulum. The distal end of the median apophysis fits behind a rounded protuberance in the alveolus (the hollow portion) of the cymbium. This protuberance is homologous to the process on the ectal margin of the cymbium present in many theridiids, for instance in the genus *Ctenium*. The median apophysis in *Euryopsis* and in some other theridiid genera appears to have the function of holding the bulb in the alveolus when not expanded. In theridiid genera such as *Ctenium* the median apophysis has lost its function, and this structure moves to the ventral side, whereas the protuberance in the alveolus moves to the border of the cymbium and becomes a spine-like process which may be homologous to the paracymbium of the palp of spiders belonging to other families.

The genus *Dipoena*, although frequently placed in a different subfamily, appears closely related to *Euryopsis*. Females may be hard to place, although *Dipoena* is frequently smaller and the abdomen is usually globose, while the abdomen of *Euryopsis* is usually subtriangular or at least pointed above the spinnerets. The median apophysis of the palp of *Dipoena* is usually (but not always) a distinct sclerite, and the duct is more tortuous than the duct in the palp of *Euryopsis*. The anterior median eyes of *Dipoena* are the largest and project above the concave clypeus; however, several species referred to *Euryopsis* have this character.

Several species belonging to *Euryopsis* are polytypic. The subspecific differences are usually those of color, the height and shape of the carapace, and the relative size and position of the eyes. With these are associated minor variations in proportion and shape of the male and female genitalia.

As far as is known these spiders do not spin webs, but hunt their prey by stalking. They are usually found on vegetation or on the ground under rocks. Ants have been reported as food of the Mediterranean *Euryopsis acuminata* (H. Lucas) (Wiehle, 1937, Die Tierwelt Deutschlands, pt. 33, p. 131) and Archer (1946, Alabama Mus. Nat. Hist., Paper no. 22, p. 32) observed *E. limbata* (Walckenaer) feeding on an ant. *Euryopsis*



FIGS. 27-28. *Euryopsis mulaiki*, new species. 27. Male, dorsal view (specimen from Texas). 28. Female, dorsal view (specimen from Arizona).

FIG. 29. *Euryopsis emertoni* Bryant, female, dorsal view (specimen from Tennessee).

FIG. 30. *Euryopsis spinigera* O. P. Cambridge, female, dorsal view (specimen from northern Mexico).

FIG. 31. *Euryopsis emertoni* Bryant, left male palp, ventral view (specimen from Florida).

FIG. 32. *Euryopsis mulaiki*, new species, left male palp, ventral view (specimen from Texas).

FIG. 33. *Euryopsis spinigera* O. P. Cambridge, left male palp, ventral view (specimen from Texas).

FIG. 34. *Euryopsis emertoni* Bryant, male abdomen, ventral view (specimen from Florida).

FIG. 35. *Euryopsis variabilis* Keyserling, female, dorsal view (specimen from Florida).

FIG. 36. *Euryopsis spinigera* O. P. Cambridge, male abdomen, ventral view (specimen from Texas).

FIG. 37. *Euryopsis emertoni* Bryant, left male palp, expanded, mesal view (specimen from Florida).

scriptipes has been noted by the present author while feeding on ants twice its size. A female of *E. scriptipes* from Gunnison County, Colorado, produced an egg sac the night and morning following its capture, on August 3, 1952. Before the egg sac was finished, the bright orange-colored eggs (about 16) showed through the silk. The finished egg sac is a white, fluffy structure. It appears to be tight in the center, while loose threads with knots at their ends radiate in all directions (see photograph, fig. 138). Similar egg sacs had been observed before under stones. The diameter is approximately 10 mm. and it is 6-7 mm. high. The female moved away from the egg sac immediately after it was finished and did not return. She died 10 days later. After 23 days, five spiderlings left the egg sac, and several others were found dead in various stages of emergence.

The genus *Euryopsis* is divisible into two principal groups on the basis of the male palp. In the first one, of which *E. flavomaculata* is typical, the cymbium extends beyond the bulb and is frequently pointed (see fig. 1). The embolic division of the bulb includes an embolus in which the base is a sclerotized plate. The epigynum of the female is a pit into which the connecting canals open separately. In the second group, of which *E. emertoni* is characteristic (see fig. 31), the cymbium of the palp is rounded at the tip and does not extend beyond the bulb. The embolic division of the bulb consists of a sclerotized embolus varying in shape according to the species. The epigynum is a weakly sclerotized depression frequently having an atrium anteriorly, into which the connecting canals open. Members of the *emertoni* group vary considerably in structure and size.

THE *flavomaculata* GROUP

Euryopsis flavomaculata (C. L. Koch)

Figures 1, 8-10

Micryphantes flavomaculatus C. L. KOCH, 1836, Die Arachniden, vol. 3, p. 67, fig. 220.

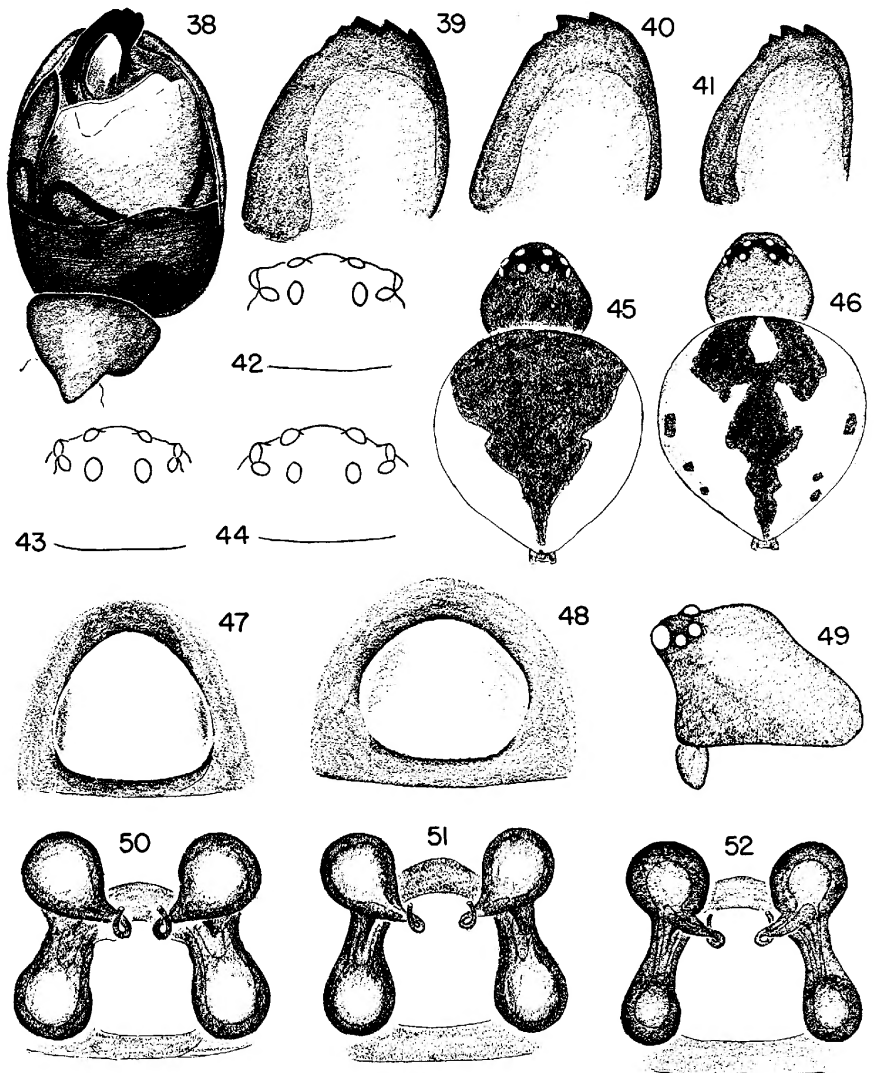
Euryopsis flavomaculata, MENGE, 1868, Schr. Naturf. Gesellsch. Danzig, vol. 2, p. 175, pl. 33, fig. 78.

DISTRIBUTION : Europe and eastern Siberia (Kamchatka).

Euryopsis saukea Levi

Figures 2, 5

Euryopsis saukea LEVI, 1951, Amer. Mus. Novitates, no. 1501, p. 6, figs. 5-9 (male).



FIGS. 38-52. *Euryopsis nigripes* Banks. 38. Left male palp, ventral view (specimen from Utah). 39-41. Conductor of left palp, ventral views. 39. Specimen from Panama. 40. Specimen from Utah. 41. Specimen from Florida. 42-44. Eye region and clypeus of female, frontal views. 42. Specimen from Panama. 43. Specimen from Colorado. 44. Specimen from Florida. 45. Female triangular pattern, dorsal view (specimen from Panama). 46. Female Y pattern, dorsal view (specimen from New Mexico). 47-48. Epigynum. 47. Specimen from Panama. 48. Specimen from Florida. 49. Cephalothorax of male, lateral view (specimen from Panama). 50-52. Female genitalia, dorsal views. 50. Specimen from Panama. 51. Specimen from Colorado. 52. Specimen from Florida.

MALE: Total length, 2.4 mm.

Form and color pattern as in figure 5.

Carapace dark brown. Chelicerae, labium, maxillae, and sternum dark brown. Coxae light yellow. Legs dark brown except for bands of light yellow on femora and patellae, the tarsi light in color. Abdomen black, with dorsal silvery pattern as shown in figure 5, the extent of pattern variable. Spinnerets and epigastric plates brown.

Cephalothorax almost circular, very high, highest behind eyes, with a distinct transverse thoracic groove. Eyes very small. Anterior eye row straight; posterior row recurved. Ocular quadrangle wider than long, wider in front than behind. Anterior median eyes slightly smaller, lateral eyes largest and oval. Anterior median eyes separated by two diameters, by one-half to one diameter from anterior laterals. Posterior median eyes separated by one and one-fourth diameters and one and one-half diameters from the posterior laterals. Eye region overhanging clypeus, which equals three lengths of ocular quadrangle in height. Abdomen pointed, with four sclerotized spots on dorsum.

MEASUREMENTS: Carapace 0.85 mm. long, 0.93 mm. wide, 0.71 mm. high. Patella and tibia of first leg, 0.80 mm., of second leg, 0.74 mm., of third leg, 0.77 mm. Fourth leg: femur, 0.80 mm.; patella and tibia, 0.86 mm.; metatarsus, 0.64 mm.; tarsus, 0.32 mm.

Male palp as illustrated in figure 2.

TYPE LOCALITY: Male holotype from a goat prairie 5 miles south of Sauk City, Dane County, Wisconsin, collected by D. C. Lowrie, in the American Museum of Natural History.

RECORDS: *Minnesota*: Itasca Park, May 30, 1932, male paratype, W. J. Gertsch (Levi, 1951). *New Jersey*: Lakehurst.

Euryopis gertschi Levi

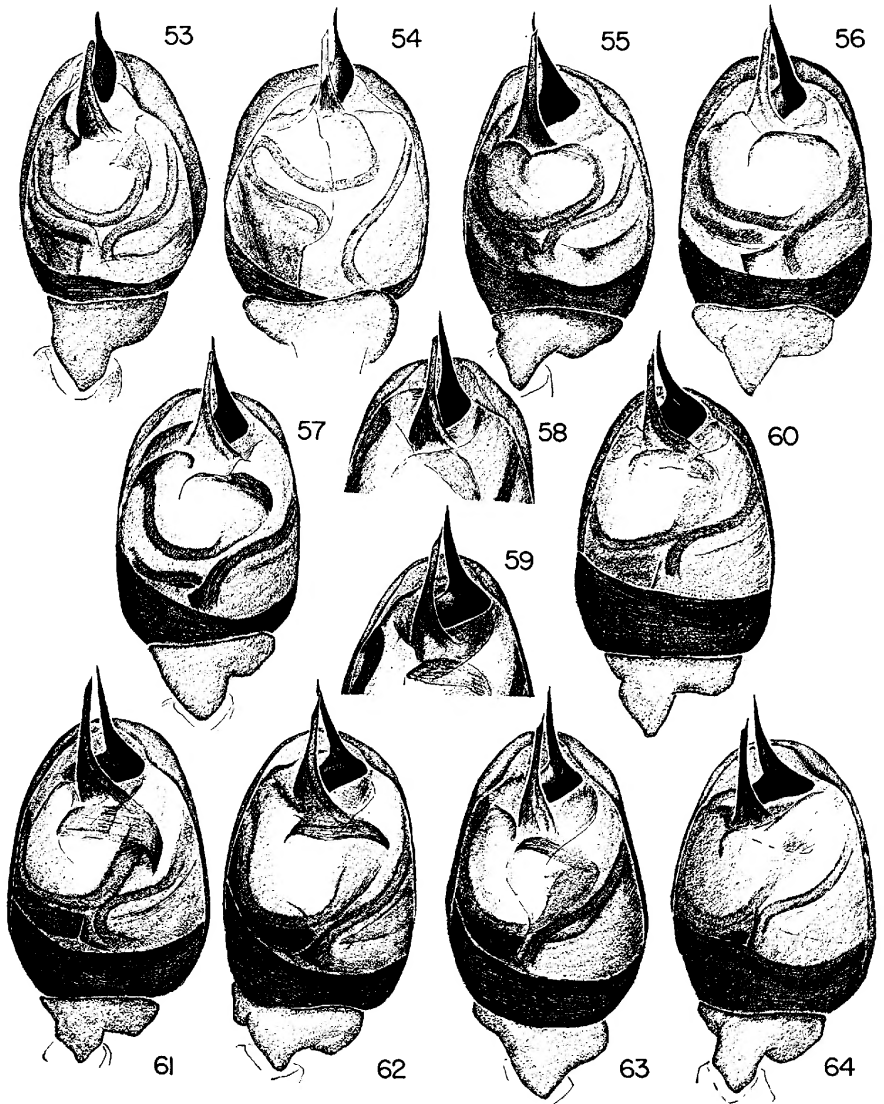
Figures 3, 6, 15, 16

Euryopis gertschi LEVI, 1951, Amer. Mus. Novitates, no. 1501, p. 6, figs. 1-4 (male and female).

MALE: Total length, 2.4 mm.

Carapace yellow, the eye area dusky, and the eyes on black spots. Chelicerae, labium, and maxillae yellow. Sternum and coxae white. Legs yellow, the distal segments light brown. Dorsum of abdomen black, with a series of silvery spots as in the female (fig. 6). Venter dusky brown; spinnerets brown.

Cephalothorax low, evenly rounded on sides, slightly longer than wide, with a longitudinal thoracic groove present. Ocular quadrangle longer than wide, wider in front than behind. Eyes subequal in size. Anterior



FIGS. 53-64. Left male palp, ventral views. 53. *Euryopsis limbata* (Walckenaer), specimen from Long Island, New York. 54. *E. tavana*, new species. 55. *E. pepini*, new species, specimen from Pepin, Wisconsin. 56. *E. coki*, new species, specimen from Salt Lake City, Utah. 57. *E. texana* Banks, specimen from Brazos County, Texas. 58. *E. texana* Banks, specimen from Santa Catalina Mountains, Arizona. 59. *E. scriptipes* Banks, specimen from Bryce Canyon, Utah. 60. *E. lineatipes* O. P. Cambridge, specimen from Chiapas, Mexico. 61. *E. californica* Banks, specimen from Twentynine Palms, California. 62. *E. formosa* Banks, specimen from Mt. McLoughlin, Oregon. 63. *E. scriptipes* Banks, specimen from Colorado; Osler collector. 64. *E. spiritus*, new species, specimen from Electra Lake, Colorado.

median eyes separated by one and one-half diameters, by one-fourth of their diameter from the laterals. Posterior median eyes separated by one diameter, and the same distance from laterals. Eye region overhanging clypeus. Clypeus equaling in height two lengths of the ocular quadrangle. Abdomen with four sclerotized spots.

MEASUREMENTS: Carapace 1.00 mm. long, 0.96 mm. wide, and 0.50 mm. high. Patellae and tibiae of the first, second, and third legs, 0.96 mm. Fourth leg: femur, 0.96 mm.; patella and tibia, 1.28 mm.; metatarsus, 0.74 mm.; tarsus, 0.54 mm.

Palp as illustrated in figure 3.

