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The Spider Genus *Tegenaria* in the Western Hemisphere (Agelenidae)

By Vincent D. Roth[1]

The genus *Tegenaria* contains some of the most common and widespread spiders. One of these, the "house spider," *Tegenaria domestica* (Clerck), the best known, is found in and near habitations of man throughout the world. Several other species of *Tegenaria* are extending their ranges in many parts of the world. Recent introductions include *T. saeva* Blackwall into southwestern Canada, *T. pagana* C. L. Koch into the southern and western United States and Chile, and *T. agrestis* (Walckenaer) into the Pacific Northwest.

In 1952 I reviewed the genus *Tegenaria* in North America and placed many of the species described, mainly by American workers, into synonymy. Later, after a belated study of European *Tegenaria,* more synonymy was discovered and noted in the literature (Roth, 1956). Now, 11 years later, additional material is at hand, and more detailed studies are available on some of the species concerned (Dresco, 1957; Denis, 1959), necessitating an up-to-date review of the genus.

My original belief that all species of *Tegenaria* in the Western Hemisphere were introduced (Roth, 1956, p. 175) was weakened by the discovery of undescribed forms of *Tegenaria* in caves near Mexico City in late 1956, and finally disproved in 1963 with the discovery of a species in the Chiricahua and Huachuca Mountains in southeastern Arizona.

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It is now certain that four of the seven species recorded in the present paper are introduced and that the remaining three are endemic. *Tegenaria praegrandis* Fox, from Washington, D. C., is synonymized with *T. atrica* C. L. Koch rather than *T. larva* Simon on the basis of work done by Denis (1959). Because of the questionable locality record (Roth, 1952, p. 287), this species is not included in the text of this paper.

Only the synonymy of species described from the Western Hemisphere is given. Additional references and the synonymy of Eastern Hemisphere species can be obtained from Bonnet's "Bibliographia Araneorum" and Roewer's "Katalog der Araneae." North American species formerly placed in *Tegenaria* or of uncertain status have been discussed previously (Roth, 1952, pp. 287–288; 1956, pp. 175–176) and are not reviewed here. Walckenaer's (1841, p. 13) *Tegenaria insularis* from Cuba must be added to the list of unknown species. Simon (1898, p. 256) questioned that it even belonged to the genus, or to the family Agelenidae.

Ratios

All ratios were made by dividing the smaller measurement (with few exceptions) into the larger and multiplying by 100. For instance, the carapace/tibia-patella ratio is obtained in the following manner:

$$\text{tibia-patella: carapace} \times 100 = \text{ratio}$$

Other ratios and proportions not included in the paper were studied, but they added little to the data given. These studies are in my personal files and will be deposited eventually in the American Museum of Natural History.

The male palpal terminology is based on Gering's (1953) study of the agelenid palpi.

This study is based mainly on collections from the American Museum of Natural History, and all type material, unless otherwise noted, will be deposited there. I wish to express my thanks to Dr. W. J. Gertsch and Mr. Wilton Ivie of the American Museum of Natural History who furnished many specimens for study and reviewed the manuscript, and to Mr. George C. Steyskal of the United States National Museum of the Smithsonian Institution for the identification of the muscoid flies.

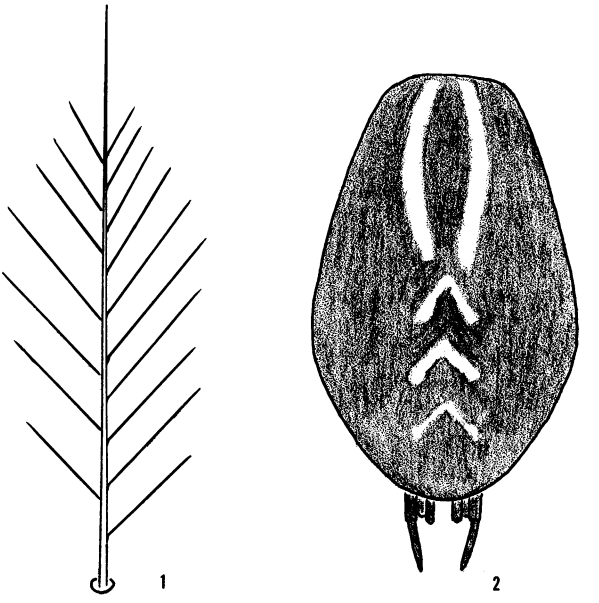
Genus *Tegenaria* Latreille

Tegenaria Latreille, 1804, p. 134.

Diagnosis: *Tegenaria* can be separated from all other agelenid genera by the presence of plumose hair (fig. 1) on the body and legs and by

having the eye rows straight to moderately procurved.

DESCRIPTION: (Based on the species described in this paper). Color in alcohol: Sclerotized parts dull-white to orange-brown; endites, labium, chelicera, and occasionally head and femur I darker. Carapace rimmed with gray, sides of head and each side of thoracic furrow with gray band; pale, irregular, longitudinal stripe over thoracic furrow and on sides of carapace between gray band and gray on edge of carapace.



FIGS. 1, 2. *Tegenaria* sp. 1. Plumose hair. 2. Typical dorsal abdominal pattern.

Sternum ranging from all gray to gray with pale median longitudinal line, occasionally broken in middle, in some specimens tridentate behind, flanked with three pale spots on each side. Legs with faint to dark rings, often obscure above, occasionally absent, especially distally; usually four on femur, one on patella, four on tibia, and three on metatarsus. Abdomen (fig. 2) gray above with light streak on each side of heart, in some cases joining behind, dividing to form several light chevrons; sides mottled; venter gray, often outlined by pale streaks from epigastric furrow to spinnerets.

Length of males, from 5.6 mm. to 13.5 mm.; of females, from 6.5 mm. to 15.0 mm. Carapace longer than wide, sides of head parallel,

covered with plumose hair. Eyes eight; anterior median eyes from one-half diameter to slightly larger than anterior lateral eyes; other eyes subequal; anterior and posterior eye rows straight to procurved (6/6). Clypeus about one and one-half times as wide as anterior lateral eye. Chelicera slightly to moderately geniculate; promargin with three or four teeth, occasionally five; retromargin with three to five teeth and one to three denticles. Labium longer than wide. Endites almost parallel. Sternum slightly longer than wide, produced to a point behind.

Carapace/tibia-patella ratio of males, 142–262; of females, 121–200. Tibia I with no spines or with from two to three pairs of spines. Trochanters not notched. Anterior spinnerets moderately separated by about one-fourth to one-half of their diameter; posterior spinnerets more widely separated, distal segment slightly shorter than, to almost twice as long as, basal segment. Colulus two and one-half times to six times as wide as long, with setose lobes laterally, joined in middle by glabrous area.

Palpus: Patella lacking apophysis; tibia with two distal apophyses; bulb with slender to moderately stout embolus terminating on or in conductor; median apophysis present (apparently absent from *T. flexuosa* F. O. P.-Cambridge). Epigynum variable, lateral spurs present (except on *T. chiricahuae,* new species).

DISTRIBUTION: Cosmopolitan.

TYPE SPECIES: *Araneus domesticus* Clerck.

KEY TO THE SPECIES OF *Tegenaria* OF THE WESTERN HEMISPHERE[1]

1. Median apophysis of male palpus not projecting outward, thin, shell-like, crescent-shaped, or absent. Epigynum very large, as long as wide..... 2
   Median apophysis of male palpus projecting or as long as broad, not crescent-shaped. Epigynum small, rectangular, much wider than long.... 4
2. Median apophysis of male palpus present..... 3
   Median apophysis of male palpus apparently absent. Female unknown. Distribution: Omilteme, Mexico ..... *flexuosa* F. O. Pickard-Cambridge
3. Apophysis of conductor bifid, crossing face of bulb. Sternum dark gray, with broad pale longitudinal median area. Epigynum with two indistinct spurs on glabrous area near epigastric furrow. Distribution: Pacific Northwest..... *agrestis* (Walckenaer)
   Apophysis of conductor simple, acuminate. Sternum with pale, longitudinal, median area flanked by three light spots on each side. Epigynum with two broad spurs extending over opening. Distribution: British Columbia ..... *saeva* Blackwall
4. Median apophysis projecting several times its width, membranous, sclerotized at tip, much longer than wide. Epigynum lacking lateral spurs or,

[1] No female is known for *Tegenaria flexuosa* F. O. Pickard-Cambridge.

if present, adjacent to glabrous area of epigynum..... 5

Median apophysis not projecting, about as broad as long. Sternum with faint median line. Epigynum with large lateral spurs separated by their length from glabrous area of epigynum. Distribution: Caves in southeastern Arizona and New Mexico.....*chiricahuae,* new species

5. Membranous tibial apophysis much shorter than heavily sclerotized apophysis. Epigynum narrow, transverse, much wider than long, with lateral spurs, in some cases hidden in epigastric furrow 6

Membranous tibial apophysis much larger than heavily sclerotized apophysis. Apophysis of conductor appearing simple from side; tip of embolus slender. Sternum with light center, usually tridentate posteriorly, flanked by two light spots on each side. Epigynum lacking spurs. Distribution: Southern United States, northern South America, and Chile .....*pagana* C. L. Koch

6. Embolus slender, whiplike; tip of apophysis of conductor simple, acuminate. Sternum with light longitudinal marking, lacking lateral lighter spots. Promargin of chelicera with four teeth, rarely three or five; retromargin with five or six teeth and one to three denticles. Membranous area anterior to glabrous area of epigynum convex. Distribution: Mexico .....
.....*mexicana* complex

Embolus stout for entire length, obliquely truncate at tip; apophysis of conductor appearing bifid at tip ectally. Sternum with lighter streak in center, usually with three pairs of spots on each side. Promargin of chelicera with three teeth; retromargin with four, no denticles. Membranous area anterior to glabrous area of epigynum narrow. Distribution: Cosmopolitan.....*domestica* (Clerck)

Tegenaria agrestis (Walckenaer)

Figures 3–8

Aranea agrestis WALCKENAER, 1802, p. 216.

