

STUDIES IN AMERICAN SPIDERS: GENERA CERATINOPSIS, CERATINOPSISIDIS AND TUTAIBO

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CERATINOPSIS Emerton

Emerton, Conn. Acad. Sci. Trans. 6:36, 1882. Type not indicated.

Simon, Hist. Nat. Ar. 1:673, 1894. Designated *Erigone interpres* Cambr. as type.

Notionella Banks, Am. Nat. 39:312. 1905. Type, "*Ceratinopsis interpres*."

In this genus the embolic division is of the spiral type with a long tail-piece as in *Ceraticelus*. The terminal part of the embolic division, or embolus proper, arises from the middle part as a distinct break as in that genus. The abdomen has the integument soft and without hardened plates.

Ceratinopsis anglicana Hentz

(Figures 1-4)

Theridion anglicanum Hentz, Boston Soc. Nat. Hist. Jour. 6:275, pl. 9, fig. 6. 1850; Burgess Ed. p. 146, pl. 16, fig. 6, 1875.

Erigone purpurescens Keyserling, Spinnen Am., Therid. 2:187, pl. 17, fig. 248. 1886. (♀ only.)

Ceratinopsis purpurescens Simon, Hist. Nat. Ar. 1:644. 1894.

Bathypantes anglicanum Banks, Ent. Soc. Wash. Proc. 4:189. 1899.

Ceratinopsis anglicana Crosby, Phila. Acad. Nat. Sci. Proc. 1905. p. 316, 341.

MALE. Length, 2 mm. Cephalothorax reddish orange, lighter on the head, viewed from above broadly rounded on the sides, the sides strongly convergent towards the front, the anterior eyes in profile; viewed from the side low and gradually ascending behind, head gently arched; clypeus gently convex, nearly vertical. On the top of the head there is a long stiff hair directed forward. Just below the anterior median eyes there is a stout hair curved upward. Across the median ocular area there is a row of eight stiff erect hairs longest in the middle and decreasing in length toward each side.

A short stiff hair curved forward between the posterior median and lateral eyes.

Posterior eyes in a gently procurved line, the median separated by twice the diameter. Anterior eyes in a very slightly procurved line, the median separated by the radius and from the lateral by a little more than the diameter.

Clypeus wider than the median ocular area. Chelicerae, endites, sternum and labium reddish orange. Hind coxæ separated by the length. Legs with coxæ and basal half of femora reddish orange, the remainder darker. Abdomen reddish orange to purplish. Many specimens fade to dusky orange yellow.

Femur of palpus nearly straight. Ratio of length of femur to that of patella as 10 to 4. Tibia short and broad, when viewed from above the anterior margin broadly excavated, the anterior lateral angle produced into a broad process which when viewed from the dorso-lateral aspect is armed with three broad blunt teeth. The cymbium with a distinct curved ridge opposite the paracymbium. Paracymbium broad at base, abruptly narrowed, the tip slender. The tail-piece of the embolic division broad at base, then constricted and enlarged at tip. The middle part of the embolic division heavy, produced with a sharp point beyond the break, shining black. The embolus long, slender, curved in the form of a reversed "S" and lies over the face of the bulb. The median apophysis appears as a thin blunt-pointed process lying within the curve of the middle part of the embolic division and is overlaid by another process which seems to be attached to the tegulum by a membrane. This latter process is basally broad and terminates in a black blunt beak-shaped tooth. Bezel rather low with the edge evenly rounded.

FEMALE. Length, 2.5 mm. Similar to male in color but in fresh specimens the abdomen is a more brilliant red. Tarsus of palpus nearly black.

Posterior eyes in a slightly procurved line, the median a little larger than the lateral, separated by the diameter and from the lateral by a little less. Anterior eyes in a nearly straight line, the median nearly touching, separated from the lateral by a little more than the diameter. Epigynum has the middle lobe narrow in front and dilated in the middle, the posterior transverse arms narrow. Abdomen purplish red.

Type locality: Alabama.

South Carolina: Nichols, Oct. 21, 1926, 1 ♀.

North Carolina: Jacksonville, Oct. 23, 1928, 1 ♂.

Georgia: Bainbridge, 2 ♀ (Bradley).

Mississippi: Ocean Springs, Jan., 2 ♂, 3 ♀ (J. H. Comstock).

Florida: Wewahitchka, Dead Lake, Apr. 6, 1927, 1 ♂, 1 ♀; Lake Bradford, Leon Co., Apr. 13, 1927, 1 ♀; Rock Bluff, Apr. 4, 1927, 1 ♀.

Louisiana: Jennings, 1 ♂; Baton Rouge, March 20, 1903, 4 ♀ (J. H. Comstock); without locality, 1 ♀ (Gilbeau).

Texas: Victoria, Aug., 1905, 1 ♂, 2 ♀ (J. D. Mitchell); Oct., 1904, 3 ♀.

Cuba: Cerro Cabras, Sept. 11, 1913, 1 ♀.

In one female from Victoria, Texas, the terminal part of the embolus which had been broken off at the bend, is retained in the epigynum. The base of the broken part lies laterally from the receptacle and the tip projects from the central fovea.

Ceratinopsis atolma Chamberlin

(Figures 5-7)

Ceratinopsis atolma Chamberlin, Calif. Acad. Sci. Proc. (Ser. 4)

14: 110, figs. 11, 12. 1925.

MALE. Length, 1.5 mm. Cephalothorax dusky orange, head darker; viewed from above rather broad, evenly rounded on the sides, slightly convergent towards the front, evenly rounded across the front; viewed from the side, steeply ascending to the dorsal groove, then gradually ascending in a straight line to the posterior eyes. Head rather high and narrow. Clypeus straight and vertical.