FEMALE: Total length, 2.50 mm.

Coloration (fig. 6) and structure of cephalothorax similar to those of male. Thoracic groove an indistinct shallow depression. Eyes similar to those of male. Clypeus concave, equal to one and one-half lengths of the ocular quadrangle. Abdomen sometimes rounded behind.

MEASUREMENTS: Carapace 0.88 mm. long, 0.88 mm. wide., 0.40 mm. high. Patella and tibia of the first, second, and third legs, 0.93 mm. Fourth leg: femur, 0.96 mm.; patella and tibia, 1.21 mm.; metatarsus, 0.70 mm.; tarsus, 0.48 mm.

Epigynum and internal details of female genitalia as in figures 15 and 16.

COMPARISONS: Although commonly confused with *E. argentea* Emerton, even immature specimens can be differentiated by the light coloration of the carapace and the much larger eyes.

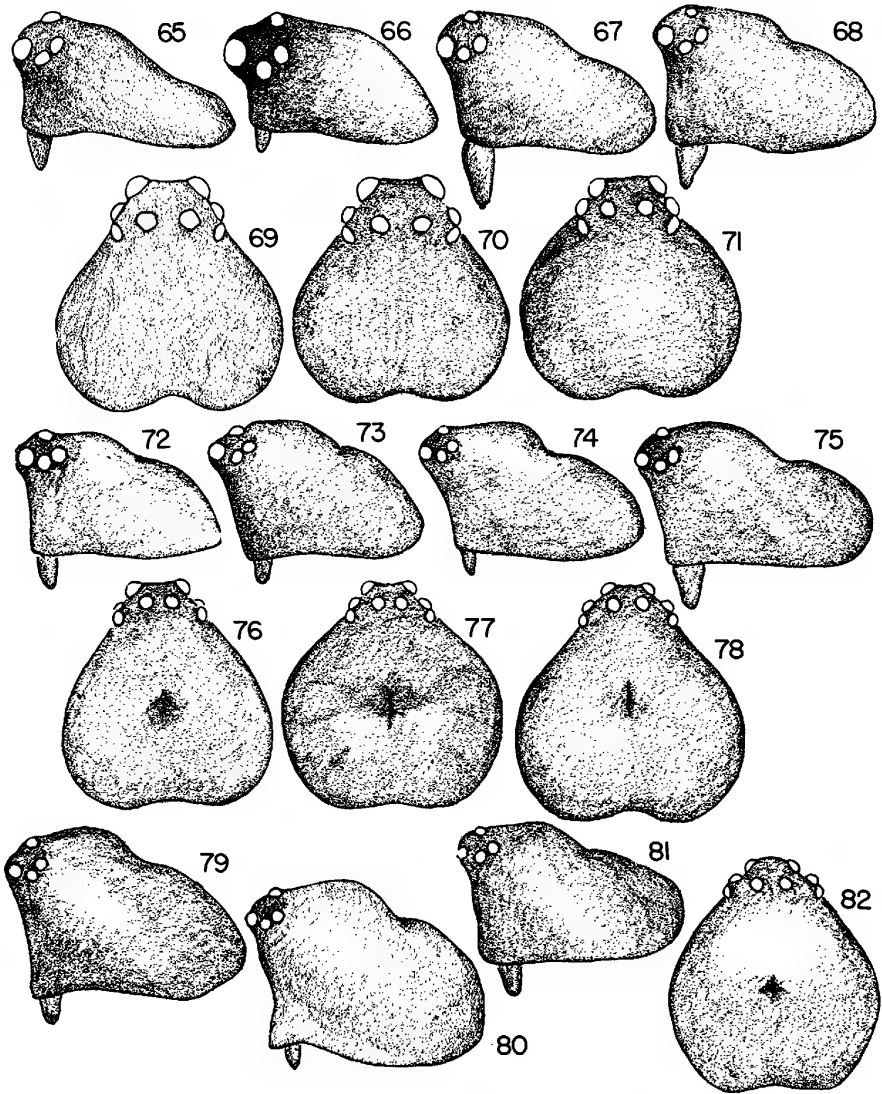
TYPE LOCALITY: Male holotype and paratypes from the E. S. George Reserve, Livingston County, Michigan, June 12, 1937, I. J. Cantrall, in the American Museum of Natural History.

RECORDS: *Connecticut*: Norwalk, August 4, 1935, female allotype, W. J. Gertsch. *Illinois*: White Heath, December 5, 1937, J. C. Dirks. *Michigan*: Ott Biological Preserve, Calhoun County, May 10, 1947, February 19, 1949, A. M. Chickering. *Indiana*: Ogden Dunes, May 15, 1937, D. C. Lowrie. *Massachusetts*: Holliston, May 18, 1923, March 25, 1924, J. H. Emerton; May 10, 1925, J. H. Emerton and N. Banks. *District of Columbia*: Washington. *Virginia*: Falls Church, N. Banks.

Euryopsis argentea Emerton

Figures 4, 7, 11-14

Euryopsis argentea EMERTON, 1882, Trans. Connecticut Acad. Sci., vol. 6, p. 27, pl. 5, fig. 5. KEYSERLING, 1886, Die Spinnen Amerikas, Theridiidae, vol. 2, p. 50, pl. 12, fig. 162 (female). BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., vol. 7, p. 12. BANKS, 1910, Bull. U. S. Natl. Mus., no. 72, p. 22. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 176. COMSTOCK, 1912, The spider book, p. 344; 1940, *op. cit.*, rev. ed., p. 359. ROEWER, 1942,



FIGS. 65-82. Cephalothorax of male. 65. *Euryopsis limbata* (Walckenaer), lateral view (specimen from Long Island). 66. *E. tavora*, new species, lateral view. 67. *E. pepini*, new species, lateral view (specimen from Madison, Wisconsin). 68. *E. coki*, new species, lateral view (specimen from Salt Lake City, Utah). 69. *E. limbata* (Walckenaer), dorsal view (specimen from Long Island, New York). 70. *E. tavora*, new species, dorsal view (specimen from Florida). 71. *E. pepini*, new species, dorsal view (specimen from Madison, Wisconsin). 72. *E. texana* Banks, lateral view (specimen from Brazos County, Texas). 73. *E. lineatipes* O. P. Cambridge, lateral view (specimen from Chiapas, Mexico). 74. *E. californica* Banks, lateral view (specimen from Twentynine Palms, California). 75. *E. formosa* Banks, lateral view (specimen from Mt. McLoughlin, Oregon). 76. *E. lineatipes* O. P. Cambridge, dorsal view (specimen from Chiapas, Mexico). 77. *E. californica* Banks, dorsal view (specimen from Twentynine Palms, California). 78. *E. formosa* Banks, dorsal view (specimen from Mt. McLoughlin, Oregon). 79. *E. scriptipes* Banks, lateral view (specimen from Garden of the Gods, Colorado). 80. *E. scriptipes* Banks, lateral view (specimen from Flagstaff, Arizona). 81. *E. spiritus*, new species, lateral view (specimen from Electra Lake, Colorado). 82. *E. scriptipes* Banks, dorsal view (specimen from the Garden of the Gods, Colorado).

Katalog der Araneae, vol. 1, p. 454. KASTON, 1948, Connecticut Geol. Nat. Hist. Surv. Bull., no. 70, p. 97, pl. 10, figs. 184, 186 (male, not female).

Euryopis argentata, BANKS, 1908, Canadian Ent., vol. 40, p. 206.

Euryopis strandi SYTSHEVSKAJA, 1935, Folia Zool. Hydrobiol., vol. 8, no. 1, pp. 87, 88, figs. 2, 3 (male). ROEWER, 1942, Katalog der Araneae, vol. 1, p. 452.

MALE: Total length, 2.0–2.6 mm.

Carapace yellow, cephalic portion dusky to black as in the female (fig. 7); clypeus black; chelicerae, labium, maxillae, sternum, coxae, and legs yellow. Palps yellow, dusky or black. Abdomen black, with a variable number of silvery spots.

Cephalothorax evenly rounded at sides. Height variable. Thoracic groove usually a shallow depression. Ocular quadrangle square to wider than long. Eyes subequal in size in some specimens; in others, the anterior medians are smaller, and posterior medians the largest. Anterior median eyes about three diameters from each other, one diameter from laterals. Posterior median eyes one to two diameters from each other, one and one-quarter to two diameters from laterals. Eye region overhanging clypeus, which equals two to three lengths of ocular quadrangle. Abdomen with four sclerotized spots.

MEASUREMENTS (MALE FROM NEW JERSEY): Total length, 2.3 mm. Carapace 0.86 mm. long, 0.80 mm. wide, 0.48 mm. high. Patella and tibia of first leg, 0.83 mm.; of second and third legs, 0.80 mm. Fourth leg: femur, 0.83 mm.; patella and tibia, 0.90 mm.; metatarsus, 0.64 mm.; tarsus, 0.45 mm.

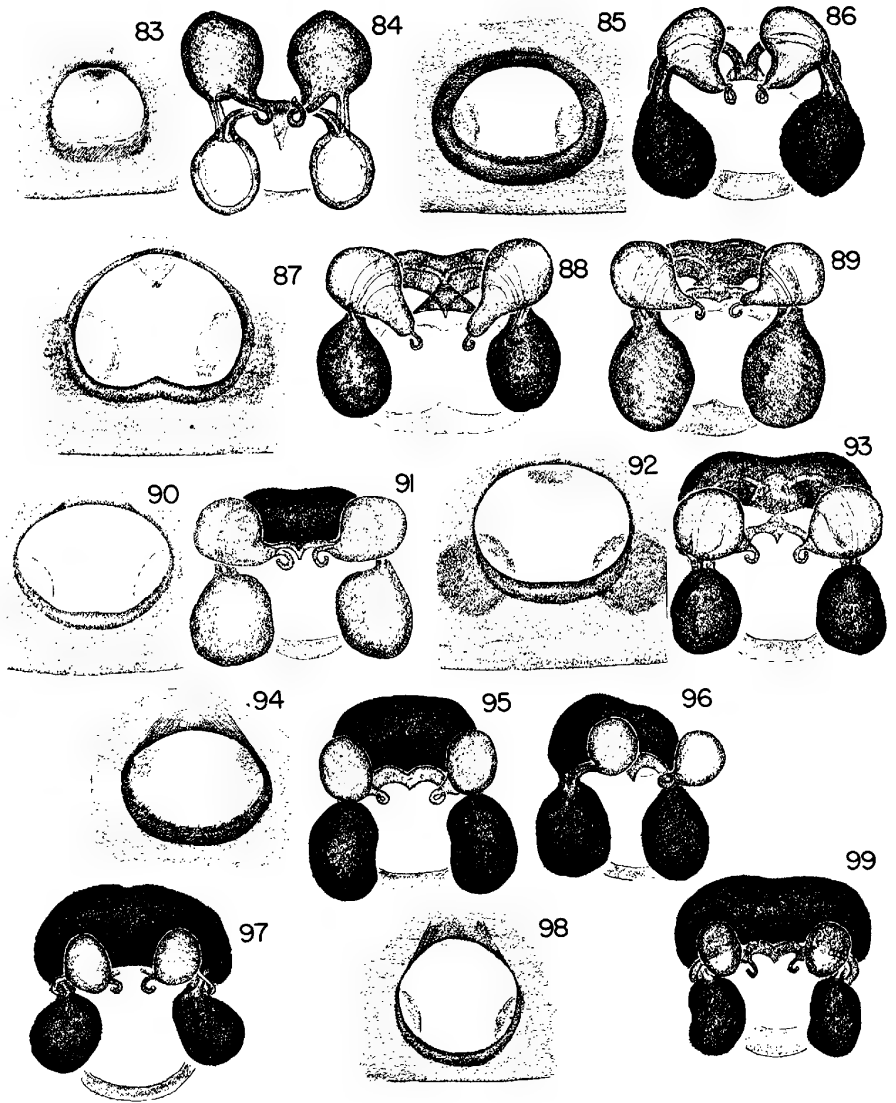
FEMALE: Total length, 2.8–3.2 mm.

Coloration (fig. 7) similar to that of male.

Structure of carapace variable, sometimes longer than wide, sometimes wider than long. A black longitudinal line in thoracic region. Ocular quadrangle slightly wider than long. Eye sizes and ratios about same as in male. Clypeus very concave, lower edge projecting.

MEASUREMENTS (FEMALE FROM ONTARIO): Total length, 3.00 mm. Carapace 0.83 mm. long, 0.86 mm. wide, 0.45 mm. high. Patella and tibia of first leg, 0.96 mm.; of second leg, 0.83 mm., of third leg, 0.96 mm. Fourth leg: femur, 0.96 mm.; patella and tibia, 1.12 mm.; metatarsus, 0.80 mm.; tarsus, 0.32 mm.

VARIATIONS AND COMPARISONS: *Euryopis argentea* is extremely variable, particularly in the shape and height of the carapace, the eye proportions, and the shape of the epigynum (figs. 11–14). Insufficient mature specimens were available to warrant descriptions of subspecies at the present time.



FIGS. 83-84. *Euryopsis limbata* (Walckenaer), specimen from Georgia. 83. Epigynum. 84. Female genitalia, dorsal view.

FIGS. 85-86. *Euryopsis coki*, new species, specimen from Wyoming. 85. Epigynum. 86. Female genitalia, dorsal view.

FIGS. 87-89. *Euryopsis texana* Banks. 87. Epigynum (specimen from Edinburg, Texas). 88-89. Female genitalia, dorsal views. 88. Specimen from Edinburg, Texas. 89. Specimen from Tubac, Arizona.

FIGS. 90-91. *Euryopsis lineatipes* O. P. Cambridge, specimen from Guatemala. 90. Epigynum. 91. Female genitalia.

FIGS. 92-93. *Euryopsis californica* Banks, specimen from Twentynine Palms, California. 92. Epigynum. 93. Female genitalia, dorsal view.

FIGS. 94-96. *Euryopsis formosa* Banks, specimen from Klamath County, Oregon. 94. Epigynum. 95-96. Female genitalia. 95. Dorsal view. 96. Dorsolateral view.

FIGS. 97-99. *Euryopsis scriptipes* Banks. 97. Female genitalia, dorsal view (specimen from Fort Collins, Colorado). 98. Epigynum (specimen from Fort Collins, Colorado). 99. Female genitalia, dorsal view (specimen from Flagstaff, Arizona).

Euryopis argentea can be separated from *E. gertschi* by the coloration of the carapace and its much smaller eyes.

TYPE LOCALITIES: Cotypes from Milton and Beverly, Massachusetts, and New Haven, Connecticut, in the Museum of Comparative Zoölogy.

DISTRIBUTION: North America and eastern Siberia (Kamchatka).

RECORDS: *Ontario*: Island 1024, Lake Temagami, August 15–25, 1946, W. J. Gertsch, W. Ivie, and T. B. Kurata; South Tea Lake, Algonquin Park, July 3–10, 1945, W. Ivie and T. B. Kurata; Sproule Bay, Lake Opeongo, Algonquin Park, June 26–July 7, 1945, W. Ivie and T. B. Kurata; Port Credit, July 7, 1945, S. Harrod. *Massachusetts*: Beverly, November 9, 1879, cotypes, J. H. Emerton. *Connecticut*: East Haven, October, 1881, cotypes, J. H. Emerton. *New York*: Ithaca. *New Jersey*: Ramsey, July 4, 1934, W. J. Gertsch. *Maryland*: Princess Anne, June 16, 1942, M. H. Muma. *Virginia*: Great Falls, N. Banks. *Ohio*: Sugar Grove, Fairfield County, August 17, 1935. *Michigan*: Jackson County, May 29, 1949, A. M. Chickering. *Illinois*: Litchfield, September 2, 1944, C. Goodnight. *Wisconsin*: St. Croix Falls, E. B. Bryant. *Colorado*: Near Benne Creek Camp Ground, Roosevelt National Forest, June 17, 18, 1947, C. Hoff; Rist Canyon Camp Ground, Roosevelt National Forest, June 17, 18, 1947, C. Hoff. *Oregon*: Peavine Ridge, near McMinnville, May, 1947, Fender. *Kamchatka*: (Sytshevskaja, 1935).

