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A Review of the Chilean Spiders of the Family Caponiidae (Araneae, Haplogynae)

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ABSTRACT

The Chilean caponiid fauna differs from that of the rest of the Neotropics in lacking members of the Nopinae, but includes representatives of at least four genera, three of which are newly de-

scribed and apparently endemic: *Notnops*, for the new, four-eyed species *N. calderoni*; *Taintnops*, for the new, two-eyed species *T. goloboffi*; and *Tisentnops*, for *Caponina leopoldi* Zapfe.

INTRODUCTION

The present paper, the third in a series on the haplogyne spider family Caponiidae, completes coverage of the New World taxa that do not belong to the Nopinae. Although considered by Petrunkevitch (1939) as a separate subfamily, the Caponiinae, there is as yet no evidence that the non-nopine taxa (i.e., those with entire rather than subsegmented tarsi) constitute a monophyletic group. Indeed, at least one character (reduction in eye

number) suggests that the "caponiine" genera with fewer than eight eyes are more closely related to the nopines (which have four or fewer eyes) than they are to the eight-eyed *Caponia* Simon from Africa or *Calponia* Platnick from California.

The Nopinae are largely tropical, extending from the southwestern United States and Greater Antilles throughout the tropical parts of South America. Only one New World non-

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nopine genus (*Caponina* Simon) is also tropical, occurring from Colombia to Chile and in the Lesser Antilles (Platnick, 1994). The remaining New World non-nopines are temperate, represented by *Calponia* in California and by the Chilean fauna. As is common in spiders, the Chilean caponiid fauna is quite different from that of the rest of the New World. Indeed, no nopines have yet been found in Chile, and although only four caponiid species are known from that country, they each belong to a different genus (three of which are described as new below). Only one of the four genera, *Caponina* Simon, has been found outside of Chile.

Specimens have been examined from the collections of the American Museum of Natural History (AMNH), the Museo Argentino de Ciencias Naturales, Buenos Aires (MACN, courtesy of E. A. Maury, M. E. Galiano, and P. A. Goloboff), and the Museo Nacional de Historia Natural, Santiago (MNS, courtesy of A. Camousseight). I thank Peling Fong-Melville and Mohammad Shadab of the American Museum of Natural History for assistance with scanning electron micrographs and illustrations. Helpful reviews of a draft of the manuscript were provided by Charles Griswold and John Murphy. All measurements are in millimeters. Fieldwork for this project was supported by National Science Foundation grants BSR-8312611 and BSR-9024566.

SYSTEMATICS

KEY TO GENERA OF CHILEAN CAPONIIDAE

1. Six eyes (fig. 1) *Caponina*
Four or two eyes 2
2. Four eyes (fig. 2) *Notnops*
Two eyes 3
3. Eyes near front of carapace (fig. 4)
..... *Tisentnops*
Eyes more posteriorly situated (fig. 3)
..... *Taintnops*

Caponina Simon

The single species of this genus known from Chile, *Caponina chilensis* Platnick, is found from Santiago north to the coastal foothills along the Atacama desert (regions II through Metropolitana). It can easily be distinguished

from the other Chilean caponiids by the presence of six eyes (fig. 1); descriptions and illustrations of the genitalia of both sexes can be found in Platnick (1994).

