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Chapter 34

LEPTONETIDAE

5 genera, 40 species

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Similar families —

Telemidae (p. 228), Ochyroceratidae (p. 179), Pholcidae (p. 194).

Diagnosis —

Small (1.0-3.0mm), three-clawed, ecribellate, haplogyne spiders usually separated from other families by a distinctive 6-eyed pattern with the PME separated from the strongly recurved ALE and PLE (Fig. 34.7); rarely with eyes contiguous (*Archoleptoneta*) (Fig. 34.5), or blind (some *Neoleptoneta*); cephalothorax longer than wide, clypeus short, < 0.3 x length chelicerae; chelicerae unfused and not chelate, biserially dentate, promargin with teeth, retromargin with few small teeth and denticles; legs long and slender (PT/C > 1.5), autospasy at the patella-tibia joint; abdomen globose, lacking anterodorsal sclerite, and with a single tracheal spiracle located near the spinnerets.

Characters —

body size: 1.0-3.0 mm.

color: pallid to creamy, may have purplish-brown maculations or chevrons on abdomen; in life appendages iridescent.

cephalothorax: longer than wide, pyriform, often with a faint longitudinal linear mark at the fovea.

sternum: oval.

eyes: six eyes (AME absent), often strongly convex (Fig. 34.7), PME usually posteriorly displaced, or all eyes contiguous and occupying < 1/2 width of cephalothorax (*Archoleptoneta*), or eyes absent in some cave species.

chelicerae: not fused basally, promargin with teeth, retromargin with few denticles.

mouthparts: labium short, wider than long; endites long, parallel-sided, often concave ectally; serrula present.

legs: long and slender (PT/C > 1.5), with or without scattered spines; integumentary glands on tibiae and patellae; autospasy at the patella-tibia joint; metatarsus III with a finely serrate comb (Fig. 34.2) tarsi with three claws; female palp with claw.

abdomen: globose, lacking anterodorsal sclerite.

spinnerets: in close cluster; colulus present as fleshy lobe; PMS with linear spigot arrangement.

respiratory system: one pair of book lungs; single tracheal spiracle located near spinnerets.

genitalia: haplogyne; **female** gonopore region lacking external modification, although may be slightly distended after insemination; atrium large and globular to triangular in shape (Fig. 34.3) with a pair of twisted spermathecae laterally (Fig. 34.3); **male** palpal femur short to long, 1.0-3.0 x cephalothorax length; tibia with a variety of modified setae, with or without a retrolateral tibial spine; tarsus with or without retroapical seta, bulb spherical to pyriform, expandable, with a variety of specialized apical processes (Figs. 34.6, 34.8-34.12).

Distribution —

Archoleptoneta is widespread in California and also known from isolated localities in Texas, Mexico (Chiapas), and Panama, giving it the widest distribution of any lep-

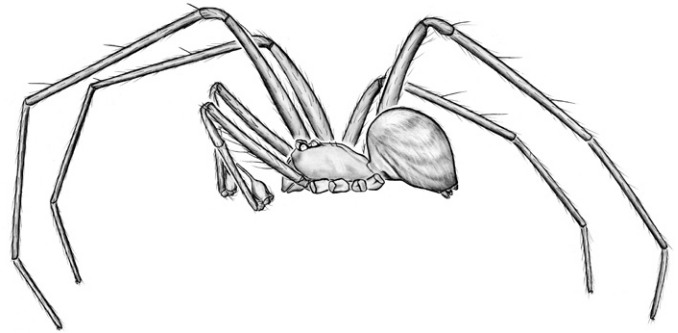


Fig. 34.1 *Calileptoneta helferi* (GERTSCH 1974)

tonetid genus. *Calileptoneta* is known only from California and Southern Oregon. *Neoleptoneta* occurs from eastern Arizona to Georgia, but is most richly represented in central Texas. *Appaleptoneta* and "*Leptoneta*" *sandra* GERTSCH 1974 are found only in the southern Appalachian Mountains of Virginia to Tennessee, south to Georgia and Alabama.

Natural history —

Habitat: Leptonetids are cryptozoic spiders found in damp situations, under rocks, in log and leaf litter, and may be common in caves. Some species congregate at ideal habitats and careful collecting can reveal several specimens. **Web architecture:** Leptonetids build a small tangle or tightly woven sheet web beneath which they hang. Individuals drop from the web when disturbed and fold their legs close to the body to avoid detection.

Reproduction: Courtship and mating for *Calileptoneta* was recorded by Ledford (2004), and egg sac positioning and structure was observed in *Neoleptoneta* by Cokendolpher (2004c). Courtship for *Calileptoneta* consists of a slight plucking of the female's web by the male using his palpi. Both individuals remain inverted beneath the web during mating, and the male palpi rotate 180° before insertion. Males remain in the web with the female for several days. Egg sacs (Fig. 34.4) are covered in detritus and suspended on the outer margins of the web (Cokendolpher 2004c) or attached to the substrate (Roth 1994). Leptonetids are easily reared to maturity on a diet of pre-killed fruit flies (*Drosophila*), and females may be able to store sperm for extended periods (Cokendolpher 2004c).