THE *emertoni* GROUP

Euryopis emertoni Bryant

Figures 19–22, 29, 31, 34, 37

Euryopis spinigera, EMERTON, 1924, *Psyche*, vol. 31, p. 142, fig. 4 (male). CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta. Mem., no. 101, p. 1039 (not *E. spinigera* O. P. Cambridge, 1895).

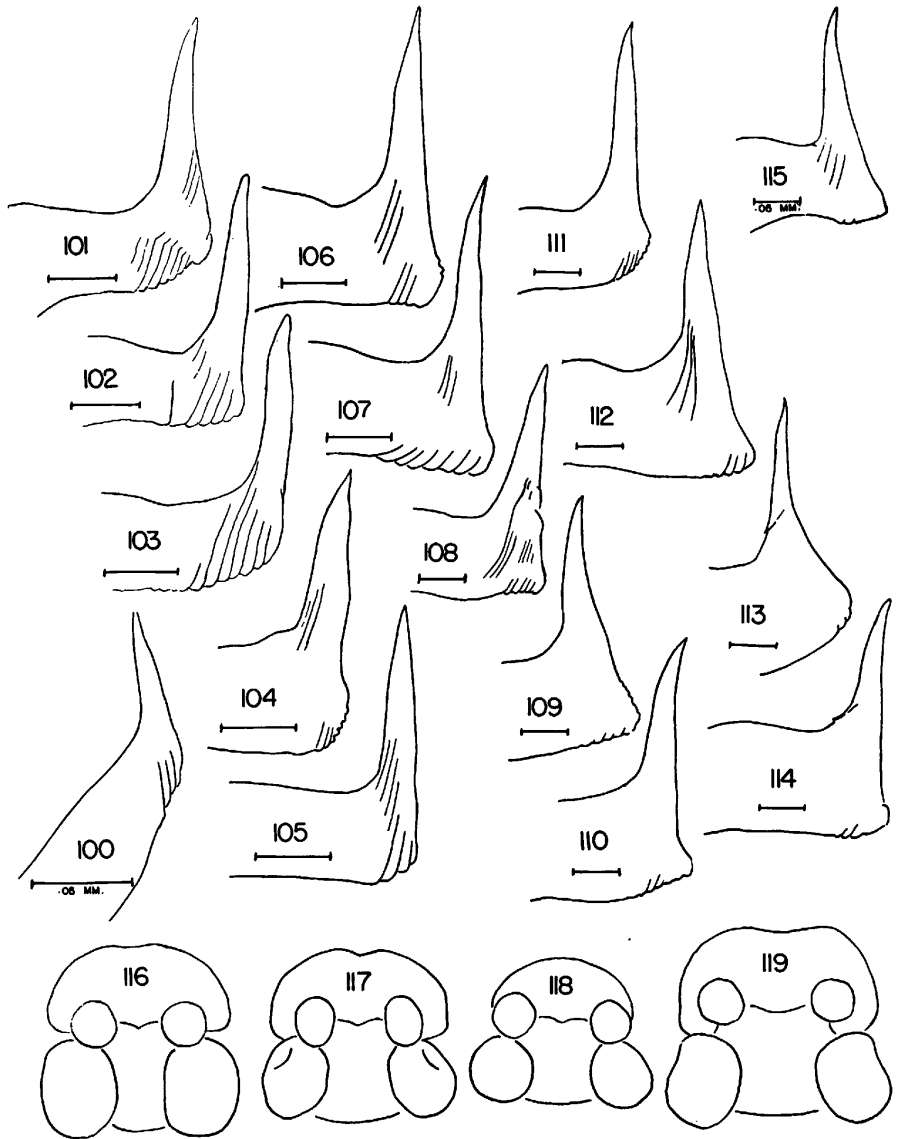
Euryopis emertoni BRYANT, 1933, Bull. Mus. Comp. Zool., vol. 74, no. 6, p. 172, pl. 1, fig. 1 (male). ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454. CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 41. KASTON, 1948, Connecticut Geol. Nat. Hist. Surv. Bull., no. 70, p. 98, pl. 11, figs. 200–203 (male).

Euryopis georgiana CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 41, figs. 90, 104 (female).

Emertonella emertoni, BRYANT, 1945, *Psyche*, vol. 52, p. 183 (male). ARCHER, 1946, Alabama Mus. Nat. Hist., Paper no. 22, p. 56.

MALE: Total length, 1.8 mm.

Carapace orange, the margins dusky, grading into black. Eye area dusky, the eyes on black spots. Chelicerae, labium, maxillae, sternum, and coxae light orange. Legs orange. Abdomen light dusky orange to black, sometimes with many small lighter spots, the sclerotized parts dark orange.



FIGS. 100-115. Conductor of palp. 100. *Euryopsis limbata* (Walckenaer), specimen from Long Island, New York. 101. *E. pepini*, new species, specimen from Madison, Wisconsin. 102. *E. coki*, new species, specimen from Salt Lake City, Utah. 103. *E. texana* Banks, specimen from Brazos County, Texas. 104. *E. lineatipes* O. P. Cambridge, specimen from Chiapas, Mexico. 105. *E. californica* Banks, specimen from Twentynine Palms, California. 106-107. *E. formosa* Banks. 106. Specimen from Lake of the Woods, Oregon. 107. Specimen from Teton Mountains, Wyoming. 108-114. *E. scriptipes* Banks. 108. Specimen from Garden of the Gods, Colorado. 109. Specimen from Long's Peak, Colorado. 110. Specimen from Beulah, New Mexico. 111. Specimen from Fish Lake, Utah. 112. Specimen from Santa Catalina Mountains, Arizona. 113. Specimen from Santa Rita Mountains, Arizona. 114. Specimen from Chiricahua National Monument, Arizona. 115. *E. spiritus*, new species, specimen from Phantom Canyon, Colorado.

FIGS. 116-119. *Euryopsis scriptipes* Banks, female genitalia, dorsal views. 116. Specimen from White Mountains, Arizona. 117. Specimen from Chiricahua National Monument, Arizona. 118. Specimen from Bryce Canyon, Utah. 119. Specimen from Fruita, Utah.

Carapace slightly longer than wide, highest slightly anterior to center, the thoracic groove a distinct shallow depression. Ocular quadrangle slightly wider than long. Anterior median eyes slightly larger than other eyes which are subequal. Anterior median eyes one diameter apart, one-third of their diameter from laterals. Posterior median eyes separated by one diameter, two-thirds of their diameter from laterals. Clypeus height equals the length of two ocular quadrangles.

Abdomen covered with many stiff bristles, on dorsum four sclerotized spots and anterior to the spinnerets two small sclerotized plates of which the outside, lateral edge projects on sides one-third of length of abdomen. Venter covered by sclerotized plates as shown in figure 34. Bristles on venter and sides shorter.

MEASUREMENTS OF MALE: Carapace 0.64 mm. long, 0.58 mm. wide, 0.38 mm. high. Patella and tibia of first leg, 0.58 mm.; of second and third, 0.54 mm. Fourth leg: femur, 0.58 mm.; patella and tibia, 0.80 mm., metatarsus, 0.38 mm.; tarsus, 0.38 mm.

Palpus as illustrated in figures 31 and 37.

FEMALE: Total length, 2.0–2.1 mm.

Coloration (fig. 29) similar in general to that of male, color of abdomen quite variable.

Structure of carapace similar to that of male but lower, and no thoracic depression present. Size and proportions of eyes similar to those of male. Clypeus straight, its height equals one and one-half length of the ocular quadrangle. Abdomen with usual setae and four sclerotized spots on dorsum.

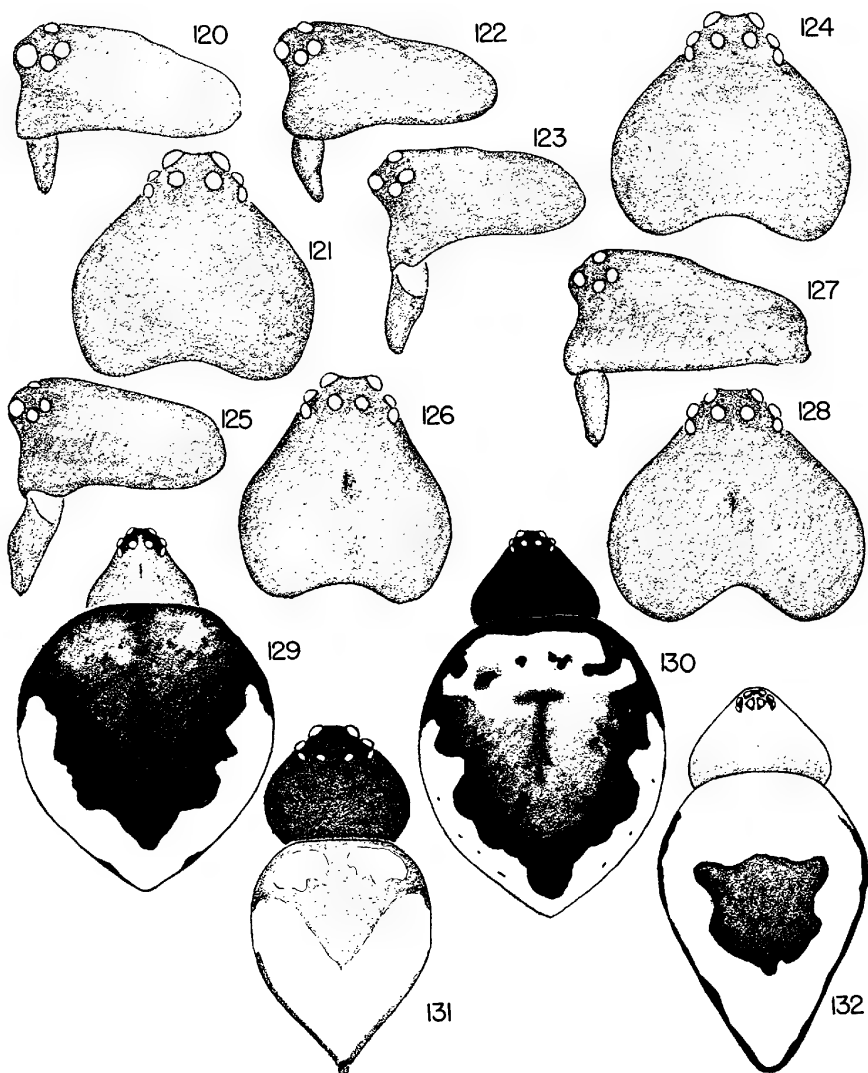
MEASUREMENTS OF FEMALE: Carapace 0.70 mm. long, 0.66 mm. wide, 0.32 mm. high. Patella and tibia of first leg, 0.58 mm.; of second leg, 0.56 mm.; of third leg, 0.58 mm. Fourth leg: femur, 0.58 mm.; patella and tibia, 0.80 mm.; metatarsus, 0.38 mm.; tarsus, 0.38 mm.

Epigynum and internal genitalia as shown in figures 19–22.

VARIATIONS AND COMPARISONS: There is little variation in structure within the species. The coloration of the abdomen, however, is quite variable. The tip of the embolus of the male palp is bent in some southern specimens (fig. 31), while it is almost straight in others. The males can be distinguished from those of other species by the shape of the ventral scutes of the abdomen (fig. 34), the female by the position of the connecting canals of the genitalia.

TYPE LOCALITY: Male holotype from Thompson's Mills, Georgia, H. A. Allard, in the Museum of Comparative Zoölogy.

RECORDS: *Florida*: Okeechobee, March 13, 1939, F. E. Lutz; Winter Park, March 1, 1939, F. E. Lutz. *Georgia*: South of Guyton, April 5,



FIGS. 120-128. Cephalothorax of females. 120-121. *Euryopsis limbata* (Walckenaer), specimen from Georgia. 120. Lateral view. 121. Dorsal view. 122-124. *E. texana* Banks. 122. Specimen from Edinburg, Texas, lateral view. 123. Specimen from Tubac, Arizona, lateral view. 124. Specimen from Edinburg, Texas, dorsal view. 125-126. *E. lineatipes* O. P. Cambridge, specimen from Guatemala. 125. Lateral view. 126. Dorsal view. 127-128. *E. scriptipes* Banks, specimen from Flagstaff, Arizona. 127. Lateral view. 128. Dorsal view.

FIG. 129. *Euryopsis limbata* (Walckenaer), dorsal view of female (specimen from New York).

FIG. 130. *Euryopsis coki*, new species, dorsal view of female (specimen from Cokeville, Wyoming).

FIG. 131. *Euryopsis tavana*, new species, dorsal view of male (specimen from Florida).

FIG. 132. *Euryopsis californica* Banks, dorsal view of female (specimen from Twentynine Palms, California).

1943, W. Ivie (Chamberlin and Ivie, 1944); North of Sylvania, April 10, 15, 1943, W. Ivie (Chamberlin and Ivie, 1944); 5 miles north of Macon, June 15, 1939, W. J. Gertsch. *Alabama*: (Bryant, 1945); Elk River, April, 1940 (Archer, 1946). *Tennessee*: Lebanon State Park, Wilson County, August, 1943, A. F. Archer (Archer, 1946). *South Carolina*: Charleston (J. H. Emerton, 1924). *New York*: Riverhead, Long Island, C. R. Crosby (Crosby, 1928; Bryant, 1945). *Massachusetts*: Chatham, June 10, 1919, C. R. Crosby (Emerton, 1924).

Euryopsis mulaiki, new species

Figures 17, 18, 27, 28, 32

MALE: Total length, 1.7 mm.

Carapace orange, with a dusky border. Eyes on black spots. Chelicerae, labium, and maxillae orange. Sternum dusky orange. Coxae light orange: legs light orange. Abdomen: sclerotized parts orange-brown; dorsum and sides dusky to black, with four to six large paired white spots on dorsum and an unpaired white spot behind; light areas partly covered by the sclerotized plates.

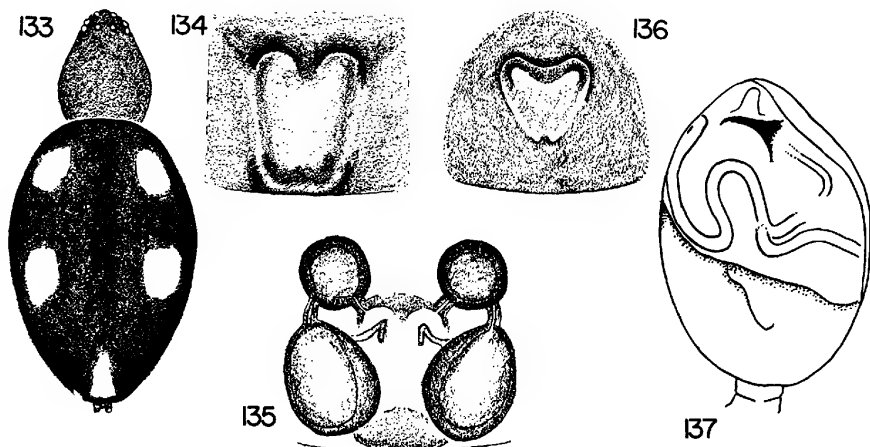
Structure (fig. 27) very similar to that of *E. emertoni* but the carapace lower. Anterior median eyes one diameter apart, less than one-fourth of a diameter from lateral eyes. Posterior median eyes separated by one diameter, a little less than a diameter from laterals. Height of clypeus equal to length of ocular quadrangle. Dorsum of abdomen covered by one large scutum and several smaller scuta behind and set with bristles (fig. 27). Sides with narrow sclerotized band on each side, with some indistinct breaks. Ventral scuta as in *E. spinigera* (fig. 36).

MEASUREMENTS: Carapace, 0.56 mm. long, 0.55 mm. wide, 0.30 mm. high. Patella and tibia of first leg, 0.51 mm.; of second leg, 0.48 mm., of third leg, 0.54 mm. Fourth leg: femur, 0.55 mm.; patella and tibia, 0.72 mm.; metatarsus, 0.32 mm.; tarsus, 0.29 mm.

Palpus as shown in figure 32.

FEMALE: Color of carapace similar to that of male. Dorsum of abdomen black, with several large white spots (fig. 28). Venter reddish black, with a white spot posterior to the epigynum and a longitudinal white line on each side.