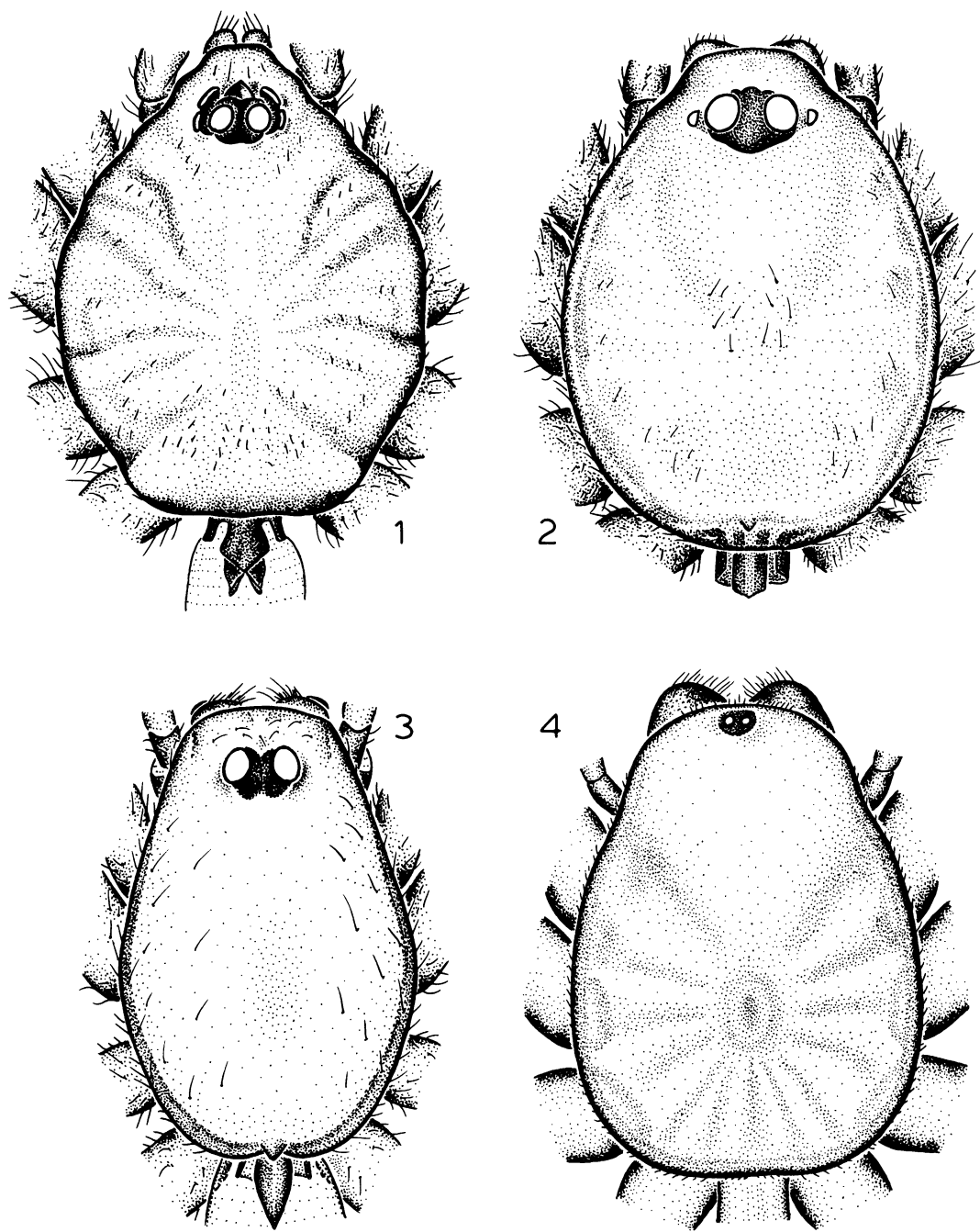
Notnops, new genus

TYPE SPECIES: *Notnops calderoni*, new species.