Tegenaria magnacava EXLINE, 1936, p. 23, fig. 5. CHAMBERLIN AND IVIE, 1937, p. 213.

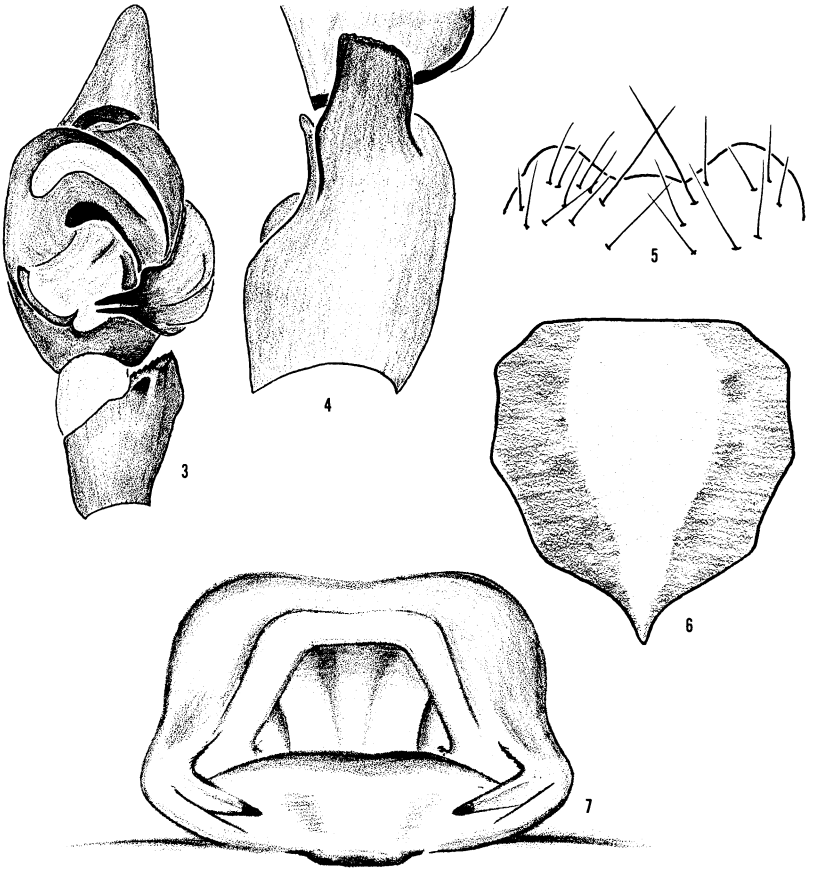
Tegenaria agrestis: EXLINE, 1951, pp. 308–310. ROTH, 1952, p. 284.

DIAGNOSIS: The bifid apophysis of the conductor of the male and the triangular to trapezoidal cavity of the epigynum separate *agrestis* from other species discussed in this paper.

DESCRIPTION: Legs unmarked. Sternum (fig. 6) with broad, pale, median area, darker on sides. Spinnerets orange-brown; distal segment of posterior spinnerets gray.

Male from Corvallis, Oregon: Total length, 10.0 mm.; average of three males, 11.0 mm.; ranging from 9.6 mm. to 11.9 mm. Carapace length, 5.2 mm. Tibia-patella I length, 7.5 mm. Carapace/tibia-patella ratio, 144.

Female from Seattle, Washington: Total length, 12.2 mm.; average of eight females, 12.1 mm.; ranging from 8.7 mm. to 11.5 mm. Cara-



FIGS. 3–7. *Tegenaria agrestis* (Walckenaer). 3. Ventral view of palpus. 4. Ectal view of palpal tibia. 5. Colulus. 6. Sternal pattern. 7. Epigynum.

pace length, 5.2 mm. Tibia-patella I length, 6.3 mm. Carapace/tibia-patella ratio, 121.

Anterior and posterior eye rows procurved (6/6). Eyes nearly equal in size; anterior median eyes slightly smaller to slightly greater in diameter than anterior lateral eyes. Promargin of chelicera with three teeth; retromargin with five teeth and two denticles, rarely five and three, four and two, or six and one or two teeth.

Spination: Tibia I, ventral 2-2-2-0; metatarsus I, ventral 2-2-2-3; tarsi III and IV with lateral spines. Distal segment of posterior spinnerets longer than basal segment by ratio of 110. Colulus (fig. 5) about

3.2 times as wide as long, heavily sclerotized, setose lobes laterally connected in middle by depressed glabrous area.

Male palpus: Total length, 6.8 mm.; femur, 2.5 mm.; tibia-patella, 2.0 mm.; cymbium, 2.3 mm. Carapace/palpus ratio, 131.

Tibia (figs. 3, 4) with short, flat, truncated, ectal spur, with tiny black spur ventrad at base; cymbium (fig. 4) short, with flattened area and carina at base dorsally opposite tibial spur; bulb large, embolus

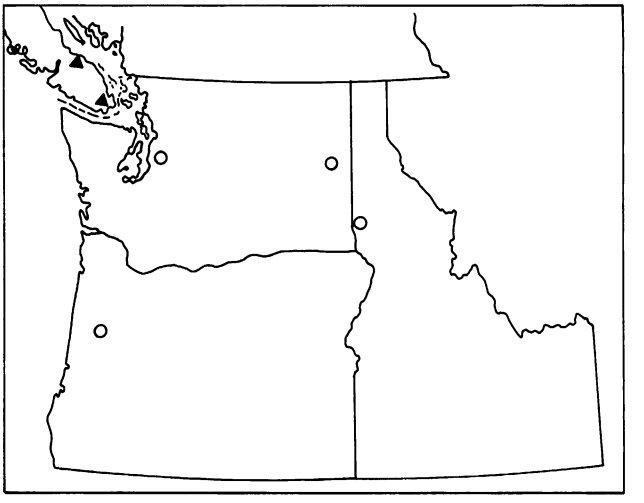


FIG. 8. Distribution of *Tegenaria saeva* Blackwall (triangles) and *T. agrestis* (Walckenaer) (circles).

arising at mesial side of bulb distally, crossing bulb, resting in conductor; apophysis of conductor terminating in two distinct, parallel, acuminate spurs; median apophysis very short, crescent-shaped.

Epigynum (fig. 7) variable, with triangular to trapezoidal opening, lateral edges thickened, membranous; posterior area rectangular to triangular, slightly sclerotized, glabrous, broader in center, with short transverse carina on posterior edge flanked by spur at each side.

DISTRIBUTION: Europe east to Russia. Introduced into North America. Washington: Seattle, Spokane. Oregon: Corvallis. Idaho: Moscow. In buildings and greenhouses.

Tegenaria chiricahuae, new species

Figures 9–12

DIAGNOSIS: This is the only endemic species of *Tegenaria* in the United

States. It differs from all other *Tegenaria* in the Western Hemisphere by the position of the spurs on the epigynum and the short median apophysis.

DESCRIPTION OF MALE HOLOTYPE: Legs faintly marked, femora with four gray rings, obscure above. Sternum gray, with light, narrow, indistinct, median line. Anterior spinnerets orange-brown, posterior spinnerets with basal segment gray, distal segment pale.

Total length, 7.4 mm.; Carapace length, 3.6 mm.; width, 2.8 mm.; tibia-patella I length, 8.3 mm. Carapace/tibia-patella ratio, 231.

Anterior eye row procurved (5/6); posterior eye row procurved (4/6). Ratio of eyes: AME/ALE/PME/PLE:3/6/6/5. Promargin of chelicera with three teeth; retromargin with three teeth, one denticle.

Spination: Tibia I, ventral none; metatarsus I, ventral 2-lp-lr-3; tarsi III and IV lacking spines. Anterior spinnerets separated by about half of their diameter; distal segment of posterior spinnerets as long as basal. Colulus similar to that of *agrestis* but not sclerotized; patches of setae more distinct, more separated.

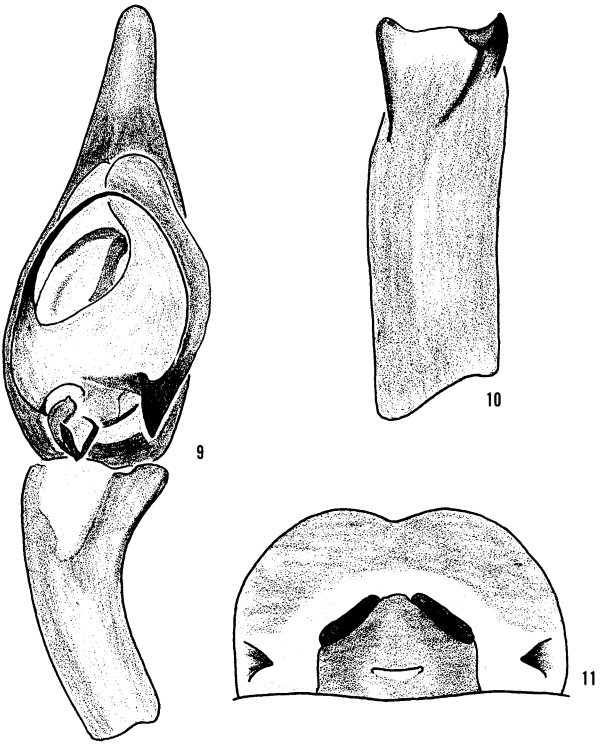
Male palpus: Total length, 4.38 mm.; femur, 1.53 mm.; tibia-patella, 1.36 mm.; cymbium, 1.50 mm. Carapace/palpus ratio, 122. Palpus (fig. 9) moderately stout; tibia with ectal, broad, bifid projection distally (fig. 10), dorsal spur heavily sclerotized, slightly pointed; ventral spur membranous, rounded distally; embolus arising mesiad on bulb, forming half-circle, terminating in conductor; apophysis of conductor simple, acute, directed toward base of cymbium; median apophysis short, about half as broad as long, sides raised to form V-shaped cavity.