Structure of the carapace similar to that of *E. emertoni* and *E. scriptipes*. Ocular quadrangle wider than long, wider in front than behind. Anterior median eyes very slightly larger than others. Anterior median eyes one and one-third diameters apart, less than one-quarter of a diameter from laterals. Posterior median eyes separated by one diameter, a little less than a diameter from laterals. Height of clypeus equal to one



FIGS. 133–136. *Euryopsis quinquemaculata* Banks. 133. Dorsal view of female (specimen from Texas). 134. Epigynum (specimen from Texas). 135. Female genitalia, dorsal view (specimen from Texas). 136. Epigynum (after Barrows and Ivie).

FIG. 137. *Euryopsis bryantae*, new name, left male palp, ventral view (after a sketch by E. B. Bryant).

and one-half diameters of anterior median eyes. Abdomen similar in structure to that of *E. emertoni* and of *E. scriptipes*.

MEASUREMENTS: Carapace, 0.60 mm. long, 0.55 mm. wide, 0.29 mm. high. Patella and tibia of first leg, 0.53 mm.; second legs missing; of third leg, 0.54 mm. Fourth leg; femur, 0.54 mm.; patella and tibia, 0.72 mm.; metatarsus, 0.32 mm.; tarsus, 0.31 mm.

Epigynum and internal structure of genitalia as shown in figures 17 and 18.

COMPARISONS: The male of this species can readily be separated from that of *E. emertoni* and of *E. spinigera* by the dorsal scuta. The female differs from that of these closely related species by the markings on the abdomen and the details of the genitalia.

TYPE LOCALITIES: Male holotype from Kingsville, Texas, October, 1934, S. Mulaik, in the United States National Museum. Female allotype from unnamed locality in Arizona (latitude 33° N., longitude 111° W.) in the collection of the University of Utah.

Euryopsis spinigera O. P. Cambridge

Figures 23, 24, 30, 33, 36

Euryopsis spinigera O. P. CAMBRIDGE, 1895, *Biologia Centrali-Americana*, Araneidea, vol. 1, p. 146, pl. 19, fig. 2 (male). F. O. P. CAMBRIDGE, 1902, *Biologia Centrali-Americana*, Araneidea, vol. 2, p. 397, pl. 37, fig. 22 (male). PETRUNKE-

VITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 177. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 453.

Euryopis emertoni, BANKS, NEWPORT, AND BIRD, 1932, Univ. Oklahoma Biol. Surv., vol. 4, no. 1, p. 22 (not *E. emertoni* Bryant).

Euryopis deridens GERTSCH AND MULAİK, 1936, Amer. Mus. Novitates, no. 863, p. 7, fig. 13 (female). SCHENKEL, 1950, Verhandl. Naturf. Gesellsch., Basel, vol. 61, p. 46.

MALE: Total length, 1.8 mm.

Carapace usually orange in color but varying from light greenish yellow to red brown, dusky towards sides. Eye area dusky, eyes on black spots. Chelicerae, labium, maxillae, and sternum orange. Coxae whitish. Legs orange. Abdomen white to metallic blue-black, sometimes with many small light spots, the sclerotized parts orange-brown.

Carapace slightly longer than wide, highest slightly in front of center, the thoracic groove an indistinct shallow depression in northern specimens, a more distinct depression in southern specimens. Eyes subequal. Ocular quadrangle about square, sometimes wider than long. Anterior median eyes one diameter apart, one-third of a diameter from lateral eyes. Posterior median eyes a little less than a diameter apart, little less than a diameter from laterals. Eye region overhanging clypeus. Clypeus as high as length of one and one-half to one and three-quarters ocular quadrangles. Dorsum of abdomen with strong bristles, four sclerotized spots, two small plates anterior to spinnerets, and a variable number of small sclerotized plates along sides. Venter covered by sclerotized plates (fig. 36).

MEASUREMENTS: Carapace, 0.70 mm. long, 0.64 mm. wide, 0.45 mm. high. Patella and tibia of first, second, and third legs, 0.58 mm. Fourth leg: femur, 0.61 mm.; patella and tibia, 0.64 mm.; metatarsus, 0.35 mm.; tarsus, 0.35 mm.

Palpus as illustrated in figure 33.

FEMALE: Total length, 1.3–2.3 mm.

Coloration (fig. 30) similar to that of male.

Carapace lower than in male; eye ratios similar to those in male. Anterior median eyes of some specimens larger, of others smaller than other eyes. Clypeus concave, as high as length of one ocular quadrangle. Abdomen pointed to round, overhanging spinnerets at times, with weak spines.

MEASUREMENTS (SPECIMEN FROM TEXAS): Total length, 1.80 mm. Carapace, 0.58 mm. long, 0.56 mm. wide, 0.26 mm. high. Patella and tibia of first leg, 0.47 mm., of second leg, 0.45 mm., of third leg, 0.47 mm. Fourth leg: femur, 0.51 mm.; patella and tibia, 0.64 mm.; metatarsus, 0.32 mm.; tarsus, 0.32 mm.

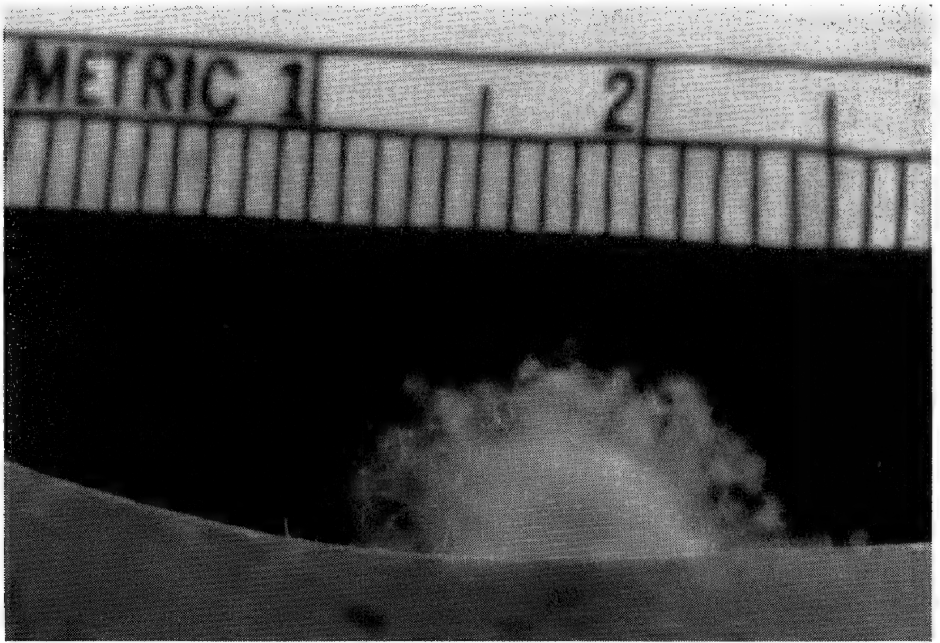


FIG. 138. Egg sac of *Euryopsis scriptipes* built against paper and glass of a bottle and photographed through the glass.

Epigynum and internal genitalia as shown in figures 23 and 24.

VARIATIONS AND COMPARISONS: A specimen from Oklahoma, erroneously identified by Banks as *E. emertoni*, is probably *Euryopsis spinigera*. There are some small differences, possibly because the specimens were collected just before molting. The duct of the palp is more tightly wound, and the conductor is of a slightly different shape. Furthermore, the carapace is lower than in other specimens of this species. There is a faint pattern on the abdomen which resembles that of *Euryopsis variabilis*.

Variation of structure within *E. spinigera* is small. Males from the southern part of the range may have a deeper thoracic groove and sometimes a greater number of sclerotized plates on the sides. The color of individuals is extremely variable. This species is very closely related to the two preceding ones. Males can be differentiated by the shape of the conductor of the palp; females by the position of the connecting ducts. With suitable lighting, the connecting ducts of almost all females of *E. spinigera* can be seen from the outside without dissection.

TYPE LOCALITY: Male type from Guatemala (Sachsamash coffee plantation, and between Pitet and Chicoyoito) in the British Museum (Natural History).

RECORDS: *Panama*: El Valle, July, 1936, A. M. Chickering. *Costa*

Rica: San José, Enrique Schmidt. *Guatemala*: Cobán, July 19–23, 1945. *Campeche*: Ciudad del Carmen, July 28, 1948, C. Goodnight. *Chiapas*: Comitán, July 18–19, 1950, C. and M. Goodnight. *Tabasco*: Teapa, July 16, 1947, C. and M. Goodnight. *Veracruz*: La Buena Ventura, July 1909, A. Petrunkevitch; Veracruz, June 22, 1936, L. I. Davis; 15 miles east of Pánuco, November 29, 1941, L. I. Davis. *Guerrero*: Acapulco, June 17, 1936, L. I. Davis. *Nayarit*: Ixtlán, June 22, 1941, L. I. Davis. *San Luis Potosí*: Tamazunchale, July 8, 1944, L. I. Davis; Pujal, around entrance of cave, March 23, 1940, W. Bridges; 5 miles north of Tamazunchale, July 2, 1936, A. M. and L. I. Davis. *Durango*: Otinapa, 8200 feet, August 12, 1947, W. J. Gertsch. *Nuevo León*: Horsetail Falls, November 27, 1937, Davis and Brown; 6 miles north of Linares, July 3, 1936, L. I. Davis; Monterrey, June 10, 1926, L. I. Davis. *Tamaulipas*: Reynosa, May 2, 1936, W. Green and S. Mulaik. *Texas*: South of Pharr, April 5, 1936, Handley; 12 miles north of Temple, July 22, 1936, L. I. Davis; Cameron County, December, 1934, L. I. Davis; San Antonio, December 28, 1935, L. I. Davis; Davis Mountains, 4 miles south of Toyahvale, September 26, 1950, W. J. Gertsch; Edinburg, April to December, 1936–1939, S. Mulaik; Llano, August 21, 1940, L. I. Davis; McCook, April 18, 1936, D. and S. Mulaik. *Oklahoma*: Wichita National Forest, Comanche County, June 19, 1928, A. O. Weese (Banks, Newport, and Bird, 1932). *New Mexico*: Two miles west of Rock Creek Camp, Nimbres Mountains, September, 1941. *Arizona*: Summer Haven, Santa Catalina Mountains, July 14, 1940, W. J. Gertsch; Flagstaff, June 16, 1934, W. Ivie. *Utah*: Ten miles north of Pintura, April 15, 1932, W. Ivie; Junction, August 20, 1930, J. C. Chamberlin; City Creek Canyon, Salt Lake City, July 7, 1940, W. Ivie; Parley's Canyon, near Salt Lake City, May 17, 1941, W. Ivie. *California*: Hammil Station, Mono County, May 27, 1941, W. M. Pearce; Monte Rio, June 6, 1939, H. Schenkel-Rudin (Schenkel, 1950); 3 miles west of Santa Monica, March 17, 1941; Eaton's Canyon, 1913, R. V. Chamberlin.

Euryopsis variabilis Keyserling

Figures 25, 26, 35

Euryopsis variabilis KEYSERLING, 1886, Die Spinnen Amerikas, Theridiidae, vol. 2, p. 262, pl. 21, fig. 310 (male and female); 1891, Die Spinnen Amerikas, Brasilianische Spinnen, p. 228 (female). PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 178. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454.

FEMALE: Total length, 1.5 mm.

Carapace yellow with a black border, the eyes on black spots, the

clypeus dusky. Chelicerae, labium, maxillae, sternum, coxae, and legs yellow. Dorsum of abdomen dirty yellow, with black markings as in figure 35; anterior spots continue posteriorly on sides and fuse with posterior spots. Venter dusky yellow; spinnerets yellow.

Cephalothorax slightly longer than wide, highest slightly in front of middle. Anterior median eyes slightly larger than the others. Ocular quadrangle wider than long, much wider in front than behind. Anterior median eyes separated by one and one-half diameters, and by one-third of a diameter from laterals. Posterior median eyes one and one-half diameters apart, one diameter from laterals. Clypeus as high as the diameter of two anterior median eyes.

MEASUREMENTS: Carapace, 0.57 mm. long, 0.54 mm. wide, 0.24 mm. high. Patella and tibia of first leg, 0.46 mm., of second leg, 0.44 mm., of third leg, 0.43 mm. Fourth leg: femur, 0.44 mm.; patella and tibia, 0.54 mm.; metatarsus, 0.27 mm.; tarsus, 0.27 mm.

Epigynum and internal genitalia as illustrated in figures 25 and 26.

TYPE LOCALITY: Blumenau, Brazil.

RECORD: *Florida*: Eau Gallie, February 24, 1936.

The above specific name is used with some uncertainty, but a certain identification must await the study of a Brazilian specimen.

Euryopsis nigripes Banks

Figures 38–52

Euryopsis nigripes BANKS, 1929, Bull. Mus. Comp. Zool., vol. 69, no. 3, p. 86, figs. 47, 60 (female). ROEWER, 1942, Katalog der Araneae, vol. 1, p. 453.

Euryopsis dentatus GERTSCH AND MULAİK, 1936, Amer. Mus. Novitates, no. 863, p. 6, figs. 10–11 (male and female).

Euryopsis dentata, ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454.

MALE: Total length, 2.0–2.5 mm.

Apparently this species has two color phases. For the first of these, see figure 45. Carapace dusky yellow, brown, or black; clypeus gray. Chelicerae, labium, maxillae, and sternum gray. Coxae yellow white. Legs mostly black, except proximal portions of femora which are yellowish white, sometimes presenting several wide longitudinal yellow stripes on leg segments. Abdomen (resembling that of *E. lineatipes*) with a black triangle on a silver background, the sides gray to black. Venter black, with a central silvery area, the sides silvery or all silver; silvery areas made up of many small round silver scales under the surface.

The second color phase is shown in figure 46. Carapace dark brown, thoracic part lighter, the eyes on black spots. Legs yellow, with irregular black rings. Abdomen silvery white, with a brown or black Y. Sides

dusky gray which fuses with a ventral transverse black band anterior to spinnerets. Venter otherwise black surrounded by a narrow silvery band and a small silver spot behind epigastric furrow. All silvery areas consist of large silvery plates under surface.

Cephalothorax (fig. 49) wider than long, very high, highest in front of middle, sloping down steeply to posterior border. Eyes large, the anterior median eyes one to two diameters of others which are about equal; all eyes round with spherical lenses. Anterior eye row straight if viewed from in front. Ocular quadrangle wider than long, wider in front than behind. Anterior median eyes a little more than a diameter apart, half their diameter from laterals. Posterior median eyes two and one-quarter to three diameters apart, one and one-half diameters from laterals. Clypeus very slightly concave, one and one-third to one and one-half length of ocular quadrangle.

MEASUREMENTS (MALE FROM TEXAS): Total length, 2.0 mm. Carapace, 0.76 mm. long, 0.81 mm. wide, 0.74 mm. high. Patella and tibia of first leg, 0.85 mm., of second leg, 0.82 mm., of third leg, 0.64 mm. Fourth leg: femur, 0.78 mm.; patella and tibia, 0.82 mm.; metatarsus, 0.58 mm.; tarsus, 0.39 mm.

Male palpus and details of the conductor as illustrated in figures 38-41.

FEMALE: Total length, 1.9-3.0 mm.

Coloration similar to that of male.

Structure of carapace essentially as in male (fig. 49), not so high and slightly longer than wide. Eye size variable, usually subequal. Anterior eye row straight or recurved if viewed from in front. Ocular quadrangle wider than long. Anterior median eyes separated by one and one-half diameters and by one-half to one diameter from laterals. Posterior median eyes one and one-half to three diameters apart, a little more than one diameter from laterals. Height of clypeus equal to length of ocular quadrangle or slightly lower.

MEASUREMENTS (FEMALE FROM NEW MEXICO): Total length, 2.9 mm. Carapace 0.96 mm. long, 0.90 mm. wide, 0.48 mm. high. Patella and tibia of first and second leg, 0.90 mm., of third leg, 0.80 mm. Fourth leg: femur, 0.93 mm.; patella and tibia, 0.95 mm.; metatarsus, 0.70 mm.; tarsus, 0.41 mm.

Epigynum and internal genitalia as illustrated in figures 47, 48, 50-52.