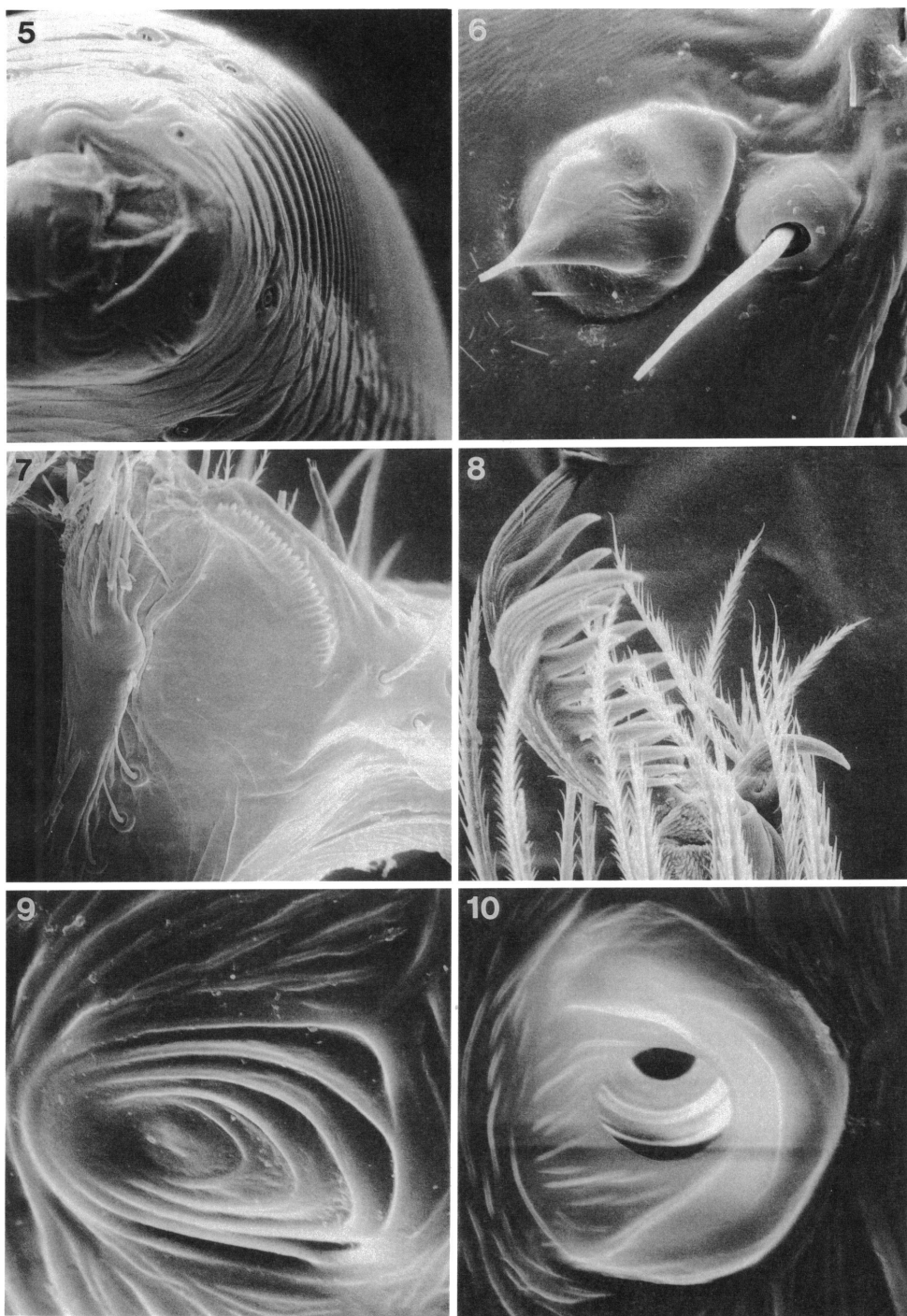
ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: The presence of only four eyes, situated in a transverse row (fig. 2), is diagnostic. Members of the genus can also be separated from the other previously known caponiid genera as follows: from *Nops* MacLeay, *Nopsides* Chamberlin, *Orthonops* Chamberlin, and *Tarsonops* Chamberlin by having the tarsi entire rather than subsegmented, from *Caponia* and *Calponia* by having fewer than eight eyes, from *Diploglena* Purcell by the normal (rather than anteriorly expanded) palpal endites, and from *Caponina* by the sharply bent proximal region of the male embolus (figs. 17–19) and the presence of an antero-medial receptaculum in the internal female genitalia (figs. 20, 21).