Posterior eyes in a straight line, equal, equidistant, separated by the diameter. Anterior eyes in a straight line, the median a little smaller than the lateral, separated by the diameter, a little closer to the lateral. Clypeus nearly twice as wide as the median ocular area. Sternum nearly smooth, dusky orange, darker at margin, rather wide, convex, convergent behind produced as a truncate point between the hind coxæ which are separated by a little more than the length. Labium and endites dusky orange. Legs and palpi orange yellow. Chelicerae dusky orange yellow. Abdomen dirty grayish white.

Femur short and rather thick. Patella rather short, strongly arched above. Tibia longer than patella, produced dorsally into a broad process which is bluntly and broadly rounded at tip. On the mesal side of this process there is a large triangular lobe, below which there is a deep rounded notch. The paracymbium is rather small and slender and lies close to the edge of the cymbium. The bezel long and slender, rounded at base and narrowed to a point at the opposite end. Tail-piece of the embolic division very long, strongly curved, the tip lying in a notch at the base of the cymbium. The terminal part of the embolus emerges from a notch in the edge of the bezel as a shining, black rod and curves around to the edge of the cymbium where it ends in a blunt point. The duct crosses the embolus just before the end

and is reinforced with a black support and makes a wide curve so that the tip lies just inside the edge of the bezel.

Tennessee: Springfield, July, 1 ♂. Type.

***Ceratinopsis auriculata* Emerton**

(Figures 8-13)

Ceratinopsis auriculatus Emerton, Conn. Acad. Sci. Trans. 14: 185, pl. 2, fig. 9, 1909.

MALE. Length, 1.5 mm. Cephalothorax orange yellow; viewed from above rather short, broad, rounded on the sides, the sides strongly convergent towards the front; the lateral eyes being borne on tubercles are thrown into profile. Black area on head extending far back of the eyes and broadly rounded behind; clypeus black.

Eye area very wide, when viewed from above, angulate on the sides and concave in front. Cephalothorax viewed from the side rather steeply ascending to the posterior median eyes with a slight depression at the cervical groove. Clypeus in side view bluntly angulate. Sternum orange darkened with brown towards the margin. Endites lighter. Legs yellowish. Palpi yellow, tarsus black. Abdomen reddish orange.

Posterior eyes in a very slightly procurved line, the median separated by a little more than the diameter and from the lateral by three times the diameter. Anterior eyes in a recurved line, the median smaller than the lateral, separated by the diameter and from the lateral by six times the diameter.

Femur of palpus short, thick and nearly straight, curved inward at base. Patella short and thick. Ratio of length of femur to that of patella as 12 to 7. Tibia short and greatly widened distally, the dorsal margin straight with small notch on each side, mesal angle square, the lateral angle produced into a stout process which when viewed from above appears curved inward; when viewed from the side the tip is seen to be armed with 5 or 6 minute teeth. Cymbium laterally excavated at base, strongly angulate opposite the paracymbium, the edge beyond the angle thickened, provided with a broad, shallow, smooth furrow. Paracymbium long, slender, gently curved, the basal half hairy. Tail-piece of embolic division long, slender, nearly straight; the middle part makes nearly a complete turn and is continued in a sharp point beyond the break. The embolus seems to consist of a free duct which curves back along the middle part.

FEMALE. Length, 1.7 mm. The black on the head is more intense and more sharply outlined than in the male. The head is broad but not concave in front. The lateral eyes are protuberant but not so strongly as in the male.

Posterior eyes in a slightly procurved line, equal, the median separated by a little more than the diameter and from the lateral by a little more. Anterior eyes in a very slightly procurved line, the median smaller than the lat-

eral, separated by the radius and from the lateral by three times the radius. The epigynum has two large openings near the posterior margin.

Allotype ♀, McLean, N. Y., July, 1904.

Type localities: Three-mile Island, Lake Winnepesaukee, and Fitzwilliam, N. H.; McLean, N. Y.

New York: Freeville, May, 1911, 1 ♂; Ringwood, Tompkins Co., May 20, 1919, 2 ♂ (Dietrich) Emerton det.; McLean, July, 1904, 1 ♀ (allotype).

Banks (Phila. Acad. Nat. Sci. Proc. 1916, p. 72) states that his records of *C. nigriceps* in Phila. Acad. Nat. Sci. Proc. 1892, p. 33, do not refer to that species but to *C. auriculata* Em. This is probably an error for he states in the earlier paper that it is frequent in various localities near Ithaca. As a matter of fact *auriculata* is rarely found except in sphagnum bogs.

***Ceratinopsis bicolor* Banks**

Ceratinopsis bicolor Banks, Am. Ent. Soc. Trans. 23: 67. 1896.

The types of this species in the Museum of Comparative Zoology are two recently hatched specimens that probably do not even belong to the family. The species cannot be recognized from the description. Banks states his specimens were immature.

Type locality: Ithaca, N. Y.

***Ceratinopsis interpres* Cambridge**

(Figures 14-17)

Erigone interpres Cambridge, Zool. Soc. Lond. Proc. 1874, p. 430, pl. 55, fig. 1.

Ceratinopsis interpres Emerton, Conn. Acad. Sci. Trans. 6: 37, pl. 9, fig. 1, 1882.

Erigone interpres Keyserling, Spinn. Am. Therid. 2: 144, pl. 16, fig. 212. 1886.

Ceratinopsis interpres Emerton, Common Spiders, p. 153, figs. 377, 378. 1902.

Notionella interpres Banks, Am. Nat. 39: 312. 1905.