Female allotype: Total length, 9.6 mm.; carapace length, 4.4 mm.; width, 3.0 mm.; tibia-patella I length, 8.8 mm. Carapace/tibia-patella ratio, 200. Female similar to male but differing as follows: Gray markings absent from sclerotized parts. Anterior eye row procurved (4/6); posterior eye row straight. Promargin of chelicera with four teeth on right side, three on left; retromargin with four teeth, three equidistant, mesial tooth closer.

Spination: Tibia I, ventral 1 (or 0) at base; metatarsus I, ventral 2-0-lr (or 2)-3. Colulus sclerotized only on lateral edges, otherwise similar to that of male.

Epigynum (fig. 11): Sclerotized convex plate surrounded by narrow membranous area; flanked on each side by distinct spur.

TYPE DATA: All type material was collected in shallow caves by the author in Cave Creek Canyon, Chiricahua Mountains, opposite the Southwestern Research Station and 2 miles northeast down the canyon, Cochise County, Arizona. Male holotype, November 28, 1963; female



FIGS. 9–11. *Tegenaria chiricahuae,* new species. 9. Ventral view of palpus. 10. Ectal view of palpal tibia. 11. Epigynum.

allotype, June 30, 1963; female paratype, December, 1966 (a male was also collected on this date but later escaped); female and two immature paratypes, April 20, 1963; female and immature paratype, November 30, 1962. Female paratypes will be deposited in the Muséum d'Histoire Naturelle, Paris, Swedish Museum of Natural History, Stockholm, and the Museum of Comparative Zoology, Cambridge, Massachusetts.

OTHER RECORDS: Arizona, Cochise County, Huachuca Mountains, cave in Carr Canyon, 6000 feet in altitude, March 23–26, 1964 (Murray Eells, Larry La Pré), male, female, and two immatures. New Mexico, Eddy County, Kincade Cave, September, 1966 (T. Meador), immature female; Iseles Cave, September, 1966 (T. Meador), immature male; Lonesome Ridge Deep Pit, April 14, 1963 (Bill Bell), three immatures at bottom of 100-foot entrance drop.

REMARKS: Some variations were noted in the specimens on hand.

The male and immature specimens from the Huachuca Mountains have much darker markings, especially on the legs, sternum, and thorax, but appear identical in other respects. The specimens from New Mexico were represented by immature spiders but are morphologically similar and differ only by the much lighter coloration and markings on the abdomen.

The average length of five females is 9.22 mm.; the range is from 8.2 mm. to 11.0 mm. Posterior eye row slightly procurved (4/6) to straight. Promargin of chelicera usually with three teeth, rarely four; retromargin with three teeth and one denticle or four teeth, rarely with

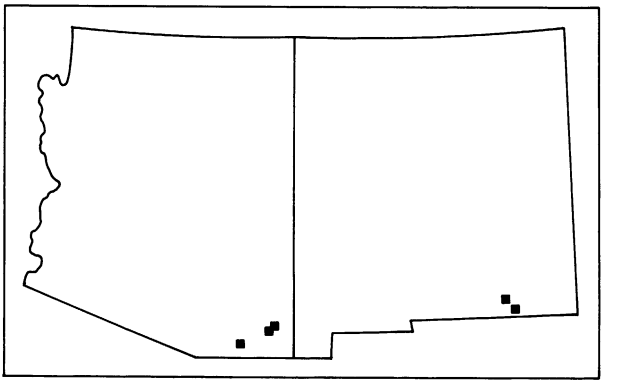


FIG. 12. Distribution of *Tegenaria chiricahuae,* new species.

three or five teeth. Tibia I occasionally with two ventral spines at base. Tarsus IV occasionally with lateral spines.

Tegenaria chiricahuae forms a typical *Tegenaria* sheet web on the walls, ceiling, or floor, wherever a suitable crevice offers protection. The spider rests in its funnel, facing outward toward the sheet, awaiting its prey. Notes taken by Murray Eells and Larry La Pré, supplemented by my own observations, indicate that this species occurs only in shallow caves or overhangs where there is only a small amount of light. The New Mexican specimens may have come from darker areas. The specimens from the Huachuca Mountains were collected 100 feet inside the cave, but there was still some light. A probable reason for their presence only near the entrance is that insect life in total darkness in Arizona caves is almost non-existent. In the Chiricahua Mountains caves where *chiricahuae* is found, cave crickets (*Ceuthophilus chiricahuae* Hubbell) and muscoid flies [*Neomuscina tripunctata* (Wulp)] are also found. The fly occurs by the thousands in the caves, especially in cool weather. The only other

insect commonly found in other caves in the same area is the carabid beetle *Agonum* (*Rhadine*) *perlevis* Casey.

In spite of extensive collecting in the caves in the Chiricahua Mountains, it appears that *chiricahuae* occurs in only two caves and is scarce in them. One is near the floor of Cave Creek Canyon about 2 miles northeast of the Southwestern Research Station, and the other, high off the canyon floor at about 6000 feet in altitude, is opposite the Station. A recent survey (1967) of the two caves disclosed the presence of only a single immature female, which was not disturbed.

Other caves and mine shafts have been searched in the Chiricahua Mountains, and the following spiders were obtained: *Eidmannella pallida* Emerton, 1 mile north of Portal, deep in a damp, horizontal mine shaft; *Theridion cochise* Levi in Outlaw Cave at the Paradise-Galeyville border; *Achaearanea canionis* (Chamberlin and Gertsch) in Buckelew Cave; *Physocyclus enaulus* Crosby in a shallow cave on a limestone ridge north of Portal; *Physocyclus tanneri* Chamberlin in both caves where *chiricahuae* was collected; and a species of *Psilochorus* related to other undescribed species from caves in the southwest, also collected in the upper cave in Cave Creek Canyon. Some of these caves appear to have their peculiar spider fauna, even though four of the species listed above are found outside caves but in protected cavities. *Eidmannella pallida* Emerton is often found in cavities in the soil, and only an undescribed species of *Psilochorus* and *T. chiricahuae,* new species, have been found in caves alone.

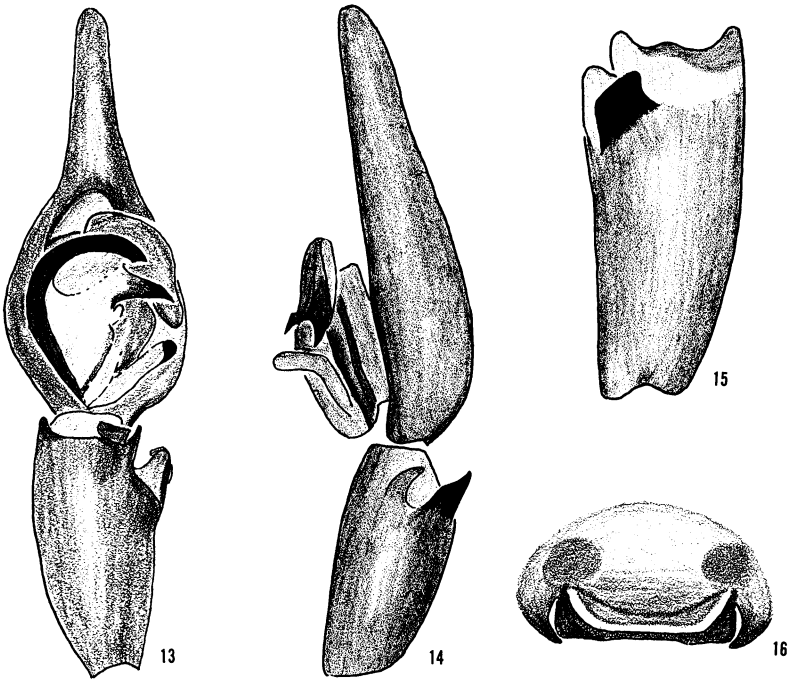
Tegenaria domestica (Clerck)

Figures 13–18

Araneus domesticus Clerck, 1757, p. 76, fig. 9.
Tegenaria civilis Walckenaer: Holmberg, 1876, p. 180; 1881, p. 135.
Tegenaria detestabilis O. Pickard-Cambridge, 1877, p. 275.
Tegenaria modesta Keyserling (not Banks), 1878, p. 594, pl. 14, figs. 17–18.
Tegenaria domestica (Clerck): Roth, 1952, p. 285; 1967, pp. 314–315, pl. 51, figs. 4–5. Shear, 1967, pp. 12–13, figs. 35–36.

Diagnosis: The presence of three teeth on the promargin of the chelicera and four teeth and no denticles on the retromargin on *domestica* separate it from all other species except for a few specimens of *pagana* which differ by lacking spurs on the female genitalia and by having the membranous tibial apophysis much larger than the sclerotized one.

Description: Some specimens without markings. Normally legs with light rings, incomplete above on femora. Sternum (figs. 17, 18) with broad, light, longitudinal streak, narrower behind, flanked by three light spots on each side, in some cases very indistinct. Spinnerets pale.



FIGS. 13–16. *Tegenaria domestica* (Clerck). 13. Ventral view of palpus. 14. Ectal view of palpus. 15. Dorsal-ectal view of palpal tibia. 16. Epigynum.

Male from Cedar Lake, Stevens County, Washington: Total length, 7.0 mm.; average of 14 males, 7.21 mm., ranging from 6.2 mm. to 8.8 mm.; carapace length, 3.1 mm.; tibia-patella I length, 4.4 mm. Carapace/tibia-patella ratio, 142.

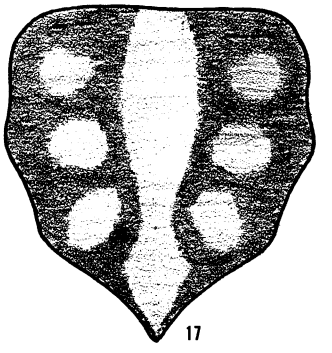
Female from same collection: Total length, 9.7 mm.; average of 21 females, 8.25 mm.; ranging from 6.3 mm. to 10.1 mm.; carapace length, 4.2 mm.; tibia-patella I length, 5.5 mm. Carapace/tibia-patella ratio, 131.