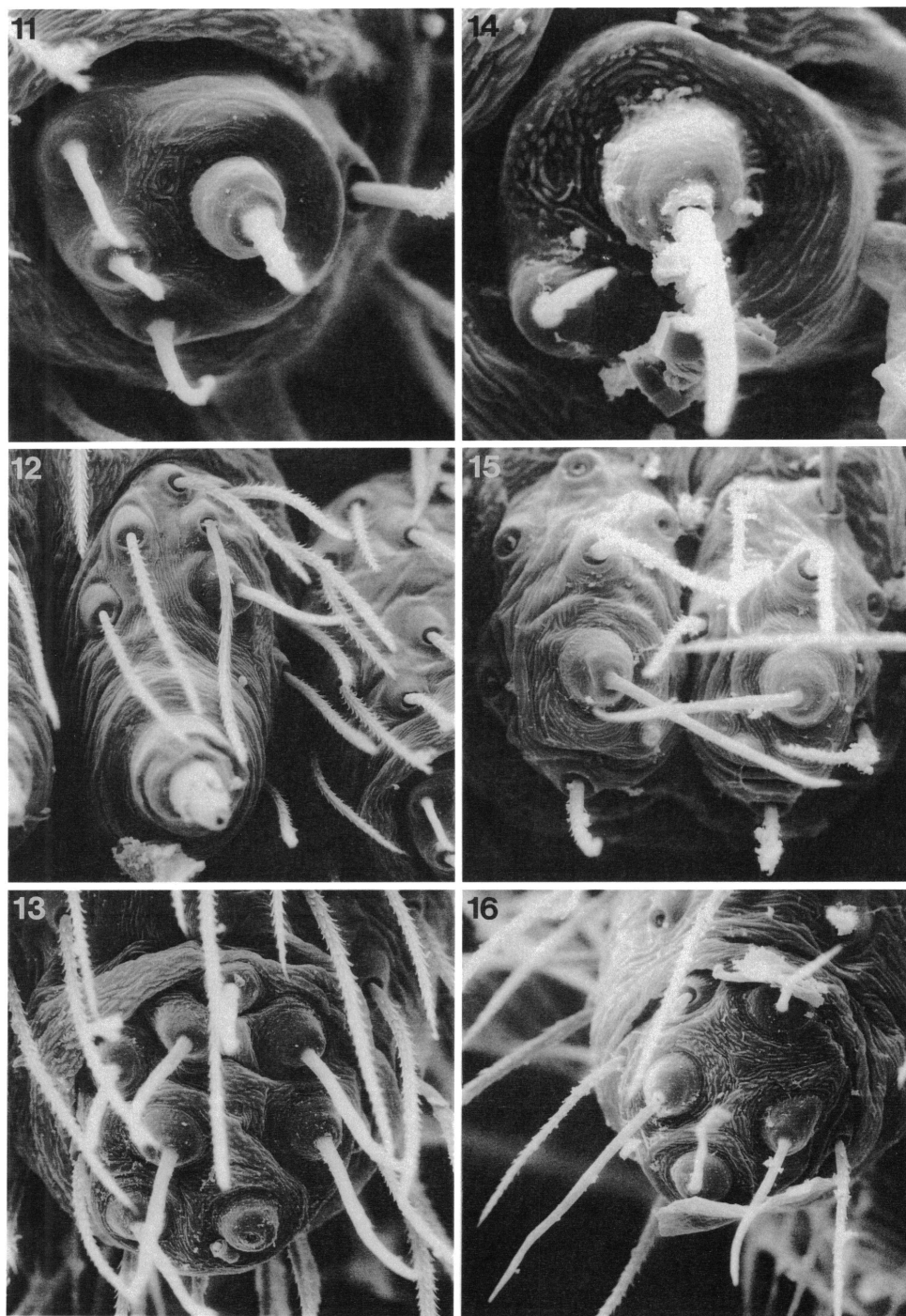
DESCRIPTION: Small caponiids with four eyes. Carapace oval, only gradually narrowed opposite palpal coxae; pars cephalica rounded, ocular tubercle not projecting forward of eyes; pars thoracica higher medially than laterally or posteriorly, gradually sloping toward sides and back, with slight submarginal elevations opposite coxal bases, separated by submarginal depressions opposite coxal interspaces; cuticle of both sexes with sculpturing consisting of roughly hexagonal cells, armed with few, weak setae; thoracic groove obsolete; clypeus with pair of rounded elevations at lateral corners. Eyes in single transverse row (fig. 2); anterior median eyes dark, others (probably anterior laterals) pale, translucent; anterior medians separated by almost their diameter, united by oval ring of black pigment; anterior laterals half their size, separated from anterior medians by their own diameter. Chelicerae with median lamina terminating in toothlike tip; proximal half of space between lamina and base of fang occupied by white membranous lobe; lateral surface with long series of stridulatory ridges