VARIATIONS: Of 65 specimens examined from Panama, 12 immatures, 32 females, and 18 males were of the darker coloration, having a black triangle on the abdomen and the silvery areas as small round scales. Among these, three males from different localities were of the lighter coloration, showing a black Y on the abdomen and having the silvery

areas consisting of large plates. All North American specimens were of the lighter coloration. There were no intermediates in any of the collections examined.

This is apparently a polytypic species, no two North American specimens being exactly alike. There are considerable variations among different specimens in the relative size and position of the eyes (figs. 42-44). There are smaller variations in the proportions of parts of the genitalia. The extremes are shown in figures 39-41, 50-52. The very few mature specimens available from North America preclude the establishment of names for the subspecies at the present time.

TYPE LOCALITIES: Female type of *Euryopsis nigripes* from Mt. Hope, Canal Zone, Panama, July 8, 1924, in the Museum of Comparative Zoölogy; male holotype of *Euryopsis dentatus* from Monte Cristo, Texas, September 10, 1935, collected by C. Rutherford, in the American Museum of Natural History.

RECORDS: *Panama*: Barro Colorado Island, Canal Zone, June 16, 1934, July 28, 1936, A. M. Chickering; El Valle, July, 1936, A. M. Chickering; Boquete, July 10-25, 1939, September 1-8, 1950, A. M. Chickering; Balboa, August 17, 1936, A. M. Chickering. *Florida*: Key West, December 29-30, 1950, A. M. Nadler. *Texas*: Seven miles southwest of Edinburg, December 29, 1936, S. Mulaik; Rio Grande City, May, 1936, S. Mulaik; May, 1937, N. Haynes. *New Mexico*: Jemez Mountains, Sandoval County, C. C. Hoff; Tejano Canyon, Sandia Mountains, Bernalillo County, C. C. Hoff; west of Emory Pass, Grant County, C. C. Hoff. *Colorado*: Piedra Camp, Archuleta County, 6500 feet, July 21, 1941, C. and M. Goodnight; west fork of Wolf Creek, San Juan Mountains, Mineral County, 7800 feet, sweeping vegetation in mixed coniferous forest, July 20, 1952, H. W. Levi; Genessee Park, June 26, 1940, W. Ivie; Estes Park, 7800 feet, 1953, A. and H. Jungster. *Utah*: Orton, June 19, 1935, G. F. Knowlton.

Euryopsis limbata (Walckenaer)

Figures 53, 65, 69, 83, 84, 100, 120, 121, 129

Epeira limbata WALCKENAER, 1841, Histoire naturelle des insectes, aptères, vol. 2, p. 81.

Theridion funebre HENTZ, 1850, Jour. Boston Soc. Nat. Hist., vol. 6, p. 277, pl. 9, fig. 11; 1875, The spiders of the United States, p. 148, pl. 16, fig. 11.

Euryopsis funebris, EMERTON, 1882, Trans. Connecticut Acad. Sci., vol. 6, p. 27, pl. 5, fig. 6 (male and female). KEYSERLING, 1886, Die Spinnen Amerikas, Theridiidae, vol. 2, p. 49, pl. 12, fig. 161 (female). BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 31. SIMON, 1894, Histoire naturelle des araignées, vol. 1, p. 527. EMERTON, 1902, The common spiders of the United States, p. 127. BANKS,

1907, Rept. Indiana Geol. Surv., vol. 31, p. 739; 1908, Canadian Ent., vol. 40, pp. 206–207. BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., vol. 7, p. 12. BANKS, 1910, Bull. U. S. Natl. Mus., no. 72, p. 22. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 176. COMSTOCK, 1912, The spider book, p. 344, fig. 338. CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta. Mem., no. 101, p. 1039. KURATA, 1939, Canadian Field Nat., vol. 53, p. 81. COMSTOCK, 1940, The spider book, rev. ed., p. 359, fig. 338. KURATA, 1941, Univ. Toronto Studies, no. 48, p. 109. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454. MUMA, 1945, Maryland Agr. Exp. Sta. Bull., no. A38, p. 26. KASTON, 1948, Connecticut Geol. Nat. Hist. Surv. Bull., no. 70, p. 97, figs. 182, 183, 199 (male and female).

Euryopis funerea, BARROWS, 1918, Ohio Jour. Sci., vol. 18, p. 303.

Euryopis limbata, CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 42. ARCHER, 1946, Alabama Mus. Nat. Hist. Paper, no. 22, p. 32.

MALE: Total length, 2.3–2.8 mm.

Carapace brown, sides dusky brown, the eye region black. Coxae yellow. Legs yellow, with irregular brown spots, sometimes all brown. Abdomen usually with a dorsal V-shaped silvery mark and two anterior silvery spots. Sides of abdomen brown to black; venter brown to black, usually with two silvery spots between epigastric furrow and spinnerets.

Cephalothorax (figs. 65, 69) very low, as wide as long, the thoracic groove a shallow depression. Eye region slightly overhanging clypeus. Ocular quadrangle about square, slightly wider in front than behind. Anterior median eyes slightly larger than others, which are subequal. Anterior median eyes one and one-quarter diameters apart, one-quarter of their diameter from the anterior laterals. Posterior median eyes one diameter apart, one diameter from laterals. Clypeus straight and about equal to the length of the ocular quadrangle.

MEASUREMENTS (TYPICAL MALE FROM NORTH CAROLINA): Total length, 2.7 mm. Carapace 1.00 mm. long, 1.03 mm. wide, 0.45 mm. high. Patella and tibia of first leg, 1.28 mm., of second leg, 1.28 mm., of third leg, 1.15 mm. Fourth leg: femur, 1.18 mm.; patella and tibia, 1.41 mm.; metatarsus, 1.05 mm.; and tarsus, 0.48 mm.

Male palp as illustrated in figures 53 and 100.

FEMALE: Total length, 3.0–4.7 mm.

Color similar to that of male.

Carapace (figs. 120, 121, 129) low, wider than long, highest at posterior median eyes; a longitudinal thoracic line present. Ocular quadrangle variable, usually about square, sometimes wider than long. Anterior median eyes slightly larger than other eyes, which are subequal; separated by their diameter, almost touching, or touching, laterals. Posterior median eyes separated by their diameter, a little less than their diameter from laterals. Clypeus slightly concave, sometimes pointed between chelicerae. Shape of second (anterior) pair of seminal receptacles

variable, from round to sausage shaped; their distance from first pair of seminal receptacles variable.

MEASUREMENTS (TYPICAL FEMALE FROM GEORGIA): Total length, 4.2 mm. Carapace, 1.3 mm. long, 1.4 mm. wide, 0.70 mm. high. Patella and tibia of first leg, 1.80 mm., of second leg, 1.80 mm., of third leg, 1.60 mm. Fourth leg: femur, 1.80 mm.; patella and tibia, 2.20 mm.; metatarsus, 1.76 mm.; tarsus, 0.64 mm.

Epigynum and internal genitalia as in figures 83 and 84.

DISTRIBUTION AND HABITS: Eastern United States, southern Ontario, and Quebec. Apparently slightly more common in the eastern part of its range. Kaston (1948) reports that it "has been taken from under leaves and moss on the ground and from the bark of apple and cedar trees." Barrows found it "very abundant in July on the lower branches of trees on the edges of a swamp." Archer (1946) observed this spider on the under surface of leaves and found one feeding on a carpenter ant.

TYPE LOCALITIES: Of *Epeira limbata* Walckenaer, Burke County, Georgia; of *Theridion funebre* Hentz, Alabama, the specimens seemingly lost.

RECORDS: *Georgia*: Cleveland, April 22, 1935, Spieth; Tallulah Falls, April 27, 1943, W. Ivie (Chamberlin and Ivie, 1944). *Florida*: Forty miles north of Jacksonville, June 12, W. J. Gertsch; Dunedin, 1927, W. S. Blatchley; Sanford, R. V. Chamberlin. *Alabama*: Hatchet Creek, Coosa County, June, 1940 (Archer, 1946); Clear Creek, Trenton, Jackson County, June, 1940 (Archer, 1946). *Louisiana*: Mansura, January 11, 1909, Rosenfeld. *Tennessee*: Elkmont, September 10, 1928; Falls Creek, Falls State Park, Van Buren County, August 11, 1951, T. Cohn. *North Carolina*: Canton, N. Banks; Chicod Swamp, Pitt County, April 12, 1929, S. C. Bishop; Black Mountains, Beutenmuller. *Virginia*: Falls Church, N. Banks. *Ohio*: Rockbridge, July 1, 1916 (Barrows, 1918); Cedar Point, August, 1913 (Barrows, 1918). *Indiana*: New Harmony, June 4 (Banks, 1907). *Illinois*: Bedford, Pike County, August 14, 1941, C. and M. Goodnight; Brownsfield, R. V. Chamberlin. *Wisconsin*: Five miles south of Sauk City, Dane County, July 9, 1938, D. C. Lowrie; Pattison State Park, Douglas County, July 18, 1949, H. W. Levi. *North Dakota*: Divide County, 1937-1938, Joe Davis. *Michigan*: Near Birch and Granite Point, Marquette, August 11, 1932, A. M. Chickering; Homer, in spruce and pine, August 16, 1933, A. M. Chickering; E. S. George Reserve, Livingston County, H. K. Wallace. *Pennsylvania*: Milford, May 30, 1941, B. Malkin. *Maryland*: Anne Arundel County (Muma, 1945); Caroline County (Muma, 1945); Prince Georges County (Muma, 1945). *New Jersey*: Lakehurst, May 30, 1912; Milltown, September 10,

1910; Ramsey, June, 1941, July, 1944, W. J. Gertsch. *New York*: New Rochelle, September 27–28, 1946; east shore of Lake George, July, 1948, S. C. Bishop; Cold Spring Harbor, Long Island, W. J. Gertsch; June 25, 1903, J. H. Emerton; Wading River, June (Crosby and Bishop, 1928); Long Pond, Suffolk County, June (Crosby and Bishop, 1928); Ithaca, N. Banks; Sea Cliff, N. Banks; Ithaca, on campus (Banks, 1892); Coy Glen, Ithaca, August 25, 1917; Newcomb, Onondaga County, Britcher (Crosby and Bishop, 1928); Valcour Island, August (Crosby and Bishop, 1928). *Connecticut*: South Meriden, July, 1939, H. L. Johnson; Danbury, December 19, 1935, B. J. Kaston; Mt. Carmel, March 2, 1935, B. J. Kaston; Branford, June 16, 1937 (Kaston, 1948); Greenwich, June 15, 1937 (Kaston, 1948); Groton, June 9, 1937 (Kaston, 1948); Hamden, February, 1937 (Kaston, 1948); New Haven, 1882 (Kaston, 1948); Southbury, August, 1936 (Kaston, 1948); South Meriden, January, May, July, 1939 (Kaston, 1948). *Massachusetts*: Duxbury, W. F. Clapp; Plymouth, July 24, 1915, J. H. Emerton; Mt. Tom, July 4, 1873, J. H. Emerton; Swampscott (Bryant, 1908); Holyoke (Bryant, 1908); Brookline (Bryant, 1908); Sharon (Bryant, 1908). *New Hampshire*: Mt. Washington, June, J. H. Emerton; Gilmanton, June 12–18, 1925, E. B. Bryant; Franconia (Bryant, 1908); Pike, June, 1908, Hayhurst. *Maine*: Mt. Desert Island, Wm. Procter; Long Island, August 27, 1906, E. B. Bryant. *Quebec*: Quebec, July 9, 1916, J. H. Emerton. *Ontario*: Ottawa, N. Banks; June 17, 1916, J. H. Emerton; New Market, August 30, 1942; York County (Kurata, 1939); Prince Edward County (Kurata, 1941).

Euryopis tavara, new species

Figures 54, 66, 70, 131

MALE: Total length, 1.8 mm.

Carapace (see fig. 131) dark brown to black; chelicerae yellow at tips; labium, maxillae, and sternum dark brown. Coxae yellow-white; legs yellow-white, with irregular black marks. Abdomen with a wide silver V on dorsum and two silvery spots in front, the area between yellow, sides light brown anteriorly, darker posteriorly. Venter brown, with five silvery spots.

Cephalothorax (figs. 66, 70) highest at posterior median eyes, as long as wide. Eye region considerably overhanging clypeus, the clypeus concave, and equal in height to two-thirds of ocular quadrangle. Ocular quadrangle as long as wide in front, narrower behind. Anterior median eyes considerably larger than others (ratio of 1.3 to 1.0) which are subequal. Anterior median eyes separated from each other by one and

one-quarter of their diameter, by one-quarter of a diameter from laterals. Posterior median eyes a little more than a diameter apart, a diameter from laterals.

MEASUREMENTS: Carapace 0.64 mm. long, 0.70 mm. wide, 0.38 mm. high. Patella and tibia of first leg, 0.70 mm., of second leg, 0.70 mm., of third leg, 0.58 mm. Fourth leg: femur, 0.77 mm.; patella and tibia, 0.86 mm.; metatarsus, 0.54 mm.; tarsus, 0.35 mm.

Male palp as illustrated in figure 54.

COMPARISONS: This species differs from *E. limbata* (Walckenaer) by its smaller size, its larger anterior median eyes, and considerably overhanging eye region. The palp is similar to that of *E. limbata* but differs in that it is shorter and rounder and there is an indistinct seam apparently separating off the median apophysis from the tegulum.

TYPE LOCALITY: Male holotype from Lake County, Florida, June 25, 1935, collected by H. K. Wallace.

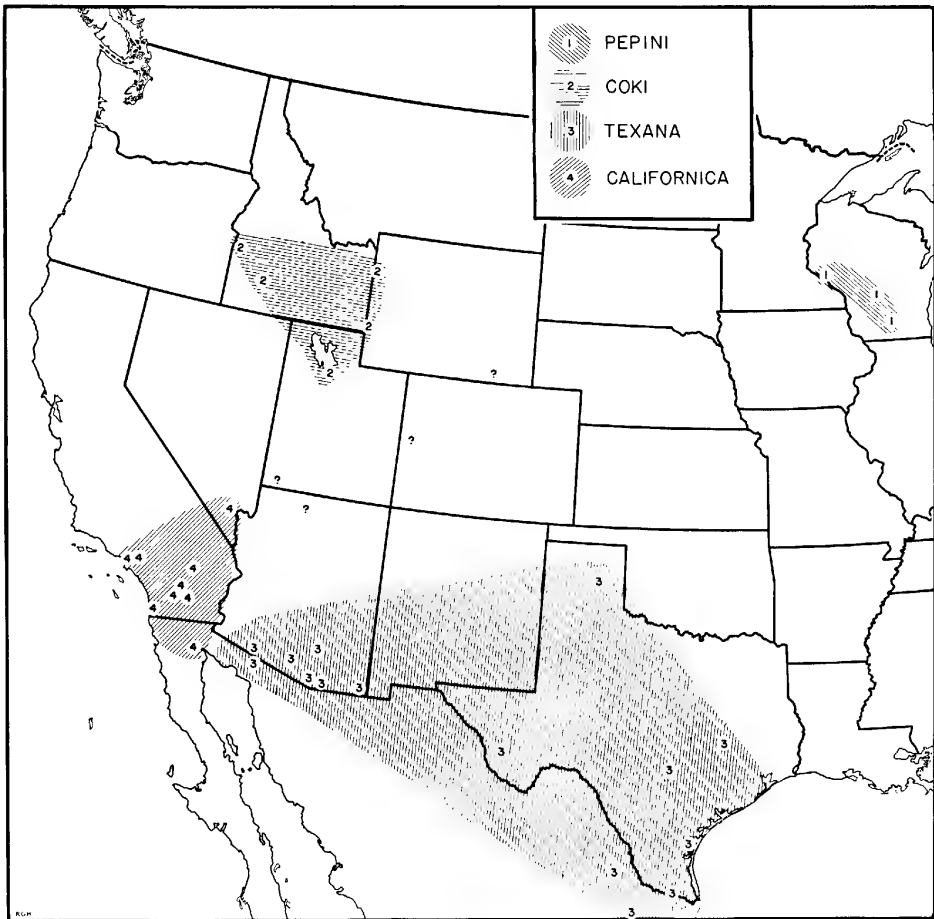
THE WESTERN *Euryopsis* RELATED TO *limbata*

A number of species of *Euryopsis*, all resembling *E. limbata*, from the eastern United States, and *E. taczanowskii* Keyserling, 1886 [Die Spinnen Amerikas, Theridiidae, vol. 2, p. 47, pl. 12, fig. 160 (female)], from Peru, have been described from western North America. A few specimens collected in widely separated localities were described as different species on the basis of variations in color and size. While these differences between many forms are striking, examination of a large series revealed that some forms intergrade into neighboring ones, making the placement of individual specimens often very difficult.