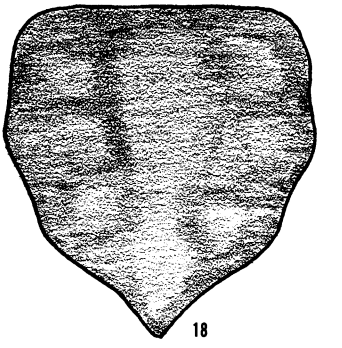
Anterior and posterior eye rows procurved (4/6). Eyes nearly equal in size; anterior median eyes about four-fifths of diameter of other eyes. Promargin of chelicera with three teeth, retromargin with four, occasionally with three teeth (five out of 20 specimens).

Spination: Tibia I, ventral 2-2-0(or lp); metatarsus I, ventral 2-2-3; tarsi III and IV lacking lateral spines. Distal segment of posterior spinneret slender, slightly shorter than, or as long as, basal segment. Colulus not sclerotized, similar in shape to that of *agrestis* but not so conspic-

uous, at first appearing like two separated setose lobes.

Male palpus (figs. 13–15): Total length, 4.15 mm.; femur, 1.70 mm.; tibia-patella, 1.19 mm.; cymbium, 1.26 mm. Carapace/palpus ratio, 134. Tibia (fig. 14) with two distal apophyses, one dorsal-ectal, short, broad, obliquely truncate when viewed from above; ectal spur membranous, acute. Bulb of cymbium small, embolus stout, short, obliquely truncate, forming quarter circle, ending on short conductor; latter broadly bifid at tip; median apophysis membranous, attached at base





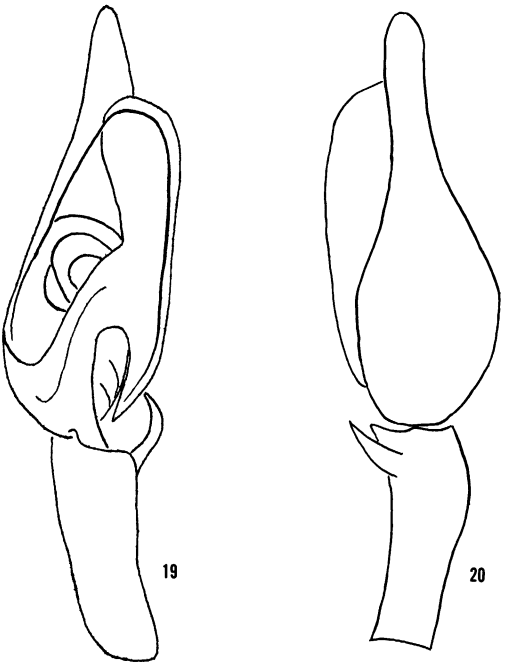
FIGS. 17, 18. *Tegenaria domestica* (Clerck). 17. Distinct sternal pattern. 18. Indistinct sternal pattern.

of bulb, with shape of an inverted L when seen from side. Shear (1967, p. 13) erroneously described this as the conductor, the conductor as the tegulum, and the apophysis of the conductor as the median apophysis.

Epigynum (fig. 16) transverse; globular spermathecae barely visible through integument, widely separated anterior to lateral edges of epigynum; narrow, sclerotized, transverse strip expanded at lateral edges situated along posterior border of epigynum; limited on sides by inconspicuous lateral spurs.

DISTRIBUTION: Cosmopolitan. Introduced into the Western Hemisphere. This species has been collected as far north as Ellesmere Island in northern Canada, south to and including Argentina and Chile. The habitat records indicate this spider is found mainly in human habitations with the exception of two pale specimens found in caves in Alabama.

NEW RECORDS: Alabama: Scottsboro, Great Saltpeter Cave, November 13, 1954 (T. Barr), female; Colbert County, Sheffield, Bridge Cave, May 1, 1942 (W. B. Jones), female. Guatemala: San Pedro, Yepocapa, March–April, 1945 (H. Elishewitz), immature male. Mexico: Hidalgo,



FIGS. 19, 20. *Tegenaria flexuosa* F. O. Pickard-Cambridge. 19. Ventral view of palpus. 20. Dorsal-ectal view of palpus. (Taken from F. O. Pickard-Cambridge, 1902.)

Ixmiquilpan (Rio Tula), latitude 99° 14′ W., longitude 20° 29′ N., April 21, 1963 (W. J. Gertsch, W. Ivie), male. Peru: Acomayo, near Huanuco (W. Weyrauch), female and three immatures.

Tegenaria flexuosa F. O. Pickard-Cambridge

Figures 19, 20

Tegenaria flexuosa F. O. PICKARD-CAMBRIDGE, 1902, p. 334, pl. 31, figs. 34, 34a. ROTH, 1952, pp. 285–286, figs. 1–2 (misidentification; see *T. mexicana,* new species).

DIAGNOSIS: The presence of two light median spots on the sternum separates this species from all other species discussed here except *mexicana.* From the latter it differs by the apparent lack of a median apophysis in the males. The female is unknown.

CHARACTERS: (Based on original description). Total length of male holotype, 7.0 mm. Legs ringed with black. Sternum brown, small pale spot at base of labium and elongate one in center.

Palpus (figs. 19, 20): Cymbium about twice as long as tibia; latter

with two apophyses, non-membranous apophysis shorter, sclerotized apophysis acuminate; conductor elongate, projecting anteriorly over half of cymbium tip. Apophysis of conductor acuminate.

TYPE DATA: Male holotype from Omilteme, Guerrero, Mexico. The type is in the British Museum (Natural History) but was not available for study nor could additional information be obtained regarding other characters.

Tegenaria mexicana, new species

Figures 21–29; table 1

Tegenaria flexuosa F. O. Pickard-Cambridge: ROTH, 1952, pp. 285–286, figs. 1–2 (misidentification).

DIAGNOSIS: The presence of denticles on the retromargin of the chelicera and the absence of lateral spots from the sternum separate this species from *domestica.* The presence of lateral spurs partially hidden in the epigastric furrow and the long, slender, median apophysis separate *mexicana* from other species discussed here except for *pagana,* from which it differs by the fact that the membranous apophysis of the tibia is smaller than the sclerotized apophysis.

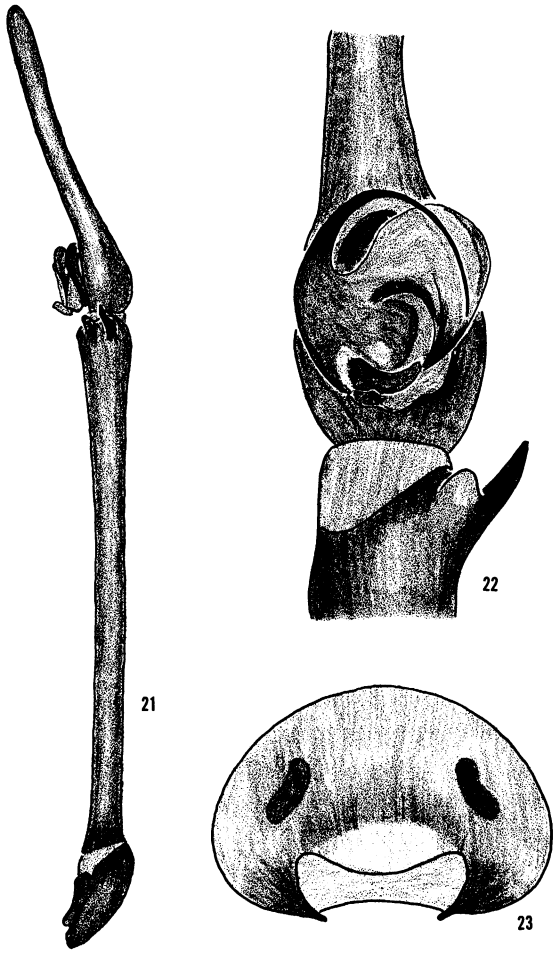
DESCRIPTION: Markings on carapace, legs, sternum ranging from being distinct to being absent from some. Sternum (figs. 24, 25) gray, in some individuals pale, usually with pale median line narrower behind, from some absent. Posterior spinnerets usually gray; distal segment often pale.

Males range in length from 5.6 mm. to 12.6 mm. Carapace/tibia-patella ratios range from 165 to 262. Females range in size from 6.1 mm. to 14.4 mm. Carapace/tibia-patella ratios range from 148 to 202.

Anterior eye row straight to procurved (6/6); posterior eye row procurved (3.5/6 to 6/6). Eyes subequal in size, anterior median eyes slightly smaller to slightly larger than other eyes. Promargin of chelicera with four teeth, in some cases three, rarely five or six; retromargin with five or six teeth, with one or two denticles, in some cases three, rarely with seven teeth and one denticle.

Spination: Tibia I, ventral none to two at base or 2-2-2-0; metatarsus I, ventral 1 or 2 distal to 2-2-2-3; tarsi III and IV with or without lateral spines. Distal segment of posterior spinneret varying from as long as basal segment to almost twice as long. Colulus (fig. 29) two and one-half to six times as wide as long, heavily sclerotized, barely sclerotized over lateral edges or not at all, divided into two setose lobes connected by glabrous area.

Male palpus (figs. 21, 22, 27, 28) slender to stout. Tibia with two



FIGS. 21, 22. *Tegenaria mexicana mexicana,* new subspecies. 21. Ectal view of palpus. 22. Ventral view of palpal bulb.