Ceratinopsis interpres Crosby, Phila. Acad. Nat. Sci. Proc. 1905, p. 316.

MALE. Length, 2.5 mm. Cephalothorax orange with the head black, viewed from above broad and rounded posteriorly, the sides strongly con-

vergent towards the front; head elevated and projecting forward so that the eyes are in profile. Cephalothorax viewed from the side very gently arched posteriorly with a broad gentle depression at the cervical groove, then gently arched to the posterior eyes; top of head nearly straight; median ocular area slanting forward. Clypeus concave and strongly retreating, yellow except near eyes. Sternum and endites orange yellow. Legs light yellow, not darkened distally. Abdomen yellowish white, spinnerets black.

Posterior eyes in a straight line, the median separated by the diameter and a little farther from the lateral. Anterior eyes in a slightly recurved line, the median smaller than the lateral, separated by less than the diameter and from the lateral by the diameter. A row of hairs between the median and lateral eyes on each side directed towards the middle, also a median row on top of head directed forward.

Femur of palpus distinctly thickened. Patella thick, short, rounded above. Ratio of length of femur to that of patella as 20 to 8. Tibia short and broad, the dorsal margin broadly and evenly concave, the mesal bluntly angulate, the lateral angle produced into a large divergent, black, triangular process, the extreme tip of which is strongly incurved. Cymbium with a narrow groove next to the lateral margin. Paracymbium small with a small sharp hook at tip. Tail-piece of the embolic division long, slender, gently curved, the middle part making about one half turn before the break beyond which it is extended in a sharp point, the terminal part long, very slender and curved back along the middle part.

FEMALE. Length, 2.7 mm. Resembles the male in form and color but the head is relatively wider and not so high. The epigynum consists of a large quadrate plate, rounded in front, the fovea is triangular, pointed in front, the transverse arm very narrow in a strictly ventral view. Dark brown area indicates the internal parts.

Type locality: Holyoke, Mass.

New Hampshire: Hollis, July, Aug., 1888, 1 ♂, 9 ♀ (Fox).

New York: Rock City, Cattaraugus Co., June 5, 1915, 1 ♂; Peru, June 10, 1916, 1 ♂.

Maryland: Glen Echo, Je., 1926, 2 ♀ (Fouts); Plummer's Island, June 21, 1913, 2 ♂, 5 ♀ (Shoemaker), May 18, 1913, 6 ♂ (Shoemaker); Cedar Grove, May 28, 1912, 1 ♂ (Shoemaker).

Virginia: Great Falls, June 22, 1916, 2 ♀ (Shoemaker); Opposite Plummer's Id., May 18, 1913, 2 ♂; July 19, 1913, 1 ♀ (Shoemaker); Black Pond, May 21, 1911, 1 ♂ (Shoemaker).

District of Columbia: April, 1888, 1 ♂, 5 ♀ (Fox), Oct., 1 ♂ (Fox).

North Carolina: Henderson, 1 ♀.

Kentucky: Quicksand, June 25, 1925, 3 ♀.

Missouri: Columbia, May, 1 ♂.

***Ceratinopsis labradoriensis* Emerton**

Can. Ent. 57: 66, fig. 1, 1925

Type locality: Cabot Lake, Labrador.

We have not had opportunity to study this species.

***Ceratinopsis laticeps* Emerton**

(Figures 18-21)

Ceratinopsis laticeps Emerton, Conn. Acad. Sci. Trans. 6: 37, pl. 9, fig. 3. 1882.

Erigone calcarata Keyserling, Spinn. Am. Therid. 2: 181, pl. 17, fig. 240. 1886.

Porrhomma calcaratum Simon, Hist. Nat. Ar. 1: 682. 1894.

MALE. Length, 1.5 mm. Cephalothorax dark reddish orange, head black, the black extending backward in a point to the dorsal furrow, clypeus black above the protuberance. Cephalothorax viewed from above evenly rounded on the sides and across the clypeus; head broad, straight across the front; viewed from the side gently arched behind and then ascending in a nearly straight line to the top of the head which is nearly level for a short distance back of the eyes. Front of head slanting steeply downward through the median ocular area to the rounded protuberance on the clypeus. Clypeus strongly convex. Lower part of median ocular area and upper part of clypeus clothed with numerous hairs directed upward. In front of posterior median eyes a few hairs directed downward and outward. Chelicerae dark reddish orange. Endites same color but crossed by curved blackish lines. Sternum rough, blackish over dark reddish orange. Legs yellowish. Palpi light orange. Abdomen light reddish over pale yellowish.

Posterior eyes in a straight line, the median smaller than the lateral, separated by one and one-half times the diameter and from the lateral by twice the diameter. Anterior eyes in a straight line, the median smaller than the lateral separated by less than the diameter and from the lateral by two and one-half times the diameter.

Femur of palpus rather short and thick, the stridulating tooth near the base on the inner side prominent. Patella short, curved downward. Ratio of length of femur to that of patella as 14 to 6. Tibia short and rather broad, the dorsal margin produced into two short triangular teeth between which there is a shallow rounded emargination, the lateral angle produced into a very large process which is armed laterally with a short blunt tooth, and anteriorly with a long black, sharp tooth. Cymbium provided with a

very narrow furrow near the edge; paracymbium with the base rather stout and hairy, the remainder rather narrow, strongly curved, sickle-shaped. Bezel low and narrow, produced toward the tip of the palpus into two distinct points of unequal length. Tail-piece of the embolic division long, slender and gently curved, the middle part curved in a half circle and produced beyond the break into a slender acute point, the terminal part curved back, following the curve of the middle part, the tip lying next to the bezel.