Although the forms are here treated as individual species, there are strong indications that we are dealing with only two species, *californica* and *lineatipes*, and subspecies of these. The grouping as done here is only tentative, and further collecting, particularly in the border areas, will probably throw more light on this complex group.

Judging from the collections examined, *Euryopsis pepini* appears to be isolated from other forms (see map 1). Although *E. texana* is close to *E. coki*, no intermediates are known. *E. coki* is extremely variable. Two females, one from Colorado National Monument, Colorado, the other from Grand Canyon National Park, Arizona, resemble *coki*, *texana*, or possibly *californica*, both being larger and having the internal genitalia more sclerotized. Some juveniles from Hurricane, southern Utah, may belong to either species. Two males, from Laramie and Manville, Wyoming, resemble *E. coki* but have the carapace lower and the base of the duct wider. *Euryopsis texana* grades into *E. californica*, judging by a cline

of characters and also by two intermediate specimens, a female from Baja California and a male from Nevada (which were arbitrarily placed with *E. californica*). There are some indications, judging by a few specimens from western Texas, that *E. texana* grades into *E. lineatipes* in that region. Although these two forms could easily be separated in eastern Texas, characters present in many specimens of *E. lineatipes* in eastern Mexico, a pointed clypeus and longer chelicerae, appear in some western specimens of *E. texana*. The same peculiar characters reappear in several specimens of *E. coki* in Wyoming.



MAP. 1. Distribution of species of *Euryopsis*.

The placement of specimens into *E. californica* or *E. formosa* was done arbitrarily depending on the predominating characters. A similar course was taken between *E. formosa* and *E. scriptipes*. Southern specimens of *E. scriptipes* are much smaller, and, although very few collections have

been made, there is reason to believe that *E. scriptipes* grades into *E. lineatipes*. *E. lineatipes* seems to have some characters of both *E. texana* and *E. scriptipes*. *Euryopsis spiritus* is known from only three males in the Colorado mountains. There is some possibility that they are only an extreme form of males of *E. scriptipes* and that the other collections from central Colorado, which were all females, should belong to this subspecies.

Judging by their progressive specialization, the forms evolved probably in a direction from *coki*, through *texana*, *californica*, *formosa*, *scriptipes*, to *spiritus*. The rather simple conductor becomes angular and the connecting ducts of the female genitalia become sclerotized, unusual phenomena in other species of this genus. The carapace in each succeeding form is higher and more unlike that of other species of *Euryopsis* (figs. 65-115). In several of these characters, *E. lineatipes* is intermediate between *E. texana* and *E. scriptipes*.

The dorsal aspect of the female genitalia serves as a better distinguishing characteristic among members of the group than does the palp. The conductor of the palp, which is the most diagnostic part, is not a flat piece but is bent in all directions, making accurate comparison extremely difficult; furthermore, its position in the palp varies in different individuals.

Euryopsis pepini, new species

Figures 55, 67, 71 101

MALE: Total length, 2.7 mm.

Carapace light brownish yellow, anterior portion dusky. Eye region black. A black longitudinal mark on the thoracic groove. Clypeus and chelicerae light yellow. Labium and maxillae light brown. Sternum brown. Coxae yellow-white; legs yellow-white, with irregular black marks. The markings on the abdomen are similar to those of *E. limbata*, but lighter in color.

Cephalothorax moderately high. Ocular quadrangle as long as wide behind, wider in front. Anterior median eyes very slightly larger than others, which are subequal to each other. Anterior median eyes not quite two diameters apart, about one-quarter of a diameter from the laterals. Posterior median eyes one diameter apart, and one diameter from laterals. Clypeus about one and three-quarters of the length of the ocular quadrangle in height.

MEASUREMENTS: Carapace 0.93 mm. long, 0.93 mm. wide, 0.58 mm. high. Patella and tibia of first leg, 1.12 mm., of second leg, 1.12 mm., of third leg, 1.05 mm. Fourth leg: femur, 1.18 mm.; patella and tibia, 1.35 mm.; metatarsus, 1.05 mm.; tarsus, 0.54 mm.

COMPARISONS: This species differs from others by the shape of the conductor of the palp and in the widely separated anterior median eyes. The three specimens are very similar.

This form, possibly an isolated remnant survivor of the Pleistocene, may have spread recently from the driftless area; its apparently isolated range is probably due to lack of collectors in the western plains states.

TYPE LOCALITY: Male holotype from north of Pepin, Pepin County, Wisconsin, sweeping field with high grass, July 15, 1949, H. W. and L. R. Levi. Paratypes from corner Ridge Road and Glenway near Sunset Point, Madison, Wisconsin, sweeping vacant lot, July, 1946, H. W. Levi; Wisconsin River shore between Wisconsin Rapids and Wisconsin Dells, July, 1949, R. Hunt.

Euryopis coki, new species

Figures 56, 68, 85, 86, 102, 130

MALE: Total length, 2.4 mm.

Carapace yellow, dusky towards the sides, eye region dusky, eyes on black spots. Clypeus, chelicerae, labium, and maxillae yellow. Sternum dusky yellow. Coxae yellow, legs yellow, with irregular black marks. Dorsum of abdomen with typical pattern but light, sides black to silvery, venter with a wide silvery line on the sides, fusing caudad and enclosing a dusky yellow area.

Cephalothorax similar to that of *E. pepini*, with a narrow black longitudinal line as thoracic groove. Ocular quadrangle narrower behind than long, wider in front. Eyes subequal, anterior median eyes slightly the largest. Anterior median eyes one and one-quarter diameters apart, one-third of a diameter from laterals. Posterior median eyes one diameter apart, one diameter from laterals. Clypeus one and one-third to one and three-quarters lengths of ocular quadrangle.

MEASUREMENTS: Carapace 0.83 mm. long, 0.83 mm. wide, 0.56 mm. high. (First legs missing.) Patella and tibia of second leg, 0.87 mm., of third leg, 0.93 mm. Fourth leg: femur, 1.12 mm.; patella and tibia, 1.12 mm.; metatarsus, 0.86 mm.; tarsus, 0.46 mm.

FEMALE: Total length, 3.6 mm.

Color of some specimens like that of male, others with carapace, chelicerae, labium, maxillae, and sternum black. Coxae yellow, with black lines. Legs yellow, with black marks. Abdomen with typical pattern, but darker. Venter of abdomen silvery on sides.

Cephalothorax low and wide. Ocular quadrangle wider than long, wider in front than behind. Eyes subequal. Anterior median eyes one and

one-half diameters apart, less than one-third of their diameter from the laterals. Posterior median eyes one diameter apart, one diameter from laterals. Clypeus concave.

MEASUREMENTS: Carapace 1.05 mm. long, 1.12 mm. wide, 0.47 mm. high. Patella and tibia of first leg, 1.00 mm., of second leg, 1.12 mm., of third leg, 1.12 mm. Fourth leg: femur, 1.22 mm.; patella and tibia, 1.43 mm.; metatarsus, 1.15 mm.; tarsus, 0.48 mm.

VARIATIONS AND COMPARISONS: The females differ in degree of sclerotization of the connecting canals.

The connecting canals of most Wyoming and Idaho specimens are translucent, while one female from Utah and one from Cokeville, Wyoming, have genitalia resembling those of *E. texana* in degree of sclerotization. The second (anterior) pair of seminal receptacles is farther apart in some specimens from western Idaho. The clypeus of some females from western Idaho is pointed, similar to the one of *E. lineatipes*. A male from Laramie, Wyoming (June 26, 1935, W. Ivie), may belong to this species or may be a distinct form. It differs from the other males in having a lower cephalothorax and in that the basal portion of the conductor of the palp is wider. The male of this species differs from that of both *E. pepini* and *E. texana* in the shape of its palpal conductor, and from that of *E. formosa* and of *E. scriptipes* by its very much smaller size. The female differs from that of *E. texana* by its darker coloration and lack of the tooth on the posterior margin of the epigynum. Only the dorsal aspect of the genitalia will differentiate it with certainty from *E. formosa* and *E. scriptipes*. While in the latter two forms the connecting ducts are sclerotized, black, and much swollen, the ducts of *E. coki* are either completely translucent and small or only very weakly sclerotized.

TYPE LOCALITY: Male holotype from Salt Lake City and vicinity, April–May, 1929, paratype from 10 miles east of King Hill, Idaho, August 17, 1935, W. Ivie. Female allotype from Cokeville, Wyoming, August 12, 1928, W. J. Gertsch. Female paratype on sage brush near Jackson Lake Lodge, north of Moran, Wyoming, August 18, 1950, D. C. Lowrie, and northeast of Fruitland, Idaho, June 30, 1943.

OTHER RECORDS: *Idaho*: Northeast of Fruitland, May 20, 1944, May 20, 1946; 10 miles west of Tremonton, August 17, 1936, W. Ivie.

Euryopsis texana Banks

Figures 57, 58, 72, 87–89, 103, 122–124

Euryopsis texana BANKS, 1908, Canadian Ent., vol. 40, p. 207; 1910, Bull. U. S. Natl. Mus., no. 72, p. 22. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 178. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454.

MALE: Total length, 2.7 mm.

Carapace yellow-orange, eyes on black spots. Chelicerae, labium, maxillae, and sternum yellow. Coxae yellow. Legs yellow, with irregular black spots. Dorsum of abdomen mostly silvery, with a central triangular yellow area of which the edges are dusky. Sides dusky yellow. Venter yellow, with a silvery band on each side and two silvery spots anterior to the spinnerets.

Carapace high, longer than wide. Ocular quadrangle as long as wide behind, wider in front. Anterior median eyes slightly larger than others which are subequal. Anterior median eyes a little more than a diameter apart, almost touching the laterals. Posterior median eyes two-thirds of their diameter apart, one diameter from laterals. Clypeus equal to one and two-thirds of the length of ocular quadrangle.

MEASUREMENTS OF COTYPE: Total length, 2.7 mm. Carapace 1.09 mm. long, 1.04 mm. wide, 0.61 mm. high. Patella and tibia of first leg, 1.21 mm., of second leg, 1.21 mm., of third leg, 1.15 mm. Fourth leg: femur, 1.09 mm.; patella and tibia, 1.18 mm.; metatarsus, 0.96 mm.; tarsus, 0.45 mm.

FEMALE: Total length, 3.5–4.0 mm.

Carapace yellow, dusky at sides, eye region blackish, eyes on black spots. Clypeus with a broad black band. Chelicerae, labium, and maxillae yellow. Sternum brown. Coxae yellow, legs yellow, with irregular black spots. Coloration of abdomen similar to that of male except for venter, which is almost all silvery in some specimens.

Cephalothorax typical. Ocular quadrangle as long as wide behind, wider in front. Eyes subequal. Anterior median eyes separated by one and one-half diameters, one-quarter of a diameter from laterals. Posterior median eyes separated by two-thirds of a diameter, and one diameter from laterals. Clypeus concave, about one and one-third ocular quadrangles in height. Epigynum with a forward-pointing tooth at the posterior border.

MEASUREMENTS (TYPICAL INDIVIDUAL FROM TUBAC, ARIZONA): Total length, 3.5 mm. Carapace 1.03 mm. long, 1.13 mm. wide, 0.56 mm. high. Patella and tibia of first leg, 1.28 mm., of second leg, 1.25 mm., of third leg, 1.18 mm. Fourth leg: femur, 1.41 mm.; patella and tibia, 1.57 mm.; metatarsus, 1.18 mm.; tarsus, 0.51 mm.

VARIATIONS AND COMPARISONS: There is considerable variation within the group. Three females (from Edinburg and Presidio County, Texas, and Tucson, Arizona) have the clypeus extended and coming to a point between the chelicerae, as in females of *E. lineatipes*. The chelicerae of these individuals appear stretched (fig. 123).

The dorsal aspect of the genitalia of females seems to vary from the one found in Edinburg, Texas (fig. 88), to females from Arizona (fig. 89) in which the genitalia are similar to those of *E. lineatipes*. The genitalia of a female from Presidio County, Texas, are intermediate. One male from Lake Corpus Christi, Texas, was collected with a female of *E. lineatipes*. The connecting canals of the genitalia of a large female from Colorado National Monument, Colorado, were sclerotized, and the tooth in the epigynum was relatively small.

Euryopsis texana differs from the sympatric *E. scriptipes* by its much smaller size and lighter coloration. Males differ from those of neighboring species by the shape of the conductor and the slope of the carapace. Females can be recognized by the projection or tooth on the posterior margin of the epigynum.

DISTRIBUTION: Texas to Arizona, and northern Mexico.

TYPE LOCALITY: Two male cotypes from Brazos County, Texas, in the Museum of Comparative Zoölogy.

RECORDS: *Texas*: Eight miles east of McLean on overgrazed, mixed prairie, June 27, 1944; Edinburg, November 28, 1935, S. Mulaik; Comal County, October 16, 1951, D. L. and H. E. Frizzell, S. B. Martin; near Porvenir, Presidio County, October 22, 1946, B. Patterson; Lake Corpus Christi State Park, November 24, 1951, W. Creighton. *Arizona*: Cañada del Oro, Santa Catalina Mountains, August 1, 1937, Steckler; Sabino Canyon, Santa Catalina Mountains, September 1, 1939, R. H. Crandall; Summerhaven, June 25, 1939, A. M. and L. I. Davis; Tubac, September 26, 1937, R. H. Crandall; Douglas, August 27, 1939, R. H. Crandall; 5 miles east of Montezuma Pass, Huachuca Mountains, September 7, 1950, W. J. Gertsch; 18 miles northwest of Nogales, in grass and mesquite, July 20, 1944; Tucson, O. Bryant; forest cabin, 3500 feet, Baboquivari Mountains, July 18–29, 1951, W. S. Creighton; Quitobaquito, Organ Pipe National Monument, June 13, 1952, W. J. Gertsch. *Utah*: Hurricane, March, 1939, immatures. *Colorado*: Colorado National Monument, Mesa County, 6400 feet, under stone in piñon juniper, August 4, 1952. *Nuevo León*: Ten miles west of Monterrey, May 23, 1952, W. J. Gertsch. *Coahuila*: Guadalupe, August 23, 1947, W. J. Gertsch. *Sonora*: Twenty miles southwest of Sonoyta, June 13, 1952, W. J. Gertsch.

Euryopsis lineatipes O. P. Cambridge

Figures 60, 73, 76, 90, 91, 104, 125, 126

Euryopsis lineatipes O. P. CAMBRIDGE, 1893, *Biologia Centrali-Americana, Araneidea*, vol. 1, p. 108, pl. 15, fig. 6 (female); 1894, *op. cit.*, vol. 1, p. 131, pl. 16, fig. 2 (male); 1902, *op. cit.*, vol. 2, p. 396, pl. 37, figs. 20, 21 (male and female).

PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 177; 1925, Trans. Connecticut Acad. Sci., vol. 27, p. 67. BANKS, 1929, Bull. Mus. Comp. Zool., vol. 69, no. 3, p. 86. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 453.

MALE: Total length, 2.0–3.5 mm.

Carapace dusky yellow to brown, eye region black. Clypeus with a black band. Chelicerae, labium, and maxillae brown. Sternum dusky brown. Coxae yellow to brown. Legs yellow to light brown, with irregular black spots. Patellae and tibiae frequently darker. Dorsum of abdomen silver, with a triangular spot of which the anterior margin is frequently reddish pink and the center brown to black. Sides brown. Venter brown, with several small silvery areas.

Cephalothorax very high. A distinct depression in the thoracic region. Ocular quadrangle as long as wide behind, wider in front. Anterior median eyes slightly larger than others. Anterior median eyes one and one-half diameters apart, one-third of their diameter from laterals. Posterior median eyes separated by little more than a diameter. One and one-third diameters from laterals. Eye region overhanging clypeus, height of clypeus more than twice length of ocular quadrangle. Basal portion of conductor of palp very wide.