Taxonomic history and notes —

Nearctic leptonetids have a controversial taxonomic history. Most Nearctic species were described by Gertsch (1974), who recognized only 2 genera for the family: *Archoleptoneta* for the few species with a clustered eye arrangement, and *Leptoneta* for all others. On the basis of genitalic differences, Brignoli (1977g) subdivided Gertsch's *Leptoneta* into several clusters and revalidated *Neoleptoneta*. Platnick (1986d) supported this division with characters of sensory organs and named *Appaleptoneta* and *Calilep-*

toneta. Additional species of *Neoleptoneta* were described by Brignoli (1979c), Cokendolpher & Reddell (2001b), and Cokendolpher (2004c). Ledford (2004) revised *Calileptoneta* and described additional species.

Leptonetids have long been associated with telemids and ochyroceratids, all tiny spiders and unusual among haplogynes in having neither the fused chelicerae characteristic of scytodoids nor the anteriorly displaced paired tracheal spiracles of dysderoids. All three were initially included in Leptonetidae (Simon 1892a), and the latter two eventually elevated to family status (Fage 1912, 1913). The relationship between these families was addressed by Brignoli (1979q)

and Petrunkevitch (1933), who questioned their placement in the same suborder. Recent analyses of spinneret morphology (Platnick *et al.* 1991) and respiratory structures (Ramírez 2000) indicate that the three are indeed related, with Leptonetidae closest to Telemidae.

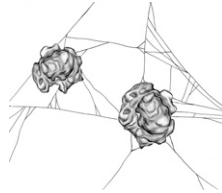
Genera —

ARCHOLEPTONETINAE

Archoleptoneta GERTSCH 1974

LEPTONETINAE

Appaleptoneta PLATNICK 1986d, *Calileptoneta* PLATNICK 1986d, *Neoleptoneta* BRIGNOLI 1972i



34.4



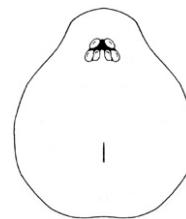
34.2



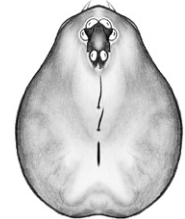
34.3

Key to genera —
North America North of Mexico

- 1 Eyes absent ***Neoleptoneta*, in part**
 Div. 21 species of which 2 key out here, *Neoleptoneta anopica* (GERTSCH 1974) and *Neoleptoneta georgia* (GERTSCH 1974) — Dist. TX, GA — Refs. Gertsch 1974, Platnick 1986d — Note *Neoleptoneta microps* (GERTSCH 1974) has greatly reduced to absent eyes and may key here
- Eyes present 2
- 2(1) Eyes contiguous (Fig. 34.5); male palpal tarsus cylindrical (Fig. 34.6) ***Archoleptoneta***
 Div. 2 species: *Archoleptoneta schusteri* GERTSCH 1974 and *Archoleptoneta garza* GERTSCH 1974 — Dist. CA, TX — Refs. Gertsch 1974, Platnick 1986d
- Eyes with PME posteriorly displaced (Fig. 34.7); male palpal tarsus with dorsal transverse groove (Figs. 34.8-34.9) 3
 Note: It is not possible at this time to distinguish females of the following genera on the basis of external characters
- 3(2) Dist s OR and CA; male palpal bulb with mesal lobe (Fig. 34.8) ***Calileptoneta***
 Div. 9 species — Dist. s OR to CA — Refs. Gertsch 1974, Platnick 1986d, Ledford 2004
- Dist AZ eastward; male palpal bulb lacking mesal lobe (Fig. 34.9) 4
- 4(3) Male palpal femur with ventral row of spines (Fig. 34.10) **"*Leptoneta*"**
 Div. 1 species: "*Leptoneta*" *sandra* GERTSCH 1974 — Dist. VA, WV — Refs. Gertsch 1974, Platnick 1986d — Note this species is misplaced in *Leptoneta* and may represent an undescribed genus (Brignoli 1977g, Platnick 1986d)
- Male palpal femur lacking ventral row of spines 5
- 5(4) Male palpal tibia with RTA (Fig. 34.11) ***Neoleptoneta***
 Div. 21 species, of which 19 key out here — Dist. se AZ, TX to GA — Refs. Gertsch 1974, Brignoli 1979c, Platnick 1986d, Cokendolpher & Reddell 2001b
- Male palpal tibia lacking RTA (Fig. 34.12) ***Appaleptoneta***
 Div. 7 species — Dist. Appalachian Mountains, KY s to SC and AL — Refs. Gertsch 1974, Platnick 1986d



34.5



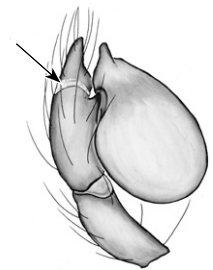
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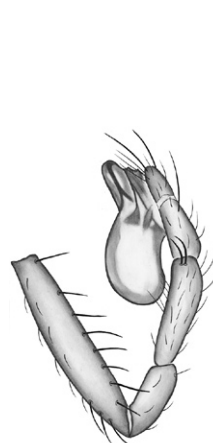
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34.8



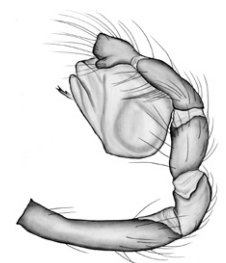
34.9



34.10



34.11



34.12