FEMALE. Length, 1.7 mm. Similar to the male in form and color but the head is blacker and the black extends almost to the margin of the clypeus. Head wide, not so straight across the front as in the male. Clypeus in side view not so strongly convex. In some specimens the sides of the abdomen are nearly black and occasionally there is a median black stripe. The middle lobe of the epigynum narrow, transverse, the openings well separated, and leading under the overhanging anterior part of the epigynum.

Type localities: Danvers, Mass., and New Haven, Conn.

Massachusetts: Shirley, June 18, 1917, 1 ♀.

Michigan: Eagle Harbor (Type of *calcarata*).

New York: Freeville, July, 1 ♀. Ithaca, Aug., 1 ♂; May 11, 1916, 1 ♂, 5 ♀; without date, 1 ♂ (Banks); Olcott, Feb., 1925, 1 ♂, 1 ♀, sifting leaves (Dietrich); Montauk Pt., May 24, 1924, 2 ♀; Cold Spring Harbor, July 10, 1907, 1 ♀; Oyster Bay, 1 ♀ (Chamberlin).

***Ceratinopsis nigriceps* Emerton**

(Figures 22-26)

Ceratinopsis nigriceps Emerton, Conn. Acad. Sci. Trans. 6: 37, pl. 9, fig. 2. 1882.

MALE. Length, 1.6 mm. Cephalothorax orange, head black; the black extends backward in a triangular point but not so far back as in *laticeps*. Clypeus orange. Head narrow, eyes in profile when viewed from above. Cephalothorax viewed from the side rather steeply ascending to the top of the head. Clypeus concave. Chelicerae orange. Sternum orange yellow, smooth.

Femora of legs orange yellow, the other segments dusky. Abdomen light reddish orange over yellowish. Posterior eyes in a straight line, separated by three times the radius. Anterior eyes in a slightly procurved line, equal, separated by less than the diameter.

Femur of palpus rather short and thick, nearly straight. Patella short and as thick as femur. Ratio of length of femur to that of patella as 15 to 7. Tibia short, armed with a very stout dorso-lateral apophysis which is strongly incurved. When viewed from above and in front the tip of the

apophysis appears squarely truncate. The dorsal margin of the tibia armed with a large triangular tooth separated from the apophysis by a deep rounded notch. Cymbium with the lateral groove narrow and close to the edge. Paracymbium slender and gently curved, the tip not strongly hooked. Bezel with a broad rounded notch for the reception of the middle part of the embolic spiral, the tip produced into a point and the opposite end rounded. Tail-piece of embolic division long, slender and evenly curved. After emerging at the bezel the embolus makes one turn in an open spiral before the break beyond which it is continued in a sharp point. The terminal part of the embolus is long and slender and follows in general the curve of the middle part but the tip lies outside the bezel.

FEMALE. Length, 1.6 mm. Very similar to the male in form and color but the head is not so high. The epigynum has the middle lobe narrow in front and widened behind.

Type localities: New Haven, Conn., and Dedham, Mass.

Maine: Sebasticook Lake, Aug. 24, 1925, 2 ♀.

New Hampshire: Pike, June, 1908, 1 ♀ (Hayhurst).

Massachusetts: Shirley, June 18, 1917, 1 ♂; Westfield, Sept. 2, 1925, 1 ♀.

New York: Shelving Rock Mt., Lake George, July 27, 1920, 1 ♂; Saratoga Co., June 26, 1920, 1 ♂; Tackawasick Pond, Rensselaer Co., June 25, 1920, 1 ♂; Freeville (Woodwardia swamp) Aug. 13, 1922, 4 ♀; Oakland Valley, May 26, 1920, 6 ♀; Little Pond, Orange Co., May 25, 1920, 1 ♀; Cold Spring Harbor, July 4, 1907, 1 ♂; Riverhead (Sound Beach), Sept. 10, 1922, 1 ♂.

Virginia: Maurertown, Oct. 5, 1923, 2 ♂, 1 ♀; Alberta, Oct. 27, 1923, 1 ♀.

North Carolina: Blowing Rock, Oct. 10, 1923, 2 ♂, 11 ♀.

Ceratinopsis nigripalpis Emerton

(Figures 27-28)

Ceratinopsis nigripalpis Emerton, Conn. Acad. Sci. Trans. 6: 38, pl. 9, fig. 4. 1882.

Ceratinopsis similis Banks, Am. Ent. Soc. Trans. 23: 67. 1896.

Ceratinopsis tarsalis Emerton, Psyche 31: 141, fig. 2. 1924.

MALE. Length, 1 mm. Cephalothorax orange, the head black between the eyes and backward to the dorsal groove, the radiating lines dusky. Cephalothorax viewed from above rather broad, rounded on the sides and

rounded-convergent toward the front. No constriction at the cervical groove. The eyes in profile. Cephalothorax viewed from the side gradually ascending in a nearly straight line to the eyes, clypeus strongly concave. Femur of legs yellow orange, the remaining segments nearly black. Palpi yellowish, tarsi blackish. Chelicerae and endites yellowish. Sternum orange, darker near the margin. Posterior coxae separated by the diameter. Abdomen dark gray, nearly black above, much lighter beneath.

Posterior eyes in a straight line, equidistant, the median a little smaller than the lateral and separated by a little more than the diameter. Anterior eyes in a very slightly procurved line, the median a little smaller than the lateral, equidistant, separated by the radius of the median.

Femur of palpus rather short and stout, nearly straight, patella short and stout, as thick as femur. Ratio of length of femur to that of patella as 12 to 6.