MEASUREMENTS (MALE FROM CHIAPAS): Total length, 3.3 mm. Carapace 1.31 mm. long, 1.15 mm. wide, 0.68 mm. high. Patella and tibia of first leg, 1.22 mm., of second leg, 1.25 mm., of third leg, 1.25 mm. Fourth leg: femur, 1.38 mm.; patella and tibia, 1.47 mm.; metatarsus, 1.22 mm.; tarsus, 0.54 mm.

FEMALE: Total length, 3.2–4.3 mm.

Color similar to that of male, but coxae brown and patella and tibia dark brown. Abdomen with a silver V-shaped mark on a black background. Sides gray to black. Venter generally gray to black, with silvery spots or irregular silvery areas.

Cephalothorax rather high and noticeably narrow, particularly in the head region, slightly longer than wide. Clypeus pointed between chelicerae. Chelicerae appear stretched. Clypeus concave, one and two-thirds lengths of ocular quadrangle in height. Ocular quadrangle as wide behind as long, wider in front. Anterior median eyes very little larger than others, which are subequal. Anterior median eyes separated by one and one-quarter diameters, one-quarter of a diameter from laterals. Posterior median eyes one diameter apart, a little more than a diameter from laterals. Seminal receptacles frequently all white, lacking any pigment. Female genitalia resembling those of *E. texana* from Arizona.

MEASUREMENTS (INDIVIDUAL FROM GUATEMALA): Total length, 3.5 mm. Carapace 1.12 mm. long, 1.05 mm. wide., 0.54 mm. high. Patella and

tibia of first leg, 1.30 mm., of second leg, 1.30 mm., of third leg, 1.22 mm. Fourth leg: femur, 1.50 mm.; patella and tibia, 1.53 mm.; metatarsus, 1.30 mm.; tarsus, 0.57 mm.

VARIATIONS AND COMPARISONS: The male collected in Presidio County, Texas, is similar to that of *E. texana* in color. One very small male from Cameron County, Texas, December, 1934 (Davis), had the tip of the conductors bent more strongly towards the cymbium, giving the conductor a different appearance. Females from the following localities differ from those of *E. lineatipes* and resemble those of *E. californica*: *Guerrero*: Taxco, August 15, 1943, Bolivar, Pelaez, Osorio, connecting canals extending more anteriorly as in *E. californica*, carapace wider than in *E. lineatipes* from Guatemala. However, clypeus is pointed and chelicerae stretched. *San Luis Potosí*: Tamazunchale, September 27, 1939 (C. M. Bogert and H. E. Vokes), genitalia as in *E. lineatipes*, carapace wide, clypeus not pointed, and chelicerae short. *Morelos*: Tequesquitengo, July 4–11, 1944 (H. Wagner), genitalia as in *E. lineatipes*, carapace wider, clypeus not pointed, chelicerae short. Some of the females in larger collections from Costa Rica had a wider head, clypeus not pointed, and short chelicerae. This species may grade in northwestern Mexico into *E. scriptipes*.

Euryopsis lineatipes differs from both *E. texana* and *E. californica* by its much darker coloration, from *E. scriptipes* by its smaller size. The males differ from those of all other species by the wide basal portion of the conductor of the palp. The females differ from those of *E. texana* by the lack of a tooth at the posterior margin of the epigynum, and from those of *E. californica* and *E. scriptipes* in that the connecting ducts of the genitalia extend only slightly anteriorly beyond the second pair of seminal receptacles.

DISTRIBUTION: From Panama north to Rio Grande and southern Texas.

TYPE LOCALITY: Guatemala.

RECORDS: *Panama*: Barro Colorado Island, July–August, 1936, A. M. Chickering; Gamboa, July 9, N. Banks (N. Banks, 1929); Bugaba in Chiriquí, Champion (O. P. Cambridge, 1894), *Costa Rica*: San Jose, E. Schmidt. *Guatemala*: Tiquisate, 200 feet, June 26–29, 1947, C. and P. Vaurie; Panzós, 90 feet, July 14–17, 1947, C. and P. Vaurie; Capetillo, August 20–23, 1947, C. and P. Vaurie. *Chiapas*: Palenque Ruins, July 12, 1949, berlese sample, C. J. Goodnight; Ocosingo, June 24, 1950, C. and M. Goodnight, L. J. Stannard. *Tabasco*: Teapa, H. Smith (O. P. Cambridge, 1902). *Guerrero*: Seventy-two miles north of Acapulco, June 18, 1936, A. M. and L. I. Davis. *San Luis Potosí*: Tamazunchale, Jan-

uary 5, 1952, W. S. Creighton. *Nuevo León*: One mile east of Iturbide, 5000 feet, W. S. Creighton. *Tamaulipas*: Two miles east of Nueva Morelos, December 2, 1939, L. I. Davis. *Texas*: Edinburg, September 15, 1935, S. Mulaik; Brownsville, June 8, 1934, J. N. Knull; Harlingen August 21, 1947, C. J. Goodnight; near Porvenir, Presidio County, September 28-29, 1946, B. Patterson, J. M. Schmidt; Lake Corpus Christi State Park, November 24, 1951, W. S. Creighton.

Euryopsis californica Banks

Figures 61, 74, 77, 92, 93, 105, 132

Euryopsis californica BANKS, 1904, Proc. California Acad. Sci., vol. 3, p. 345, pl. 39, figs. 23, 36 (female); 1908, Canadian Ent., vol. 40, pp. 206, 207; 1910, Bull. U. S. Natl. Mus., no. 72, p. 22. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 176. CHAMBERLIN AND IVIE, 1941, Bull. Univ. Utah, biol. ser., vol. 6, no. 3, p. 12. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454.

MALE: Total length, 3.4 mm.

Carapace dusky yellow, eye region darker, eyes on black spots. Chelicerae, labium, and maxillae dusky yellow. Sternum dusky yellow, edged with black. Coxae and legs yellow. Legs covered by irregular black spots. Dorsum of abdomen with a triangular dusky yellow mark on silvery background. Sides grayish yellow to black. Venter usually more or less silvery except for yellow areas around pedicel, epigastric plate, epigynum, and spinnerets.

Cephalothorax very high, highest behind eyes, with a sharp decline towards the thoracic portion. A trifold mark in the deep thoracic groove. Carapace border nearly straight above pedicel. Ocular quadrangle as long as wide behind, wider in front. Eyes subequal. Anterior median eyes separated by one and one-half diameters, separated by one-third to one-half a diameter from laterals. Posterior median eyes separated by one diameter and by one and one-quarter diameters from the laterals. Clypeus as high as the length of two ocular quadrangles; sloping back below. Abdomen rather narrow and pointed.

MEASUREMENTS (TYPICAL INDIVIDUAL FROM TWENTYNINE PALMS, CALIFORNIA): Carapace 1.04 mm. long, 1.04 mm. wide, 0.62 mm. high. Patella and tibia of first leg, 1.15 mm., of second leg, 1.09 mm., of third leg, 1.06 mm. Fourth leg: femur, 1.22 mm.; patella and tibia, 1.37 mm.; metatarsus, 1.18 mm.; tarsus 0.51 mm.

FEMALE: Total length, 3.3-3.8 mm.

Coloration like that of male.

Structure of carapace typical, with a distinct longitudinal black line in thoracic groove. Eyes about subequal. Ocular quadrangle as wide as long

behind, wider in front. Anterior median eyes separated by one and one-quarter diameters, less than one-quarter of a diameter from laterals. Posterior median eyes separated by two-thirds of their diameter, and by about three-fourths of their diameter from laterals. Clypeus concave, equaling one and one-third lengths of the ocular quadrangle. Abdomen quite narrow, pointed. Epigynum oval, usually lacking tooth on posterior margin.

MEASUREMENTS (FEMALE FROM TWENTYNINE PALMS, CALIFORNIA): Total length, 3.4 mm. Carapace 1.00 mm. long, 1.05 mm. wide, 0.54 mm. high. Patella and tibia of first leg, 1.15 mm., of second leg, 1.18 mm., of third leg, 1.18 mm. Fourth leg: femur, 1.31 mm.; patella and tibia, 1.53 mm.; metatarsus, 1.28 mm.; tarsus 0.47 mm.

COMPARISONS: This species differs from *E. lineatipes* and from *E. formosa* by its light coloration. The males differ from those of *E. lineatipes* by the shape of the conductor, from those of *E. texana* by the shape of the carapace, and from those of *E. formosa* by having larger eyes. The females differ from those of *E. texana* by usually lacking the tooth at the posterior margin of the epigynum (although indications of it are at times present) and from those of all three neighboring species by the shape and degree of sclerotization of the genitalia. A female from Baja California may be *E. texana*.

TYPE LOCALITY: Female type from Los Angeles, California, in the Museum of Comparative Zoölogy.

RECORDS: *Nevada*: Las Vegas, May–August, 1944, D. J. Zinn. *California*: Anza State Park, San Diego County, April 22, 1951, E. I. Schlinger; Twentynine Palms, about 20 specimens, 1944–1945, J. H. Branch; Palm Springs, March 25, 1918; Solana Beach, San Diego, September 5, 1934; Pomona, July–August, 1934, J. W. Saepe and B. J. Hall (Chamberlin and Ivie, 1941); Fish Springs, Salton Sea, March 12, 1941. *Baja California*: El Mayor, June 15, 1952, W. J. Gertsch.

Euryopsis formosa Banks

Figures 62, 75, 78, 94–96, 106, 107

Euryopsis funebre, BANKS, 1904, Proc. California Acad. Sci., ser. 3, vol. 3, no. 13, p. 345 (not *E. funebris* Hentz).

Euryopsis formosa BANKS, 1908, Canadian Ent., vol. 40, pp. 206–207; 1910, Bull. U. S. Natl. Mus., no. 72, p. 22. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 176. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454.

Euryopsis funebris, BANKS, 1916, Proc. U. S. Natl. Mus., vol. 51, p. 68.

Euryopsis californica, CHAMBERLIN AND IVIE, 1941, Bull. Univ. Utah, biol. ser., vol. 6, no. 31, p. 12.

MALE: Total length, 2.9–3.5 mm.

Carapace dark brown to black. Clypeus black. Chelicerae lighter at ends. Labium and maxillae dusky yellow. Sternum brown-black. Coxae dirty yellow, with black marks. Patellae and tibiae black, with some light yellow spots. Other segments yellow, with black spots. Dorsum of abdomen with a large black triangle bordered by silver. Sides black. Venter black, with indications of small silvery spots. Sclerotized parts and spinnerets yellow-brown.

Cephalothorax very high. Ocular quadrangle as wide behind as long, wider in front. Eyes small, subequal in size. Anterior median eyes a little more than one and one-half diameters apart, one-fourth of a diameter from laterals. Posterior median eyes a diameter apart, one and one-quarter diameters from laterals. Clypeus sloping back, its height variable.

MEASUREMENTS (SPECIMEN FROM WESTERN OREGON): Total length, 3.4 mm. Carapace 1.20 mm. long, 1.18 mm. wide, 0.8 mm. high. Patella and tibia of first leg, 1.44 mm., of second leg, 1.38 mm., of third leg, 1.28 mm. Fourth leg: femur, 1.47 mm.; patella and tibia, 1.63 mm.; metatarsus, 1.36 mm.; tarsus, 0.47 mm.

FEMALE: Total length, 3.7–4.7 mm.

Coloration like that of the male.

Cephalothorax typical, eyes small, subequal in size. Ocular quadrangle as long as wide behind, wider in front. Anterior median eyes one and one-third diameters apart, one-third of a diameter from laterals. Posterior median eyes separated by one diameter, one diameter from laterals. Clypeus concave.

MEASUREMENTS (FEMALE FROM WESTERN OREGON): Total length, 4.4 mm. Carapace 1.35 mm. long, 1.40 mm. wide, 0.69 mm. high. Patella and tibia of first leg, 1.73 mm., of second leg, 1.73 mm., of third leg, 1.57 mm. Fourth leg: femur, 1.82 mm.; patella and tibia, 2.14 mm.; metatarsus, 1.92 mm.; tarsus, 0.64 mm.

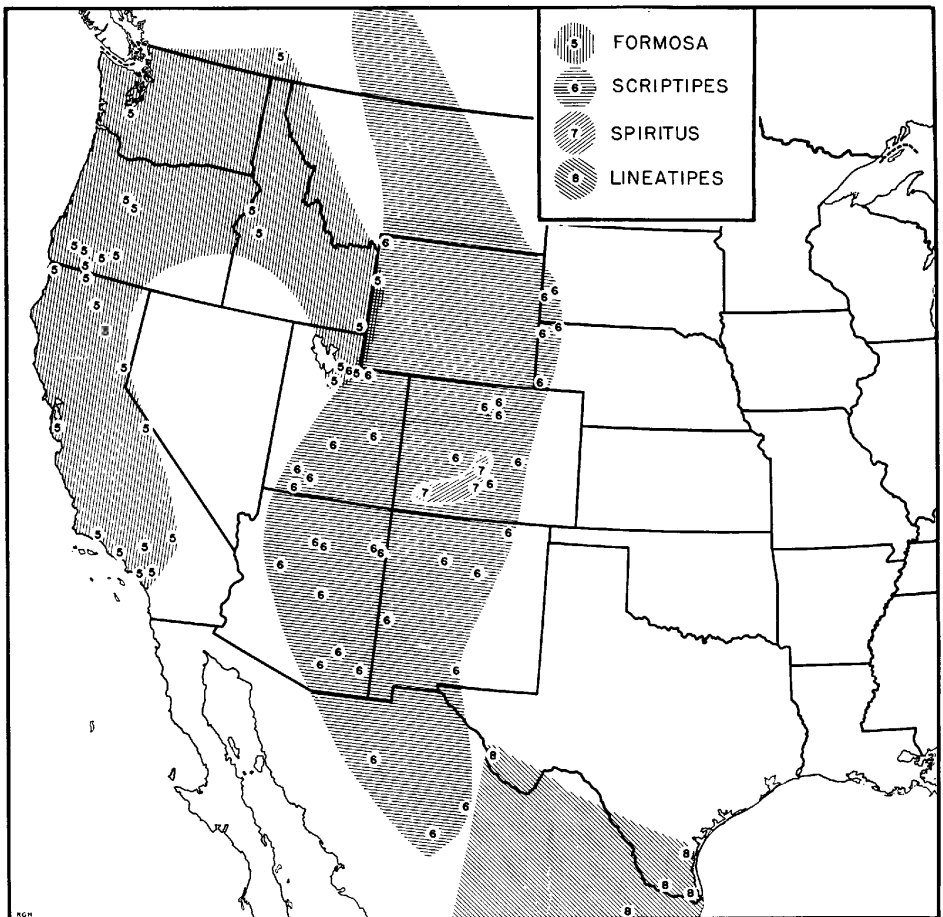
VARIATIONS AND COMPARISONS: The female collected at Stanford, California, has genitalia that resemble those of *E. californica*. Other individuals from the southern part of its range show a much lighter coloration. The height of the carapace of the male varies somewhat in different individuals. The coloration of specimens examined from eastern Idaho, Wyoming, and Utah is lighter, somewhat as in *E. scriptipes*. The amount of variation among members of *E. formosa* is small as compared to *E. scriptipes*. *E. formosa* can be told from *E. californica* by the darker coloration and the larger size of females. *E. formosa* grades into *E. scriptipes*. However, most females can readily be distinguished. The ends of the sclerotized connecting canals are hidden by the second (anterior) pair of

seminal receptacles. The width of the connecting canals is less than the outer distance between the second pair of seminal receptacles. The connecting canals of females of *E. scriptipes* are wider and frame the second pair of seminal receptacles.

DISTRIBUTION: Central California north to British Columbia and east to Wyoming.

TYPE LOCALITY: Female type from Bear, Idaho.