FIG. 23. *Tegenaria mexicana,* new species. Epigynum (specimen from Jacala, Hidalgo, Mexico).

ectal distal apophyses, short ventral membranous projection, and dorsal acuminate conductor; apophysis of conductor ending in slender point; median apophysis slender, flattened at tip, like that of *pagana.*

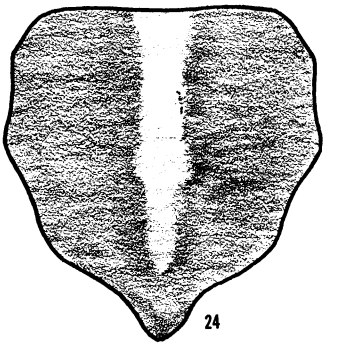
Epigynum (fig. 23) inconspicuous, consisting of narrow sclerotized piece wider than long, dilated at each end, membranous area anterior to sclerotized piece invariably convex; lateral integument adjacent to

epigynum projecting behind to form an inconspicuous spur on each side, sometimes broken off as epigynum is cleaned.

TYPE DATA: See the nominotypical subspecies, *T. mexicana mexicana,* new subspecies.

DISTRIBUTION: Mexico, from the states of Oaxaca and Colima north to Nuevo Leon and Coahuila. Normally found in shallow caves, tunnels, and rock shelters; one specimen was collected under a log in a pine forest.

REMARKS: One egg case was collected in a cave 10 to 25 miles south of Jacala, Hidalgo, on July 20, 1956. The case was suspended by a



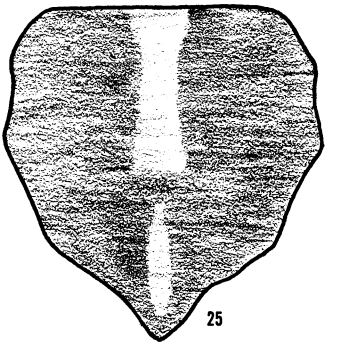


FIG. 24. *Tegenaria mexicana* ssp. Sternal pattern of specimen from Oaxaca, Mexico.

FIG. 25. *Tegenaria mexicana mexicana,* new species. Sternal pattern.

short length of silk from the ceiling over the sheet web. The case was 15 mm. in diameter and covered with grains of soil and debris; inside was a case, 12 mm. in diameter, which contained 147 spiderlings and 58 infertile eggs, quite a large number for a cave spider.

This species consists of a complex of closely related populations of spiders the genitalia of which are morphologically almost identical except for the proportions (see table 1) of the segments of the male palpi. Other differences between the populations include color pattern, comparative size of the anterior median eyes, curvature of the eye rows, comparative length of the legs, and the length of the distal segment of the posterior spinnerets with the basal segment. In some genera these differences might be considered of sufficient importance to justify describing these populations as separate species. However, the genitalia of species of *Tegenaria* are, with few exceptions, quite distinct from one another. Because the genitalia of the *T. mexicana* complex are so similar, these distinct populations are designated subspecies rather than species.

TABLE 1

RATIOS OF LENGTHS OF PALPI AND OTHER STRUCTURES OF MALES OF THE *Tegenaria mexicana* COMPLEX

Subspecies or Locality	Number of Males	Carapace/Leg Ratio	Carapace/ Tibia-Patella Ratio	Carapace/Palpus Ratio	Cymbium/Carapace Ratio	Cymbium/Palpal Tibia-Patella Ratio	Basal Segment/ Distal Segment Ratio
selva	1	883	262	151	222	106	136
gertschi	1	650	232	137	231	100	192
mexicana	9	629–663	202–209	252–306	181–200	199–227	153–177
mexicana[a]	1	641	206	238	200	182	147
tlaxcala	5	528–583	163–200	116–141	222–288	98–105	118–165
Subspecies near *tlaxcala*							
10–25 miles south of Jacala	1	576	186	123	273	104	131
Jacala	1	623	207	146	222	100	129
1 mile north of Palomas	2	641	196	129–143	230	86–93	127–140
10 miles west of Jalapa	1	610	202	136	216	92	—
Unidentified subspecies							
Michoacan	1	522	165	138	216	92	130
58 kilometers east of Mexico City	1	537	221	118	242	100	100

[a] Issacs collection.

RECORDS AND NOTES, SPECIMENS NOT IDENTIFIABLE TO SUBSPECIES: San Luis Potosi: Tamazunchale, July 6–7, 1941 (L. I. Davis), female. This distinctly marked female was collected close to the type locality of *selva* but is not this subspecies. It has much shorter legs and a carapace/tibia-patella ratio of 149 compared with 192 of *selva.* In addition, the colulus is more similar to that of *tlaxcala.* Tlaxcala: Fifty-eight

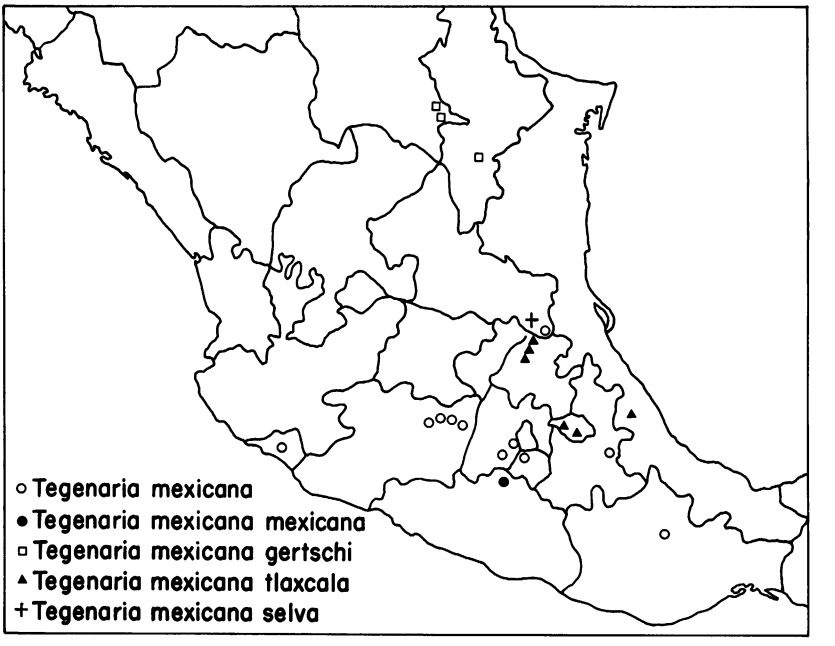


FIG. 26. Distribution of *Tegenaria mexicana,* new species, and the subspecies *mexicana, gertschi, selva,* and *tlaxcala.*

kilometers east of Mexico City or 2 kilometers west of Rio Frio, 3200 meters in altitude, July 24, 1956, under log in pine forest (V. Roth, W. Gertsch), male. This and the following male differ from males of *tlaxcala* by having smaller median eyes and more slender tibial apophyses and by being smaller. The two differ from each other and from *tlaxcala* by slight differences in various ratios (see table 1). They undoubtedly represent undescribed subspecies, but I hesitate to describe them on the basis of single specimens, especially when they are so similar. Michoacan: Bosencheve National Park, latitude 19° 25′ N., longitude 100° 10′ W., May 7, 1963 (W. J. Gertsch, W. Ivie), male and immature female. The ratios computed for *tlaxcala* are slightly different

from those of this species, but variations in the latter make it inadvisable to describe these specimens as new subspecies.

The remaining specimens differ from *mexicana* by their shorter legs, from *selva* and *gertschi* by the narrower colulus, and from *tlaxcala* by their smaller median eyes. The color patterns are also variable. Distrito Federal: Desierto de los Leones, March 12, 1944 (M. Cardenas), immature male. "Tenaningo" (Tenancingo?), September 27 to October 7, 1946, 2050 meters in altitude (H. Wagner), female. Morelos: Cuernavaca, July 31, 1956 (W. Gertsch, V. Roth), in shallow cave, three females, four immatures; September, 1941, 1700 meters in altitude (H. Wagner), female. State?, Sàn Rafael, February 1, 1942, 2700–3000 meters in altitude, (C. Bolivar), three immatures. Colima: Nevado de Colima, January 20, 1943 (F. Bonet), female. Michoacan: Garnica Pass, latitude 19° 40′ N., longitude 100° 55′ W., May 8, 1963 (W. J. Gertsch, W. Ivie), female, immature male; Tuxpan, Cueva de la Calera, April, 1941 (Bolivar, Bonet, Osorio, Velo), two immature females; April 6, 1941, one female, two immatures. Oaxaca: El Cumbre del Estudiante, on ridge east of Cerro San Felipe, latitude 17° 10′ N., longitude 96° 40′ W., September 28, 1961, 8000–9000 feet in altitude (C. M. and M. R. Bogert), female. Puebla (?): North slope of Mt. Popocatepetl, 11,000 feet in altitude, November 20, 1946 (E. S. Ross), female, in California Academy of Sciences, San Francisco.

KEY TO THE MALES OF THE SUBSPECIES OF *Tegenaria mexicana*, NEW SPECIES

1. Colulus five to six times as wide as long. Carapace/tibia-patella ratio, 232–262 2
   Colulus up to three times as wide as long. Carapace/tibia-patella ratio, 163–209 3
2. Carapace/tibia-patella ratio, 262. Carapace/leg ratio 883. Distal segment of posterior spinnerets about one and one-third times as long as basal ..... *selva*, new subspecies
   Carapace/tibia-patella ratio, 232. Carapace/leg ratio, 650. Distal segment of posterior spinnerets almost twice as long as basal ..... *gertschi*, new subspecies
3. Palpus two and one-half to three times as long as carapace ..... *mexicana*, new subspecies
   Palpus slightly longer than carapace to almost one and one-half times as long ..... *tlaxcala*, new subspecies

Tegenaria mexicana mexicana, new subspecies

Figures 21, 22, 25

DIAGNOSIS: The males of this subspecies can be separated from all others by the especially long palpus, two and one-third times to three times as long as the carapace.