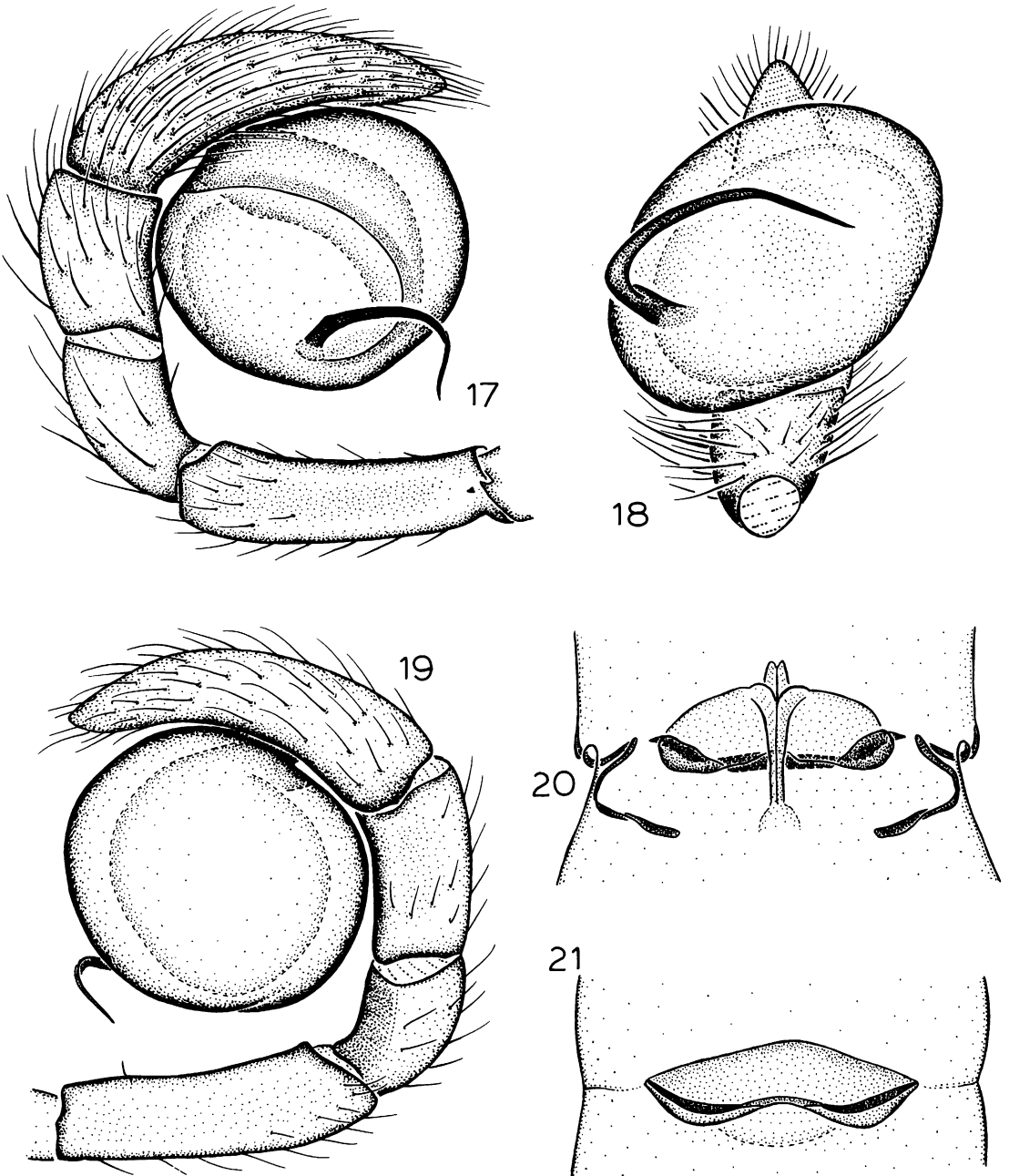
Figs. 1–4. Carapace, dorsal views. 1. *Caponina chilensis* Platnick. 2. *Notnops calderoni*, new species. 3. *Taintnops goloboffi*, new species. 4. *Tisentnops leopoldi* (Zapfe).