RECORDS: *California*: Peavine, Sierra County, August 16, 1940, W. M. Pearce; 7 miles west of Sierra City, Sierra County, July 8, 1952, W. J. Gertsch; Benton, Mono County, June 15, 1941, W. M. Pearce; Cayton, Shasta County, July 12, 1918, H. Van Duzee; Manzanita Lake, Lassen National Park, Shasta County, July 5, 1952, W. J. Gertsch; Echo Lake, south of Lake Tahoe, July, 1934, L. W. Saylor (Chamberlin and Ivie, 1941); Santa Ana, Orange County, July, 1934, J. R. Douglas (Chamber-



MAP 2. Distribution of species of *Euryopsis*.

lin and Ivie, 1941); Santa Ana, July, 1941; Pasadena, F. Grinell; Stanford, March–April; Patrick Creek Recreation Area near Crescent City, under log in madrone woods, July 4, 1951, H. W. Levi; Weed, Siskiyou County, July 4, 1952, W. J. Gertsch; Barstow, August 26, 1936; San Francisco, Troyer (Banks, 1904); base of Mt. Whitney, east side, August 8, 1931, under pine on dry alluvial slope; Topanga Canyon, March 18, 1941; Redwood Park, La Honda Grade, August 12, 1928, J. C. Chamberlin; Santa Barbara, August 2, 1921, R. V. Chamberlin; Tanbark Flats, San Gabriel Mountains, Los Angeles County, June 20, 1952, W. J. Gertsch; Idyllwild, San Jacinto Mountains, Riverside County, June 18, 1952, W. J. Gertsch. *Oregon*: Green Springs Pass, July 15, 1938, Hatch; Lake of the Woods, June 1–4, 1934, F. Lawrence; Rogue River Valley, April, 1934, F. Lawrence; base of Mt. McLoughlin, June 22, 1934, 3200 feet, F. Lawrence; Sprague River, 12 miles east of Chiloquin, Klamath County, July 1, 1951, B. Malkin; Sisters, Deschutes County, July 31, 1950, B. Malkin; Jackson County, August–November, 1934, F. Lawrence; Suttle Lake, Santiam Pass, May 27, 1949, V. Roth and F. Beer; Grant's Pass, May 17, 1947, B. Malkin. *Washington*: Tenino. *British Columbia*: Kaslo, June 15, 1903, Currie (Banks, 1916); Kaslo, July 8, 1903, Caudell (Banks, 1916). *Idaho*: Bloomington, August 14, 1931, W. J. Gertsch; Smiths Ferry, July 6, 1943. *Wyoming*: Indian Paintbrush Canyon, Grand Teton National Park, 7500 feet, June 17, 1950, D. C. Lowrie. *Utah*: Dry Canyon, Salt Lake City, July–August, 1931, W. J. Gertsch; Smith and Morehouse Canyon, Uinta Mountains, 1934, Ivie; American Fork, June 14, 1941, W. Ivie.

Euryopsis scriptipes Banks

Figures 59, 63, 79, 80, 82, 97–99, 108–114, 116–119, 127, 128

Euryopsis funebris, BANKS, 1901, Proc. Acad. Nat. Sci. Philadelphia, vol. 53, p. 579; 1902, Proc. U. S. Natl. Mus., vol. 25, no. 1284, p. 214. WORLEY AND PICKWELL, 1931, Univ. Nebraska Studies, vol. 27, nos. 1–4, p. 26 (?) (not *E. funebris* Hentz).

Euryopsis scriptipes BANKS, 1908, Canadian Ent., vol. 40, p. 206; 1910, Bull. U. S. Natl. Mus., no. 72, p. 22. PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 177. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454.

Dipoenoides apacheus CHAMBERLIN, 1925, Bull. Mus. Comp. Zool., vol. 67, no. 4, p. 215 (male). ROEWER, 1942, Katalog der Araneae, vol. 1, p. 424.

MALE: Total length, 3–4 mm.

Carapace yellow, dusky yellow, to yellow-brown; eye region darker. Clypeus with a black band as wide as eye region. Chelicerae, labium, and maxillae dusky yellow to brown. Sternum dusky yellow to black. Coxae yellow. Legs yellow or brownish white, with irregular black spots. Abdo-

men with the typical markings on dorsum, sides black. Venter a central dark or black band broken by two silvery spots, sides silvery.

Cephalothorax very high and massive, a distinct depression in thoracic area with a branched mark. Eyes subequal. Ocular quadrangle as wide behind as long, wider in front. Anterior median eyes separated by one and one-half diameters, one-quarter of their diameter from laterals. Posterior median eyes separated by one diameter, one to one and one-quarter diameters from laterals. Clypeus variable, its height usually equaling about 2.6 times the length of the ocular quadrangle. Arizona specimens have a distinct lip at the bottom of the clypeus. Palp large and massive.

MEASUREMENTS (INDIVIDUAL FROM GARDEN OF THE GODS, COLORADO): Total length, 3.4 mm. Carapace 1.37 mm. long, 1.31 mm. wide, 0.96 mm. high. Patella and tibia of first leg, 1.50 mm., of second leg, 1.35 mm., of third leg, 1.28 mm. Fourth leg: femur, 1.47 mm.; patella and tibia, 1.67 mm.; metatarsus, 1.41 mm.; tarsus, 0.55 mm.

FEMALE: Total length, 4-6 mm.

Coloration similar to, but darker than, that of male. Patella and tibia usually brown, at least darker than other leg segments.

Cephalothorax typical. Ocular quadrangle as long as wide behind, wider in front. Eyes subequal. Anterior median eyes separated by one and one-half diameters, one-quarter of a diameter from laterals. Posterior median eyes their diameter, or less, apart, one diameter from laterals. Clypeus concave.

MEASUREMENTS (FEMALE FROM GARDEN OF THE GODS, COLORADO): Total length, 5.0 mm. Carapace 1.50 mm. long, 1.53 mm. wide, 0.80 mm. high. Patella and tibia of first leg, 1.76 mm., of second leg, 1.82 mm., of third leg, 1.82 mm. Fourth leg: femur, 1.98 mm.; patella and tibia, 2.40 mm.; metatarsus, 2.08 mm.; tarsus, 0.74 mm.

VARIATIONS AND COMPARISONS: One female from Laguna Beach, California, July, 1931, R. V. Chamberlin, resembles this form. Males from Chihuahua resemble those of *E. scriptipes* but have a lower carapace and the clypeus sloping back at a greater angle. This species may grade into *E. lineatipes* in northern Mexico.

Hardly two specimens, unless they be from the same locality, look alike. Variations are in color, size, in height and shape of the carapace, and in shape of the palpus and female genitalia. Specimens from Arizona are considerably larger in size than those of New Mexico and Colorado. This species appears to grade into *E. formosa*, a more homogenous group. The relationship between *E. scriptipes* and *E. lineatipes* to the south is not known at present, although the conductor of the palp of some specimens from Arizona has a thicker basal portion resembling that of the latter species.

Euryopsis scriptipes can be differentiated from *E. texana* by its much larger size and darker coloration.

DISTRIBUTION: Limits uncertain. From Chihuahua to Alberta, Utah and Arizona to Nebraska.

TYPE LOCALITIES: Type of *Euryopsis scriptipes* is marked "Colorado" according to E. B. Bryant, and is in the Museum of Comparative Zoölogy. Male type of *Diplocephalus apachecus* from Yavapai County, Arizona, "from stomach of toad," in the Museum of Comparative Zoölogy.

RECORDS: *Utah*: Mt. Agassiz, Uinta Mountains, 11,800 feet, August 17, 1933, A. G. Richards; Vermillion Castle, Dixie National Forest near Parowan, August 20, 1950, H. W. Levi; Fish Lake, July 17, 1949, W. J. and J. W. Gertsch; Fruita, July, 1930, W. J. Gertsch; Mill Creek Canyon, Salt Lake City, R. V. Chamberlin; Hughes Canyon, June 29, 1935, August 31, 1940, W. Ivie; Zion National Park, July 20, 1931, R. V. Chamberlin; junction Deep and Carter creeks, Uinta Mountains, July 21, 1935, R. V. Chamberlin; Trout Creek, July 25, 1933, H. Stafford; Bryce Canyon, August 9, 1950, M. A. Cazier; Green River, 1920, R. V. Chamberlin. *Arizona*: Five miles west of Flagstaff, July 30, 1950, M. A. Cazier; Flagstaff, July 24, 28, 1950, M. A. Cazier; Williams, May 25, June 9-15, July 4, 17, 1901, Barber and Schwarz (Banks, 1903); McKay's Peak, White Mountains, July 10-11, 1940, Gertsch and Hook; Baldy Peak, White Mountains, June 18, 1936, E. D. Ball; 17 miles northeast of Whiteriver, White Mountains, July 8-10, 1940, W. J. Gertsch; Tonto Creek, 22 miles east of Payson, November, 1936, W. L. Chapel; Madera Canyon, Santa Rita Mountains, August 25, 1950, M. A. Cazier, July 16, 1940, Gertsch and Hook, 5300-6200 feet, July 16-24, 1951, W. S. Creighton; Sweetwater, Santa Rita Mountains, 6000 feet, June 25-July 2, 1951, W. S. Creighton; Summer Haven, Santa Catalina Mountains, July 14, 1940, W. J. Gertsch; Graham Mountain, August 15, 1933, O. Bryant; Pinecrest, Graham Mountain, September 13, 1950, W. J. Gertsch; West Canyon, Graham Mountain, September 14, 1950, W. J. Gertsch; Chiricahua National Monument, 5400 feet, September 21, 1951, W. S. Creighton; Garden Canyon, Huachuca Mountains, 5800 feet, July 3-12, 1951, W. S. Creighton, July 31, 1949, W. J. and J. W. Gertsch. *Chihuahua*: Salaices, 5700 feet, August 31, 1947, C. M. Bradt; Santa Barbara, July 18, 1947, W. J. Gertsch; 20 miles west of Matachic, July 7, 1947, W. J. Gertsch; 5 miles east of Parral, July 15, 1947, W. J. Gertsch; Madera, July 5, 1947, W. J. Gertsch; 25 miles west of Camargo, July 13, 1947, W. J. Gertsch. *New Mexico*: Sandoval County, C. C. Hoff; Camp Mary White, Otero County, August 9-12, 1935, S. Mulaik; Raton, Colfax County, C. H. SeEVERS; Pecos, N. Banks (Banks, 1908); Beulah, N. Banks (Banks, 1901, 1908); 3 miles south of Reserve, Catron County.

Colorado: "Colorado," Osear (Banks, 1908); Garden of the Gods, August 29, 1924; Longs Peak, July 11, 1926, S. C. Bishop collection; Boulder, June 22, 1922; Fort Collins, 6400 feet, September 15, 1946, C. C. Hoff; West Cliff, N. Banks; west of Silver City, 1941; Taylor River at One Mile Creek, Gunnison County, 8100 feet, under rock in sagebrush, August 3, 1952. *Wyoming*: Yellowstone National Park, July 14, 1921. *Nebraska*: (Worley, 1931); Monroe Canyon, Sioux County, August 25, 1946, E. Fichter; near Pine Bluff, Wyoming, June 5, 1947, under stones, M. H. Muma; Chadron State Park, Dawes County, August 22, 1946, on pines, M. H. Muma. *South Dakota*: Hill City, Horsethief Lake, Black Hills, Pennington County, under board in ponderosa forest, June 21, 1952, H. W. Levi. *Alberta*: Edmonton, March 15, 1924, O. Bryant.

Euryopsis spiritus, new species

Figures 64, 81, 115

MALE: Total length, 3.2 mm.

Color and structure similar to those of *E. scriptipes*. It differs from this species, however, in having a lower carapace and in extreme development of the conductor of the palp.

TYPE LOCALITY: Male holotype from Phantom Canyon, south of Victor, Fremont County, Colorado, July 26, 1941, C. and M. Goodnight. Male paratype from Electra Lake, La Plata County, Colorado, July 1, 1919 (F. E. Lutz).

RECORDS: *Colorado*: Near Mosca Pass, Sangre de Cristo Mountains, Alamosa County, 9000 feet, under rocks in piñon juniper, July 8, 1952, H. W. Levi.

Euryopsis quinquemaculata Banks

Figures 133-136

Euryopsis 5-maculata BANKS, 1900, Canadian Ent., vol. 32, p. 97; 1908, *ibid.*, vol. 40, p. 206.

Euryopsis quinquemaculata, PETRUNKEVITCH, 1911, Bull. Amer. Mus. Nat. Hist., vol. 29, p. 177. COMSTOCK, 1912, The spider book, p. 344. CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta. Mem., no. 101, p. 1039. COMSTOCK, 1940, The spider book, rev. ed., p. 359. ROEWER, 1942, Katalog der Araneae, vol. 1, p. 454. KASTON, 1948, Connecticut Geol. Nat. Hist. Surv. Bull., no. 70, p. 98.

Dipoena munda BARROWS AND IVIE, 1942, Ohio Jour. Sci., vol. 42, p. 20, figs. 1-5 (male and female).

Dipoena quinquemaculata, CHAMBERLIN AND IVIE, 1944, Bull. Univ. Utah, biol. ser., vol. 8, no. 5, p. 40. MUMA, 1945, Proc. Biol. Soc. Washington, vol. 58, p. 96.

FEMALE: Total length, 2.5 mm.

Carapace dark brown, eye region black. Chelicerae, labium, maxillae, sternum brown. Coxae yellow. Legs yellow, with a black line on each side of femur. Palps black. Abdomen dark red brown with five white spots, venter yellowish.

Cephalothorax very long, low; eyes rather small. Anterior median eyes very slightly smaller (0.7 to 1.0) than others which are subequal. Ocular quadrangle wider than long, sides parallel. Anterior median eyes separated by two diameters, one diameter from laterals. Posterior median eyes a little more than one diameter apart, one diameter from laterals. Laterals on each side almost touching. Height of clypeus equals two lengths of the ocular quadrangle. Abdomen narrow and pointed.

MEASUREMENTS: Total length, 2.5 mm. Carapace 1.05 mm. long, 0.85 mm. wide, 0.38 mm. high. Patella and tibia of first leg, 0.80 mm., of second leg, 0.69 mm., of third leg, 0.71 mm. Fourth leg: femur, 0.84 mm.; patella and tibia, 1.07 mm.; metatarsus, 0.65 mm.; tarsus, 0.40 mm.

No males of this rare species were available for study. Judging from Barrows' and Ivie's description this species belongs to *Euryopis* and probably is closely related to *Euryopis quinqueguttata* Thorell, 1875, of Europe, and to *Euryopis bryantae* which has been collected in Texas.

The cephalothorax of the male of *Euryopis quinquemaculata* is modified by being nearly circular in outline and by being very high. The male can be separated from that of *Euryopis bryantae*, as the latter has a corneous ridge at the base of the abdomen connecting with a large epigastric scutum, a character not mentioned by Barrows and Ivie for the male of *Euryopis quinquemaculata*.

TYPE LOCALITIES: Of *Euryopis 5-maculata* Banks, Washington, D. C., and Falls Church, Virginia. Of *Dipoena munda*, Rockbridge, Ohio, W. N. Barrows.

RECORDS: *Georgia*: Clarkesville, April 27, 1943, W. Ivie (Chamberlin and Ivie, 1944); Clayton to Tallulah Falls, April 28, 1943, W. Ivie (Chamberlin and Ivie, 1944). *Virginia*: Great Falls, N. Banks. *Maryland*: College Park, March 25, 1943 (Muma, 1945); Berwyn, October 22, 1944 (Muma, 1945); *New York*: Wading River, Long Island (Crosby and Bishop, 1928). *Texas*: Dallas, 1905, J. D. Mitchell.

Euryopis bryantae, new name

Figure 137

Mufila texana BRYANT, 1949, Psyche, vol. 56, p. 67, fig. 1 (male); (*Euryopis texana* preoccupied by *Euryopis texana* Banks, 1908).

COMPARISONS: The male is known only from the holotype and was not

available for study. As in *Euryopsis quinquemaculata* its cephalothorax is modified, being circular in outline and very high. The males can be separated from those of *Euryopsis quinquemaculata* by a corneous ridge at the base of the abdomen connecting with a large epigastric scutum, characters not mentioned by Barrows and Ivie for the latter species.

TYPE LOCALITY: Male holotype from Dallas, Texas, on the outside of a house, July 9, 1936, collected by Sarah E. Jones, in the Museum of Comparative Zoölogy.