DESCRIPTION OF MALE HOLOTYPE: All sclerotized parts orange-brown; head, chelicera, endites, and labium darker. Legs lacking rings, but faint markings occurring below femur IV. Sternum slightly lighter on anterior half in center. Anterior spinnerets unmarked, both segments of posterior spinnerets gray.

Total length, 9.0 mm.; average of nine males, 8.4 mm., ranging in length from 6.8 mm. to 10.2 mm.; carapace length, 4.6 mm. Tibia-patella I length, 9.3 mm. Carapace/tibia-patella ratio, 202.

Anterior and posterior eye rows procurved (4/6). Ratio of eyes: AME/ALE/PME/PLE = 16/18/15/18. Promargin of chelicera with three teeth on one side, four on other; retromargin with five teeth and two denticles on one side, and five teeth, one denticle on other.

Spination: Tibia I, ventral, none; metatarsus I, ventral lp-lp-3; tarsi III and IV with lateral spines. Distal segment of posterior spinneret much longer than basal segment; ratio, 165. Colulus not sclerotized, similar to that of *saeva,* sides more angulate.

Palpus (figs. 21, 22) of male greatly elongated. Total length of palpus, 11.6 mm.; femur, 4.7 mm.; tibia-patella, 4.6 mm.; cymbium, 2.3 mm.; bulb, 0.48 mm. Bulb/cymbium ratio, 479.

FEMALE ALLOTYPE: Lighter in color than male. Differs by the following characteristics. Total length, 6.1 mm.; carapace length, 2.9 mm.; tibia-patella I length, 5.4 mm. Carapace/tibia-patella ratio, 186. Anterior and posterior eye rows procurved (5/6). Promargin of chelicera with four teeth on one side, five on other; retromargin with five teeth, three denticles.

TYPE DATA: Taxco, Guerrero, Mexico, July 28–29, 1956 (V. Roth, W. Gertsch), male holotype, female allotype, seven male and 23 immature paratypes. Collected in a cave on the outskirts of Taxco.

OTHER RECORDS: One specimen tentatively included here is an immature female from Parque Humboldt, Taxco, Guerrero, 2500 meters in altitude, December 26, 1943 (C. Bolivar, C. Tellez). The carapace/tibia-patella ratio is 144, less than that of a mature female. Another specimen collected at Taxco, October, 1945 (Leo Issacs), a male, differs from the holotype in that it is smaller, the distal segment of the posterior spinnerets are shorter, and the proportions of the segments of the palpus are different (table 1). It is sufficiently different from the type series to suggest that it is from another cave.

REMARKS: On darker specimens of the type series, the sternal pattern appears as a broken median line (fig. 25). The procurvature of the eye rows varies from 5/6 to being almost straight (3.5/6).

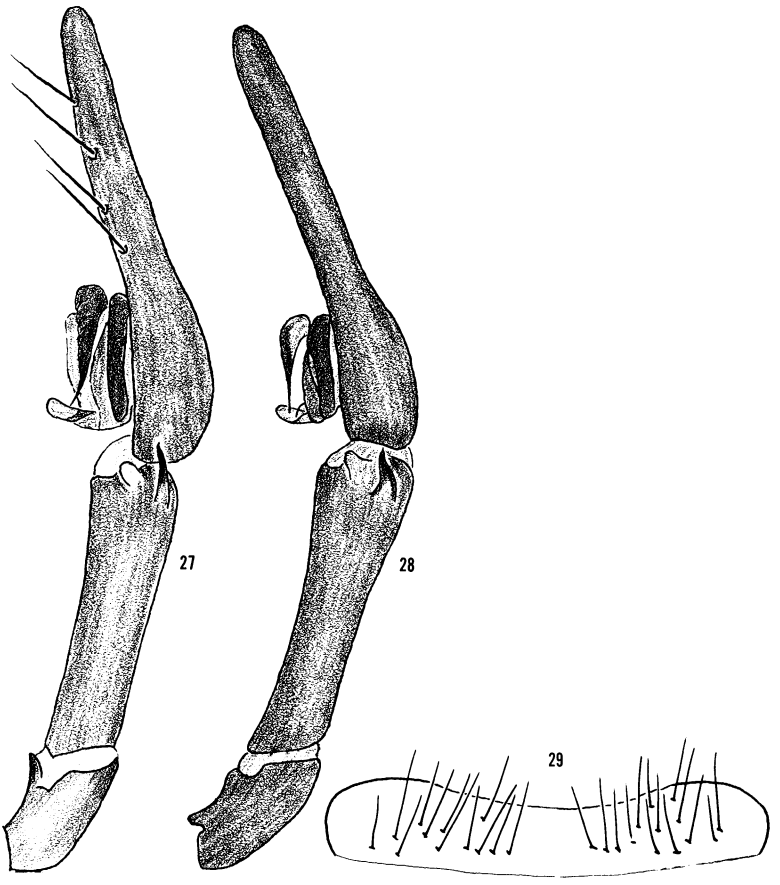


FIG. 27. *Tegenaria mexicana gertschi,* new subspecies. Ectal view of palpus.
FIGS. 28, 29. *Tegenaria mexicana selva,* new subspecies. 28. Ectal view of palpus. 29. Colulus.

Tegenaria mexicana gertschi, new subspecies

Figure 27

DIAGNOSIS: This subspecies can be separated from the others by the narrow colulus, which is five times as wide as long, and from the closely related *selva* by the longer spinnerets and shorter legs.

DESCRIPTION OF MALE HOLOTYPE: Legs, palpi, and carapace dull white. Chelicera, endites, and labium slightly darker. Carapace narrowly rimmed with gray; gray band extending from sides of head beyond thoracic furrow, narrowing at posterior edge of carapace. Sternum

without pattern, darker on edges. Abdomen with typical coloration. Anterior spinnerets almost white; posterior gray, tip of distal segment pale.

Total length, 7.6 mm.; carapace length, 3.7 mm.; tibia-patella I length, 8.6 mm. Carapace/tibia-patella ratio, 232. Anterior and posterior eye rows procurved (4/6). Ratio of eyes: AME/ALE/PME/PLE= 11/17/13/15. Promargin of chelicera with four teeth; retromargin with five teeth and one denticle.

Spination: Tibia I, ventral, none or 0-lr-0; metatarsus I, ventral, one or two distal; no tarsal spines. Distal segment of posterior spinnerets 1.92 times as long as basal segment. Colulus about five times as wide as long, not sclerotized, similar to that of *selva* but with only three and five setae on lateral lobes.

Palpus (fig. 27): Total length, 5.07 mm.; femur 1.87 mm.; tibia-patella, 1.60 mm.; cymbium, 1.60 mm.; bulb, 0.51 mm. Bulb/cymbium ratio, 314.

TYPE DATA: Resumidero (cave) de Pablillo at Hacienda Pablillo, about latitude 24° 30′ N., longitude 100° 00′ W., 30 kilometers south of Galeana, Nuevo Leon, Mexico, June 4, 1966 (J. Reddell, D. McKenzie), male holotype.

TENTATIVE RECORDS: Mexico: Coahuila: Cueva de las Vigas, 14.3 miles east of Arteaga, June 5, 1966 (J. Reddell), five immature females; Cueva de las Cuevacillas, 10 kilometers northeast of Arteaga, July 26, 1965 (J. Reddell, J. Fish), three darkly marked immatures.

It gives me great pleasure to name this subspecies after my good friend and collecting companion, Dr. Willis J. Gertsch, of the American Museum of Natural History who has unfailingly helped me in my arachnological endeavors since 1947, when I wrote him my first inquiry about spiders and who helped collect many of the *T. mexicana,* new species, noted in this paper.

Tegenaria mexicana selva, new subspecies

Figures 28, 29

DIAGNOSIS: Differing from the other subspecies by the very long legs, almost nine times as long as the carapace, and the colulus, which is six times as wide as long.

DESCRIPTION OF MALE HOLOTYPE: Legs, palpus, and carapace tan to light orange-brown, sternum and labium slightly darker, chelicera and femur I dark brown. Carapace like that of *gertschi.* Sternum diffused gray. Abdomen with typical coloration. Anterior spinnerets light gray; posterior spinnerets gray, tip of distal segment pale.

Total length, 12.6 mm.; carapace length, 6.5 mm.; tibia-patella I length, 17.0 mm. Carapace/tibia-patella ratio, 262. Anterior and posterior eye rows procurved (6/6). Ratio of eyes: AME/ALE/PME/PLE= 8/9/9/9. Promargin of chelicera with four teeth on one side, five on other; retromargin with six teeth and one denticle on one side, seven teeth, one denticle on other.

Spination: Tibia I, ventral 2-2-2-0; metatarsus I, ventral 2-2-2-3, spines of middle pairs separated longitudinally and somewhat lateral; tarsi III and IV with single prolateral and retrolateral spines. Distal segment of posterior spinneret 1.36 times as long as basal segment. Colulus (fig. 29) lightly sclerotized laterally, showing distinctly the two-part nature of this structure.

Palpus (fig. 28): Total length, 9.83 mm.; femur, 3.80 mm.; tibia-patella, 3.10 mm.; cymbium, 2.93 mm.; bulb, 0.71 mm. Cymbium/-bulb ratio, 410.

FEMALE ALLOTYPE: Similar in color to male but femora not darkened. Differing by the following characteristics: total length, 11.5 mm.; carapace length, 5.2 mm.; tibia-patella I length, 10.0 mm. Carapace/tibia-patella ratio, 192. Anterior eye row procurved (5/6); posterior eye row procurved (4/6). Promargin of chelicera with four teeth, retromargin with six and two denticles.

TYPE DATA: Mexico: San Luis Potosi: Cueva de la Selva, west of Xilitla on the Xilitla–Ahuacatalan road, north of Tamazunchale, April 10, 1966 (T. Raines), male holotype; Sotano, Valle de los Fantasmos, about 45 kilometers east of San Luis Potosi, November 24, 1966 (J. Fish and J. Davis), female allotype.