Tibia short; the dorso-lateral apophysis rather stout, when viewed from above it appears double-pointed but when viewed diagonally from the side it appears as a single straight sharp-pointed process. The dorsal margin of the tibia with a blunt rounded tooth separated from the apophysis by a deep rounded emargination. Cymbium with a narrow groove close to the margin. Paracymbium broad at base, slender toward tip. Bezel elongate, notched opposite the middle part of the embolic division and produced at tip into a point. Tail-piece of the embolic division long, slender and spirally curved, the middle part after emerging from the edge of the bezel curves outward and then back to the edge of the cymbium, produced into a blunt point beyond the break. The terminal part long and slender, curved backward across the middle part to form with it a figure eight.

FEMALE. Length, 1.3 mm. Similar to the male but the head is broader and not so high. Palpi have the femur and patella yellow, tibia and tarsus blackish. The epigynum has the middle lobe with the central part very long and slender and the transverse arms proportionally short.

Type locality of *nigripalpis*: New Haven, Conn.; of *similis*: Shreveport, La.; of *tarsalis*: Providence, R. I., Monponsett, Middleboro and Hyannis, Mass.

New York: Ithaca, 1 ♂, det. by Banks as *C. interpres*; Cold Spring Harbor, Apr. 10, 1905, 1 ♀ (Bryant); Oyster Bay, 1 ♀ (Chamberlin); Baiting Hollow, May 31, 1923, 1 ♂, 2 ♀; Riverhead, Sound Beach, Sept. 10, 1922, 3 ♀.

Massachusetts: Woods Hole, July, 1919, 1 ♂.

North Carolina: Jacksonville, Oct. 23, 1926, 1 ♀.

Georgia: Okefinokee Swamp, Billy's Island, June, 1912, 2 ♀.

Unfortunately the specimen in Mr. Emerton's collection which he used for comparison for many years was not *nigripalpis* but

purpurescens. This has caused considerable confusion and explains why he redescribed the species as *tarsalis*. We compared the types of *similis* and *nigripalpis* and found them identical.

***Ceratinopsis obscura* Emerton**

(Figures 29–30)

Ceratinopsis obscura Emerton, Can. Ent. 51: 105, pl. 7, fig. 2, 1919.

MALE. Length, 2 mm. Cephalothorax dark brownish, darker in front, rather broad, the sides converging towards the front. The cephalothorax is larger and the head broader than in *nigriceps*.

Posterior eyes in a straight line, the median a little more than the diameter apart and a little farther from the lateral. Anterior eyes in a slightly recurved line, the median close together but separated from the lateral by a little more than the diameter. Chelicerae brownish at base and lighter at tip. Sternum dark brown, shining, rather broad. Hind coxae separated by nearly the length. Legs brown, coxae margined at tip beneath with black.

Patella of palpus shorter than tibia without the apophysis. The tibia armed on the dorso-lateral angle with a stout process directed forward, rounded at tip and slightly excised at base on the mesal side. Back of this process the tibia is not so strongly thickened as in *nigriceps*. The paracymbium long, slender, curved in a semicircle with a small sharp hook at tip. Tail-piece of the embolic division long, the middle part extends in an open spiral to the tip of the bulb where the terminal part or embolus proper arises from it at an acute angle. The embolus is very slender and lies parallel to the middle part, the tip close to the bezel.

Redescribed and figured from the type, Minaki, Ont., July 10, 1917.

***Ceratinopsis purpurescens* Keyserling**

(Figures 31–35)

Ceratinopsis purpurescens Keyserling, Spinn. Am. Therid. 2: 187, pl. 17, fig. 248. 1886.

Ceratinopsis unicolor Crosby, Phila. Acad. Nat. Sci. Proc. 1905, p. 341.

MALE. Length, 1.8 mm. Cephalothorax dusky orange, blackish on the ocular area and immediately back of it; viewed from above evenly rounded on the sides with a very slight constriction at the cervical groove, broadly rounded across the front; viewed from the side gently and evenly arched

over the back to the posterior eyes. Clypeus concave below the eyes, somewhat protuberant across the middle.

Posterior eyes in a straight line, equal, separated by a little more than the diameter. Anterior eyes in a slightly procurved line, equal, the median separated by the radius and from the lateral by the diameter. Chelicerae reddish orange basally, fading to yellow distally. Sternum and labium dusky orange. Endites paler. Legs orange basally, nearly black distally. Abdomen reddish orange yellow in front becoming nearly black posteriorly. Spinnerets blackish.

Femur of palpus nearly straight dorso-laterally, curved inward, the inner face without hairs except for a row of six hairs on the distal half. Patella rather short and moderately curved downward. Ratio of length of femur to that of patella as 16 to 7. Tibia short and broad distally, armed mesally with a minute blunt tooth, the dorsal margin straight, armed laterally with a long, stout apophysis, the ventral surface of which is finely dentate, the lateral margin sinuate. The paracymbium strongly curved. The bezel rather high and broad. The tail-piece of the embolic division long and the tip curved inward on the edge of the tegulum. The middle part of the embolus rather stout and broad, making one-half turn after merging from behind the bezel, not produced beyond the break, the terminal part curved back along the middle part, rather stout, the tip lying next to the bezel. The tip of the embolus provided on the concave side with a thin, rather broad, hyaline projection.

FEMALE. Length, 2.3 mm. Resembles the male in form and color. The epigynum bounded in front by a transverse ridge; the middle quadrate area outlined by a row of hairs directed diagonally inward, the middle lobe broadly rounded behind.