Figs. 5-10. *Notnops calderoni*, new species, female. 5. Chelicera, ventral view, showing stridulatory file. 6. Stridulatory pick from palpal femur, prolateral view. 7. Endite, anterior view, showing serrula and three setae with enlarged bases. 8. Claws of leg IV, lateral view. 9. Tarsal organ from leg I, dorsal view. 10. Trichobothrial base from metatarsus I, dorsal view.



Figs. 11–16. *Notnops calderoni*, new species, spinnerets, posterior views. 11–13. Female. 14–16. Male. 11, 14. Anterior lateral spinnerets. 12, 15. Posterior median spinnerets. 13, 16. Posterior lateral spinnerets.



Figs. 17–21. *Notnops calderoni*, new species. 17. Left male palp, prolateral view. 18. Same, ventral view. 19. Same, retrolateral view. 20. Female genitalic system, dorsal view. 21. Sclerotized elements of female genitalic system, dorsal view.

(fig. 5); pick for stridulatory ridges adjacent to normal seta at base of prolateral side of palpal femur (figs. 6, 17). Endites strongly convergent, not protuberant posteriorly, almost pointed distally, anterior surface distally with strong serrula consisting of single tooth row, proximally with three strong setae originating from enlarged bases (fig. 7). Labium triangular, fused to sternum along deep posterior groove; no tiny teeth detected on anterior surface of labrum. Sternum shield-shaped, cuticle glabrous; cephalothoracic membranes with three epimeric sclerites dorsal of coxae I, II, and III plus IV; epimeric sclerites not fused with triangular sclerites extending from sternal margin to and between coxae. Female palpal tarsus only slightly expanded, without claw, with numerous long setae, including conspicuous, dense patch of setae prolaterally but without dorsal pad of shortened setae. Leg formula 4123; legs without spines; metatarsi and tarsi entire, without subsegmentation or membranous processes; tarsi with three claws; paired claws with about seven teeth, most distal of which are largest; unpaired claw without teeth, distinctly protruding from onychium (fig. 8). Tarsal organ exposed (fig. 9), with pronounced marginal ridges; trichobothria present on tibiae, metatarsi, and tarsi, their bases with semicircular rim bearing slight longitudinal ridges (fig. 10). Abdomen with two pairs of respiratory spiracles clustered around epigastric groove; anterior spiracles leading to numerous tracheoles; posterior spiracles each leading to three large tracheal trunks (two extending anteriorly, one posteriorly); posterior spiracles connected by transverse duct. Spinnerets small, short, in typical caponiid arrangement; anterior laterals with single large major ampullate gland spigot and three smaller piriiform gland spigots in female (fig. 11), male with only major ampullate and single piriiform gland spigot (fig. 14); posterior medians with single enlarged, posteriorly situated, wide, long-shafted spigot presumed to serve minor ampullate gland (figs. 12, 15); posterior laterals with about eight long-shafted aciniform gland spigots in female (fig. 13), four in male (fig. 16). Male palpal femur without dorsal tubercle; patella and tibia short, tibia excavated ventrally to cup bulb; cymbium only slightly expanded, without distinct

dorsal pad of short setae; embolus short, bent at right angle shortly beyond origin (figs. 17–19). Female genitalia with transverse sclerotized bar, expanded at sides, and membranous anteromedian receptaculum (figs. 20, 21); receptaculum directed dorsally, posteriorly (as in *Calponia*; Platnick, 1993: fig. 17).

***Notnops calderoni*, new species**

Figures 2, 5–21

TYPES: Male holotype from Quebrada de Alvarado, Valparaíso, Región de Valparaíso (V), Chile (Aug. 21, 1985; L. E. Peña), deposited in AMNH.

ETYMOLOGY: The specific name is a patronym in honor of Chilean arachnologist Raúl Calderón G., who provided an extensive series of this species.