REMARKS: Leg I of the male holotype is 54.3 mm. in length—probably the longest leg among the agelenid spiders.

Tegenaria mexicana tlaxcala, new subspecies

DIAGNOSIS: Differing from other subspecies by the shorter legs, from *selva* and *gertschi* by the stouter colulus, and from *mexicana* by the much shorter palpus.

DESCRIPTION OF MALE HOLOTYPE: Color similar to that of *selva;* markings fainter on carapace. Sternum with pale indistinct longitudinal line in center. Anterior spinnerets orange-brown; posterior spinnerets gray.

Total length, 9.4 mm.; carapace length, 5.0 mm.; tibia-patella I length, 8.5 mm. Carapace/tibia-patella ratio, 170. Anterior eye row straight; posterior eye row procurved (4/6). Ratio of eyes: AME/-ALE/PME/PLE = 16/17/16/18. Promargin of chelicera with four teeth;

retromargin with six teeth and two denticles on one side and five teeth and two denticles on other.

Spination: Tibia I, ventral 2-0-0; metatarsus I, ventral 2-2-2-3; no spines on tarsi. Distal segment of posterior spinnerets 1.47 times longer than basal segment. Colulus two and one-half times as wide as long, sclerotized, similar to that of *agrestis*.

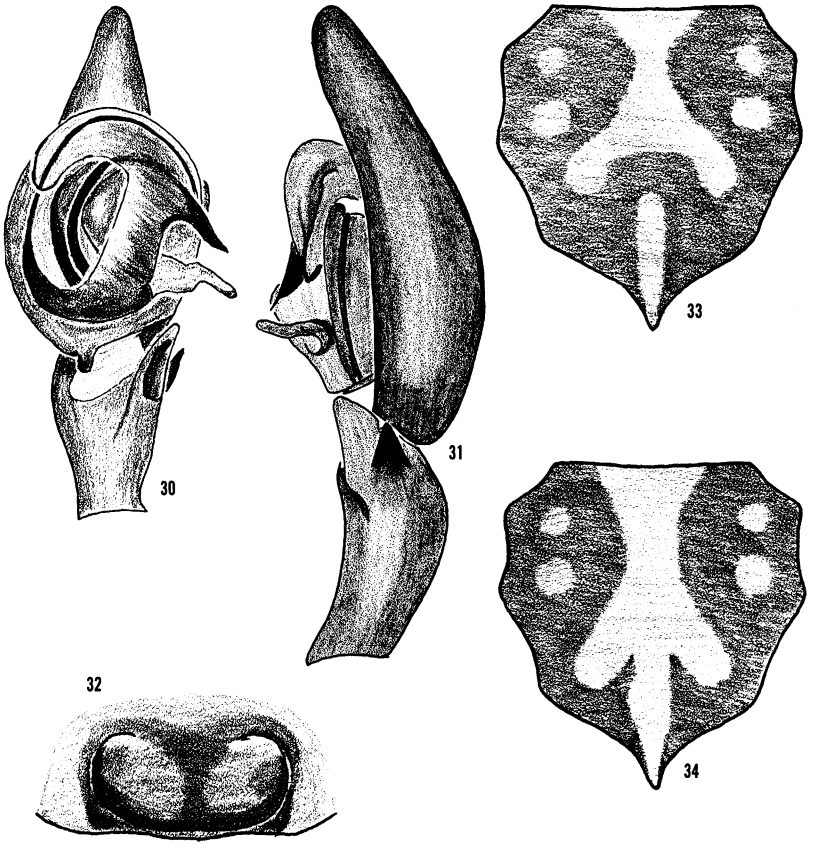
Palpus: Similar to that of *gertschi*. Total length, 5.58 mm.; femur, 2.04 mm.; tibia-patella, 1.80 mm.; cymbium, 1.73 mm.; bulb, 0.54 mm. Bulb/cymbium ratio, 320.

FEMALE ALLOTYPE: Similar to male in color. Structure similar but legs shorter. Total length, 9.0 mm.; carapace length, 4.2 mm.; tibia-patella I length, 6.2 mm. Carapace/tibia-patella ratio, 148. Both eye rows straight. Promargin of chelicera with four teeth; retromargin with five teeth, two denticles.

TYPE DATA: Behind Tlaxcala Hotel in underground water conduits, Tlaxcala, Tlaxcala, Mexico, July 26, 1956 (W. Gertsch, V. Roth), male holotype, female allotype, four male, two female, and 10 immature paratypes. One male and one female paratypes retained in the author's collection.

OTHER RECORDS: The following specimens are very closely related to *tlaxcala* and may eventually be included in that subspecies. There are slight differences in the length of the legs, and the markings are darker, especially those on the legs. Veracruz: Volcan San Martin, near San Andrés Tuxla, about latitude 18° 30′ N., longitude 96° 50′ W., 5000 feet in altitude, July 14, 1953 (C. J. Goodnight), female; 10 miles west of Jalapa, July 26, 1956, in volcanic caves in pine forest (V. Roth, W. Gertsch), four females, one male. Hidalgo: Jacala, 4.3 miles northeast of kilometer 295 or 1 mile north of Palomas, in a roadside cave, July 20, 1956, four females, two males and five immatures; Jacala, in roadside cave, July 20, 1956, five females, one male; 10–25 miles south of Jacala, July 21, 1956 (all collected by W. Gertsch and V. Roth), nine females, one male, 10 immatures; 5 miles southwest of Jacala, latitude 20° 57′ N., longitude 99° 14′ W., April 21, 1963 (W. Gertsch, W. Ivie), two females.

VARIATIONS FROM THE HOLOTYPE: Sternum occasionally with broken median line. Anterior median eyes in some cases slightly larger than anterior lateral eyes. Promargin of chelicera with three or four teeth. Tibia I occasionally with one ventral spine or none. Distal segment of posterior spinneret varying in ratios from 118 to 165. Males (five) averaging 8.34 mm. in length, ranging from 7.1 mm. to 9.4 mm. Females (three) averaging 10.5 mm., ranging in length from 9.0 mm. to 11.6.



FIGS. 30–34. *Tegenaria pagana* C. L. Koch. 30. Ventral view of palpus. 31. Ectal view of palpus. 32. Epigynum. 33–34. Sternal patterns.

Tegenaria pagana C. L. Koch

Figures 30–35

Tegenaria pagana C. L. KOCH, 1841, p. 31, figs. 612–613. ROTH, 1956, p. 176; 1967, p. 315, pl. 51, figs. 6–7.

Tegenaria bidentata KEYSERLING, 1878, pp. 597–599, fig. 19.

Tegenaria obscura BANKS, 1898 (not Koch and Berendt, 1854), pp. 230–231, fig. 26. ROTH, 1952, p. 287; 1956, p. 176.

Tegenaria antrias CROSBY, 1926, p. 2, fig. 3. ROTH, 1952, pp. 284–285.

Tegenaria simplex BRYANT, 1936, p. 90, fig. 9.

Tegenaria castro CHAMBERLIN AND IVIE, 1942, p. 21, figs. 27–29.

DIAGNOSIS: The tridentate marking on the sternum usually differentiates this species from others found in the Western Hemisphere. In addi-

tion, the membranous apophysis on the tibia of the male palpus is the larger of the two apophyses, whereas it is smaller in the other species, and spurs are lacking on the epigynum of the female.

DESCRIPTION: Markings on carapace and legs occasionally distinct, often indistinct, occasionally absent. Sternum (figs. 33, 34) usually with pale, narrow, median, longitudinal line, tridentate behind, flanked by gray, with two pale spots on each side, occasionally median line not tridentate but three pale spots on each side. Anterior spinnerets orange-brown; basal segment of posterior segment gray, terminal segment pale.

Male from San Diego, California: Total length, 7.6 mm.; average of three males, 7.4 mm.; ranging in length from 6.0 mm. to 8.3 mm.; carapace length, 3.8 mm.; tibia-patella I length, 6.0 mm. Carapace/-tibia patella ratio, 158.

Female from Carlsbad Caverns, New Mexico: Total length, 7.9 mm., average of eight females, 8.35 mm.; ranging in length from 6.0 mm. to 9.9 mm.; carapace length, 3.1 mm.; tibia-patella I length, 4.4 mm. Carapace/tibia-patella ratio, 142.

Anterior and posterior eye rows ranging from straight to procurved (5/6). Eyes nearly equal in size, anterior median eyes about four-fifths of diameter of remaining eyes. Promargin of chelicera with four teeth, occasionally three or five; retromargin with three, four, or five teeth with or without one denticle.

Spination: Tibia I, ventral 2(0 or 1p)-2-2(0 or 1p); metatarsus I, ventral 2-2-3; tarsus III and IV lacking spines. Distal segment of posterior spinneret as long as, or slightly longer than, basal segment. Colulus similar to that of *agrestis* but not sclerotized.

Male palpus (figs. 30, 31): Total length, 4.82 mm.; femur, 1.90 mm.; tibia-patella, 1.36 mm.; cymbium, 1.56 mm. Carapace/palpus ratio, 121. Tibia with two ectal apophyses, ventral, and larger, membranous, obliquely truncate; shorter apophysis acute, heavily sclerotized. Cymbium with rounded knob at base projecting into membranous notch at distal end of tibia; bulb large, embolus slender, arising near base of cymbium, extending forward into fold on conductor; latter forming semicircle, with acuminate spur on apophysis of conductor; median apophysis membranous except at tip, similar to that of *domestica*.

Epigynum (fig. 32) lacking lateral spurs, wider than long, convex, with separate openings on each side.

DISTRIBUTION: Europe east to Asia Minor, northern Africa west to the Azores. Probably introduced into the Western Hemisphere. Northern South America: "Neu Granada." Chile. Mexico: Sonora. Southern United States: California east to Oklahoma, Alabama, and one ques-

tionable record from Altoona, Pennsylvania. New records: California: Salinas, San Diego, San Pedro. Louisiana: Baton Rouge. Texas: Trenton, Gatesville. Brazil: Rio Grande do Sul, Pelotas. Commonly found in caves and buildings.