A male and female from Columbia, Mo., were collected while mated and killed before they were able to separate. The embolus was inserted under the right side of the middle lobe at the angle which it makes with the lateral wall of the central fovea. All of the embolus beyond the point opposite the bezel was inserted. The epigynum containing the embolus was removed and cleared. It was found that the embolus after passing through the external opening turns first outward, then forward, inward and backward to form an almost complete circle with the "break" of the embolus lying very close to the point of entrance. The terminal part of the embolus, beyond the "break," takes a transverse course outward but the tip turns backward and lies just dorsad of the receptacles.

Type locality: Washington, D. C.

Massachusetts: Blue Hills, Boston, June 25, 1904, 2 ♂ (Emerton).

New York: Baiting Hollow (Sound Beach), L. I., May 23, 1924, 1 ♂, 2 ♀, May 31, 1923, 1 ♀; Yaphank, Aug. 29, 1916, 2 ♀; Cold Spring Harbor, June, 1921, 2 ♀ (E. G. Anderson).

New Jersey: Lakewood, April 16, 1910, 2 ♂, 3 ♀; Cassville, 1 ♂, 2 ♀ (determined by Emerton as *nigripalpis*).

Maryland: Plummers Id., May 18, 1913, 1 ♂ (Shoemaker); Little Paint Branch, June 9, 1912, 1 ♀ (Shoemaker).

Virginia: Great Falls, April 3, 1921, 2 ♂, 5 ♀; Rhododendron Run, May 18, 1912, 1 ♂ (Shoemaker).

North Carolina: Black Mt., North Fork Swannanoa River, 1 ♂, 1 ♀.

Kentucky: Quicksand, June 25, 1925, 1 ♀; Brooklyn Bridge, June 29, 1925, 3 ♀.

Missouri: Columbia, 1 ♂, 1 ♀, taken in coitu; May, 1904, 1 ♀; June 4, 1906, 1 ♀, taken with egg sac on under side of leaf.

Keyserling also records the species from Florida and Georgia.

Some confusion has arisen from the fact that Mr. Emerton's specimen of *C. nigripalpis* which he used instead of the type for comparison was not that species but was *C. purpurescens*.

Ceratinopsis sutoris new species

(Figures 36-38)

MALE. Length, 1.3 mm. Cephalothorax orange red, head black, the dark area broadly rounded behind and extended in front half way across the clypeus. Cephalothorax viewed from above evenly rounded on the sides with a very slight constriction at the cervical groove, the head broad, straight across the front, the lateral eyes slightly protuberant; viewed from the side, rather steeply ascending and gently arched to the posterior eyes. Clypeus strongly convex above and gently concave below, protuberant.

Posterior eyes in a straight line, the median separated by the diameter and a little farther from the lateral. Anterior eyes in a straight line, the median smaller than the lateral, subcontiguous, separated from the lateral by one and one-half times the diameter.

Chelicerae, sternum and endites orange red, the sternum roughened and suffused with dusky on the sides and behind. Legs and palpi pale orange yellow. Abdomen reddish, blackish in the middle and along the sides; in

another specimen pale reddish without black markings, tip black around the spinnerets.

Patella of palpus short; tibia short and broad, the dorso-lateral process large, pointed-triangular and minutely denticulate on the inner margin. At the base of this process on the mesal side are two slender black incurved teeth arising one above the other. The lower tooth has a minute denticle at its middle below. Paracymbium slender, bent in a right angle at middle and at an acute angle near tip, basally armed with a row of stiff hairs. Bezel transverse, ending in two sharp points towards the tip of the bulb. Tail-piece of the embolic division very long, slender, strongly curved and extending to the base of the cymbium; the middle part of the embolic division emerges from behind the bezel as a rather broad flattened rod which, after making one-half of a spiral turn, ends in a sharp point at the tip of the cymbium; the slender terminal part or embolus proper arises before this point on the mesal side and curves back along the middle part. The median apophysis appears as a conspicuous, brownish, flattened, sinuate, pointed tooth.

FEMALE. Length, 1.4 mm. Similar to the male in form and color. Anterior eyes in a slightly procurved line, the median smaller than the lateral, separated by the radius and from the lateral by three times the radius.

The epigynum has the transverse arm broad and short and covered from in front by a broad transverse lobe the posterior margin of which is gently concave. This lobe is strongly depressed across the middle.

Type, male: allotype, female. Eastern Branch near Bennings, D. C., Dec. 3, 1911 (Shoemaker).

District of Columbia: Eastern Branch, Feb. 23, 1913, 16 ♀ (Shoemaker).

Florida: Bunnell, Feb. 21, 1927, 1 ♂ (M. D. Leonard).

Louisiana: Baton Rouge, 2 ♀.

Ceratinopsis xanthippe Keyserling

Erigone xanthippe Keyserling, Spinn. Am. Therid. 2: 192, pl. 18, fig. 251. 1886.

This species, described from the female only, we place provisionally in the genus *Ceratinopsis*. The roughened sternum would relate it to *sutoris* but the figure of the epigynum precludes the possibility of their being identical.

CERATINOPSIDIS new genus

Type *Cornicularia formosa* Banks

While the type species of this genus has a superficial resemblance to *Ceratinopsis*, in which it was placed by Emerton, the

structure of the embolic division of the palpal organ clearly indicates that it is not closely related to that group. In *Ceratinopsis* the embolic division is of the spiral type as in *Ceraticelus*, *Grammonota*, etc. In *formosa* the embolic division is of a peculiar form and does not resemble that of any other species which we have studied.

Ceratinopsidis formosa Banks

(Figures 39-42)

Cornicularia formosa Banks, Phila. Acad. Nat. Sci. Proc. 1892, p. 34, pl. 5, fig. 35.