REMARKS: An attempt was made by the author (with financial support from the Arizona Academy of Sciences) to collect individuals of *Tegenaria* at the type locality of *T. obscura* Banks and at adjacent places in Sonora, Mexico. On the basis of the known habits of the genus, it

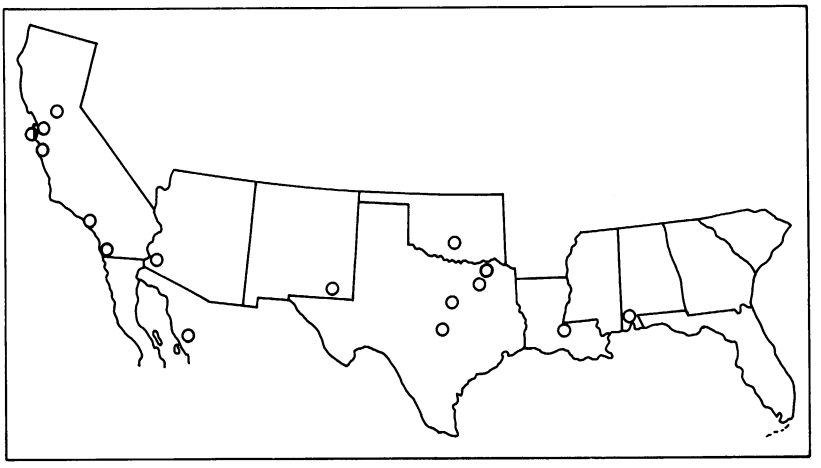


FIG. 35. Distribution of *Tegenaria pagana* C. L. Koch.

appeared that the spider would be found in caves, mine shafts, or buildings. Neither the spiders nor their webs were seen in caves at the following stations: Rancho Los Baños, Sonora, 75 miles south of Douglas on the road to Angostura Dam, in bat and shallow Indian caves; at Cueva de la Tigre, Carbo, Sonora, about latitude 29° 40′ N., longitude 111° 45′ W., in mine shafts or buildings; at Alamos, Sonora, about latitude 27° N., longitude 109° W.; in Cueva de la Higuera, in a bat cave and buildings at San Miguel de Horcacitas, about latitude 29° 30′ N., longitude 110° 45′ W., and nearby villages. On the basis of these investigations, it appears that the holotype was mislabeled or that it was introduced temporarily into San Miguel de Horcasitas by the Spaniards who established a pueblo there in 1648. At the present time the spider does not occur in local caves or in any of the buildings. I prefer to consider it synonymous with *pagana* on the basis of the original description, even though it might be considered *incertae sedis.*

Tegenaria saeva Blackwall

Figures 8, 35–39

Tegenaria saeva BLACKWALL, 1844, p. 179. DRESCO, 1957, pp. 211–220, figs. 6–9, 16. DENIS, 1959, pp. 172–176.

Tegenaria gigantea CHAMBERLIN AND IVIE, 1935, p. 31, fig. 106. EXLINE, 1936, pp. 21–22, fig. 3. ROTH, 1952, p. 286, figs. 3–5.

Tegenaria atrica C. L. Koch: ROTH, 1956, pp. 176.

DISCUSSION: The papers by Dresco (1957) and Denis (1959) have clarified the identities of *T. saeva* Blackwall and *T. atrica* C. L. Koch which have been confused by previous authors.

DIAGNOSIS: These large, long-legged spiders are easily differentiated from other species of *Tegenaria* by the distinct three pairs of spots on the sternum, the thin shell-like median apophysis of the male palpus, and the broad spurs extending over the opening of the epigynum.

DESCRIPTION: Legs unmarked except coxae which bear black spots on base. Sternum (fig. 39) with broad, pale, longitudinal line in center, narrowing posteriorly, flanked by three light spots on each side. Spinnerets gray.

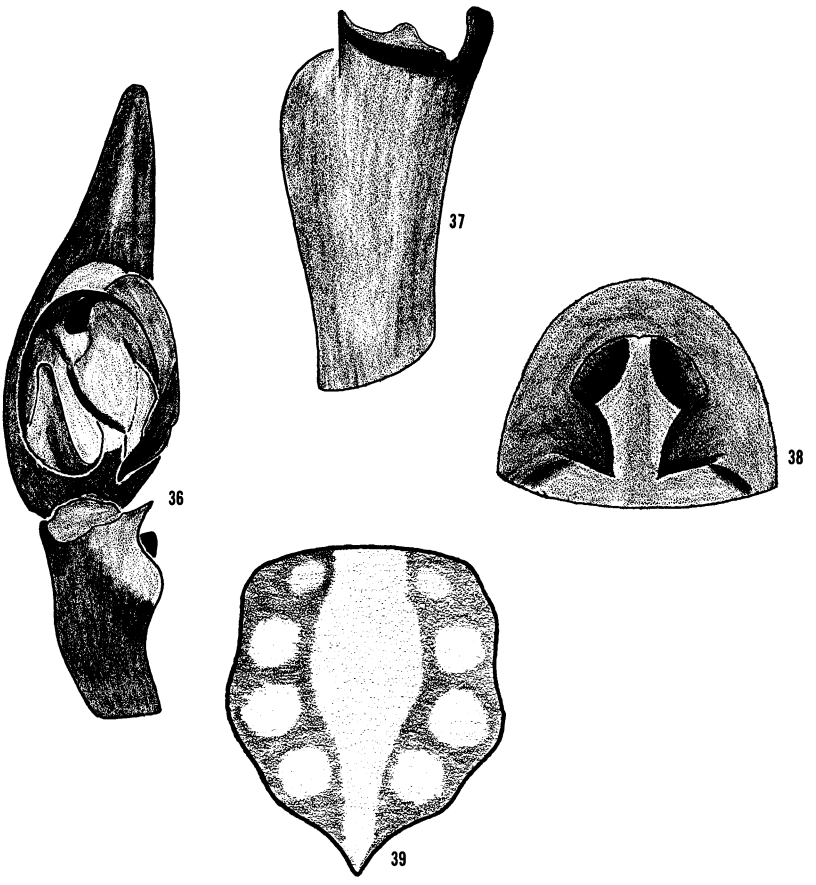
Male from Vancouver Island, British Columbia: Total length, 11.9 mm.; average of six males, 11.9 mm.; ranging from 10.0 mm. to 13.5 mm.; carapace length, 5.7 mm.; tibia-patella I length, 11.2 mm. Carapace/tibia-patella ratio, 196.

Female from same locality: Total length, 14.5 mm.; average of seven females, 13.6 mm.; ranging from 11.4 mm. to 15.0 mm.; carapace length, 8.0 mm.; tibia-patella I length, 10.9 mm. Carapace/tibia-patella ratio, 136.

Spination: Tibia I, ventral 2-2-0; metatarsus I, ventral 2-2-2-3; tarsi III and IV with one or two lateral spines. Distal segment of posterior spinnerets slightly longer to almost one and one-third longer than basal segment. Colulus similar to that of *agrestis* but not sclerotized except along anterior lateral edges which are more angulate.

Male palpus (figs. 36, 37): Total length, 7.45 mm.; femur, 2.82 mm.; tibia-patella, 2.07 mm.; cymbium, 2.55 mm. Carapace/palpus ratio, 131. Tibia with two distal apophyses (fig. 37), short, transparent, acute ventral spur and opaque, dark, bluntly acuminate ectal spur projecting outward and forward from a swollen base. Embolus slender, forming about one-third of a circle, terminating in a fold on conductor; latter about as long as bulb, terminating in a slightly twisted point directed toward tibia. Median apophysis similar to that of *agrestis* but much longer, very thin, shell-like.

Epigynum (fig. 38) consisting of triangular, convex, sclerotized plate,



FIGS. 36–39. *Tegenaria saeva* Blackwall. 36. Ventral view of palpus. 37. Ectal view of palpal tibia. 38. Epigynum. 39. Sternal pattern.

depressed at anterior end and partially covered by large broad spur extending out from each side.

DISTRIBUTION: Western Europe from Belgium to Portugal, France, and British Isles. Introduced into Canada: British Columbia: Vancouver Island, Sydney, Wellington.

PRESENT DISPOSITION OF SPECIES LISTED IN *TEGENARIA* IN WESTERN HEMISPHERE LITERATURE

antrias Crosby = *T. pagana* C. L. Koch
arboricole Walckenaer, *incertae sedis*

atrica (of Roth) = *T. saeva* Blackwall
bidentata Keyserling = *T. pagana* C. L. Koch
castro Chamberlin and Ivie = *T. pagana* C. L. Koch
cavicola Banks = *Calymmaria cavicola* (Banks)
civilis (of Holmberg) = *T. domestica* (Clerck)
derhami Scopoli = *T. domestica* (Clerck)
detestabilis O. Pickard-Cambridge = *T. domestica* (Clerck)
emertoni Simon = *Calymmaria emertoni* (Simon)
flavens Hentz, *incertae sedis*
gigantea Chamberlin and Ivie = *T. saeva* Blackwall
insularis Walckenaer, *incertae sedis*
larva (of Roth) = *T. atrica* C. L. Koch
magnacava Exline = *T. agrestis* (Walckenaer)
medicinalis Hentz = *Coras medicinalis* (Hentz)
modesta Banks = *Calymmaria modestella* (Roewer)
modesta Keyserling = *T. domestica* (Clerck)
modestella Roewer = *Calymmaria modestalla* (Roewer)
nana Simon = *Calymmaria nana* (Simon)
nemorensis Walckenaer, *incertae sedis*
obscura Banks = *T. pagana* C. L. Koch
persica Hentz = *Calymmaria persica* (Hentz)
praegrandis = *T. atrica* C. L. Koch
quadrata Exline = *Calymmaria quadrata* (Exline)
simplex Bryant = *T. pagana* C. L. Koch

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