Lophocarenum venustum Banks, Same, p. 36, pl. 4, fig. 5.

Tmeticus luxuosus Banks, Same, p. 39, pl. 4, fig. 16.

Prosopotheca formosa Crosby, Phila. Acad. Nat. Sci. Proc. 1905, p. 307, 331.

Ceratinopsis alternata Emerton, Conn. Acad. Sci. Trans. 14: 185, pl. 2, fig. 6. 1909.

Banks (Phila. Acad. Nat. Sci. Proc. 1916, pp. 72, 73, and 74) states that *Tmeticus luxuosus* is the same as *C. alternatus* Em. and that *Cornicularia formosa* and *Lophocarenum venustum* equal *Gonatium rubens* Blackw. The latter statement is an error. The types of both *venustum* and *formosa* are females and the epigynum when viewed through a low power lens looks somewhat like that of *rubens*. When examined under a microscope they are seen to be the same as *C. alternatus* Em. In November, 1923, one of us examined these types with Mr. Banks and he concurred in our views.

MALE. Length, 2.1 mm. Cephalothorax orange yellow, viewed from above rather broad, evenly rounded on the sides behind, the sides nearly straight and convergent towards the front, head broad across the front, the eyes in profile. Cephalothorax viewed from the side gently and evenly arched over the back to the eyes. Clypeus vertical, slightly concave.

Posterior eyes in a straight line, equal, separated by the diameter. Anterior eyes in a straight line, the median smaller than the lateral, separated by a little less than the diameter and from the lateral by the diameter. Sternum, labium and endites orange yellow, the endites pale at tip. Legs and palpi yellow. Abdomen light gray. Spinnerets blackish.

Femur of palpus nearly straight. Patella rather large, curved downward, armed below at tip with a rather long round-tipped process gently curved forward. Ratio of length of femur to that of patella as 20 to 10. Tibia

short, greatly widened distally, the dorso-mesal margin produced into a short broadly rounded lobe, the dorso-lateral angle armed with a large erect process. Paracymbium rather small, strongly curved with short hook. Tegulum greatly enlarged ventrally produced into a large triangular point. Embolic division consists of a short boot-shaped tail-piece (the foot of the boot lying on the edge of the tegulum) from the side of which at the tip the middle part arises. This part is thin, short and black, armed on one side near the base with a sharp erect tooth and on the other side near the middle with a quadrate projection in the posterior corner of which is the opening of the ejaculatory duct. The embolus terminates in a stiff slender black style.

FEMALE. Length, 2.2 mm. Similar to the male in form and color. Epigynum is a weakly chitinized quadrate plate; the central fovea large, nearly square, broadly rounded in front.

Type locality: Ithaca, N. Y.

New Hampshire: West Swanzey, Sept. 3, 1926, 1 ♂, 1 ♀ (Forbes).

Vermont: East Corinth, Aug. 17, 1925, 1 ♂.

Massachusetts: Princeton, Sept. 13, 1922, 1 ♀; Aug., 1925, 1 ♀ (Forbes).

New York: Mt. Whiteface, 2300 ft., Aug. 25, 1916, 3 ♂ (Emerton det.); Wilmington, Aug. 24, 1921, 1 ♀; Wilmington Notch, Aug. 21, 1926, 1 ♂ (Emerton det.); High Falls, Essex Co., Aug. 23, 1921, 5 ♀, on under side of leaves; Elizabethtown, Aug. 21, 1921, 2 ♀; Newcomb, Sept. 20, 1924, 1 ♂, 1 ♀; Whetstone Gulf, Lewis Co., Sept. 2, 1926, 1 ♂, 1 ♀; Cranberry Creek, Pinnacle Mt., Aug., 1911, 4 ♂, 15 ♀ (Emerton det.); Rock City, Cattaraugus Co., Aug., 1918, 1 ♂, 2 ♀; Montour Falls, Sept. 21, 1924, 2 ♀; Ithaca, July 12, 1925, 1 ♂, Aug. 6, 1922, 1 ♀; Mt. Utsayantha, Oct. 21, 1924, 1 ♀; Silver Bay, Sept. 15, 1925, 1 ♀ (Leonard); Juanita Island, Lake George, Aug. 4, 1920, 3 ♂, 2 ♀; Shelving Rock Mt., July 27, 1920, 15 ♂, 2 ♀; Pearl Point, Lake George, July 29, 1920, 2 ♂, 1 ♀; Lake Bluff, Sept. 9, 1920, 3 ♀; Lancaster, 1 ♂ (Van Duzee); Queechy Lake, Aug. 26, 1920, 1 ♂ (Schoonmaker); Hunter, Aug. 10, 1923, 1 ♂, Aug. 16, 1925, 2 ♂, 1 ♀ (Mills & Frane); Riverhead, Sound Beach, Sept. 10, 1922, 1 ♀.

Pennsylvania: Arendtsville, 1 ♀ from stomach of *Hyla crucifer* (S. W. Frost); New Bloomfield, Oct. 31, 1924, 2 ♀; Hazleton, July 4, 1925, 1 ♀ (Dietz).

Maryland: Glen Echo, 1925, 1 ♀ (Fouts).

Virginia: Alberta, Oct. 27, 1923, 1 ♀; near Georgetown, D. C., Sept. 27, 1913, 2 ♀ (Shoemaker); Rocky Mount, Oct. 8, 1923, 1 ♀; Blacksburg, Oct. 4, 1926, 3 ♀ beating.

North Carolina: Nantahala Gap, Macon Co., Oct. 11, 1926, 1 ♀; Hendersonville, Stoney Mt., Oct. 18, 1923, 1 ♀; Madison, Oct. 8, 1923, 6 ♀; Grandfather Mt., Oct. 12, 1923, 1 ♀; Hintons Falls, Dec. 21, 1923, 1 ♀ (Mabee); Mt. Pisgah, Oct. 13, 1926, 2 ♀; Base of Mt. Pisgah, Oct. 19, 1923, 1 ♀; Raleigh, Oct. 26, 1923, 5 ♀.

Tennessee: Mt. Leconte, Mill Creek below Falls, Oct. 10, 1926, 11 ♀.

Emerton has recorded this species from New Hampshire: Three-mile Id.; Jaffney; Massachusetts: Mt. Tom; Connecticut: Simsbury; North Carolina: Balsam.

TUTAIBO Chamberlin

Mus. Comp. Zool. Bul. 60 (6): 237, 1916.

Type: *T. debilipes* Chamberlin.

This genus is rather closely related to *Ceratinopsis* in the structure of the embolic division of the bulb of the male palpus but differs from it in the armature of the tibia of the male palpus, in the extraordinary length of the embolus, and in the long, slender legs.

Tutaibo debilipes Chamberlin

(Figures 43-44)

Tutaibo debilipes Chamberlin, Mus. Comp. Zool. Bul. 60 (6): 237, pl. 17, figs. 9, 10, 1916.

Tibia of male palpus longer than patella and greatly widened distally on the lateral side so that end of the segment is triangular with a small sharp tooth near each angle. The paracymbium slender and only slightly hooked at tip. The embolic division of the spiral type as in *Ceratinopsis*. The tail-piece long, thin, curved and somewhat twisted; the middle part stout, black and spirally coiled in one turn, continued in a sharp point beyond the insertion of the embolus. The embolus slender and of extraordinary length arising from the middle part at nearly a right angle. It then follows a complicated course over the face of the bulb as shown in figure 44.

Peru: Huadquina, 5000 ft., July, 1 ♂, the type.

PLATES III TO VI

EXPLANATION OF FIGURES

1. *Ceratinopsis anglicana*, ♂ right palpus, ventral view.
2. *Ceratinopsis anglicana*, ♂ right palpus, lateral view.
3. *Ceratinopsis anglicana*, ♂ right palpus, tibia, dorso-lateral view.
4. *Ceratinopsis anglicana*, ♀ epigynum.
5. *Ceratinopsis atolma*, ♂ left palpus, ventral view.
6. *Ceratinopsis atolma*, ♂ left palpus, dorso-mesal view.
7. *Ceratinopsis atolma*, ♂ left palpus, tibia, meso-dorsal view.
8. *Ceratinopsis auriculata*, ♂ right palpus, lateral view.
9. *Ceratinopsis auriculata*, ♂ right palpus, ventral view.
10. *Ceratinopsis auriculata*, ♂ right palpus, tibia, dorsal view.
11. *Ceratinopsis auriculata*, ♀ epigynum.
12. *Ceratinopsis auriculata*, ♂ cephalothorax, lateral view.
13. *Ceratinopsis auriculata*, ♂ cephalothorax, dorsal view.
14. *Ceratinopsis interprex*, ♂ right palpus, ventro-lateral view.
15. *Ceratinopsis interprex*, ♂ right palpus, ventral view.
16. *Ceratinopsis interprex*, ♂ right palpus, tibia, dorsal view.
17. *Ceratinopsis interprex*, ♀ epigynum.
18. *Ceratinopsis laticeps*, ♂ right palpus, lateral view.
19. *Ceratinopsis laticeps*, ♂ right palpus, ventral view.
20. *Ceratinopsis laticeps*, ♂ right palpus, tibia, dorsal view.
21. *Ceratinopsis laticeps*, ♀ epigynum.
22. *Ceratinopsis nigriceps*, ♂ right palpus, lateral view.
23. *Ceratinopsis nigriceps*, ♂ right palpus, ventral view.
24. *Ceratinopsis nigriceps*, ♂ right palpus, tibia, dorsal view.
25. *Ceratinopsis nigriceps*, ♂ right palpus, tibia, lateral view.
26. *Ceratinopsis nigriceps*, ♀ epigynum.
27. *Ceratinopsis nigripalpis*, ♂ right palpus, tibia, dorsal view.
28. *Ceratinopsis nigripalpis*, ♀ epigynum.
29. *Ceratinopsis obscura*, ♂ right palpus, dorsal view.
30. *Ceratinopsis obscura*, ♂ right palpus, ventral view.
31. *Ceratinopsis purpurescens*, ♂ right palpus, lateral view.
32. *Ceratinopsis purpurescens*, ♂ right palpus, ventral view.
33. *Ceratinopsis purpurescens*, ♂ right palpus, tibia, dorsal view.
34. *Ceratinopsis purpurescens*, ♀ epigynum.
35. *Ceratinopsis purpurescens*, ♀ epigynum, with embolus of male palpal organ in place.
36. *Ceratinopsis sutoris*, ♂ right palpus, ventral view.
37. *Ceratinopsis sutoris*, ♂ right palpus, lateral view.
38. *Ceratinopsis sutoris*, ♀ epigynum.
39. *Ceratinopsidis formosa*, ♂ right palpus, lateral view.

40. *Ceratinopsidis formosa*, ♂ right palpus, tibia, dorso-mesal view.
41. *Ceratinopsidis formosa*, ♂ embolic division of right palpal organ.
42. *Ceratinopsidis formosa*, ♀ epigynum.
43. *Tutaibo debilipes*, ♂ right palpus, dorsal view.
44. *Tutaibo debilipes*, ♂ right palpus, ventro-mesal view.

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