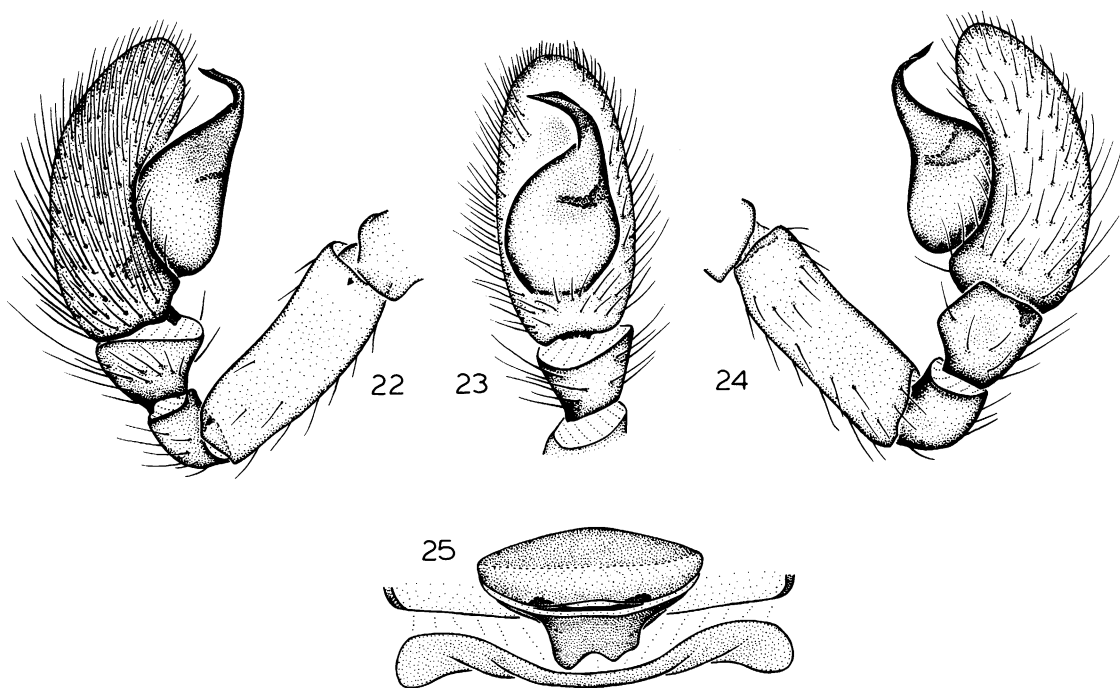
DIAGNOSIS: With the characters of the genus, a male palp as in figures 17–19, and internal female genitalia as in figures 20, 21.

MALE (Palmas de Ocoa): Total length 2.30. Carapace 0.94 long, 0.79 wide. Femur II 0.60 long. Carapace and sternum orange, chelicerae and mouthparts light orange, legs yellow, tibiae and metatarsi darkest, abdomen creamy white. Palpal bulb globose, embolus originating at about one-third of length, directed prolaterally at base but sharply angled and directed distally at tip (figs. 17–19).

FEMALE (Palmas de Ocoa): Total length 2.78. Carapace 1.02 long, 0.85 wide. Femur II 0.73 long. Coloration as in male. Anterior median receptaculum narrow, directed posteriorly, cross-shaped in cross section, originating from transverse sclerotized bar expanded at both ends (figs. 20, 21).

OTHER MATERIAL EXAMINED: CHILE: Región de Valparaíso (V): *Petorca*: Quebrada El Tigre, Cachagua, Nov. 8, 1988 (E. A. Maury, MACN), 4♂. *Quillota*: Cerro de La Campana, Parque Nacional La Campana, Sept. 4–Oct. 25, 1979, elev. 680–1020 m (G. Betancourt, AMNH), 2♂; Palmas de Ocoa, Parque Nacional La Campana, May 25–Dec. 21, 1984–1985, pitfall trap, unburned site (R. Calderón, AMNH, MNS), 31♂, 39♀. *Valparaíso*: Agua Santa, May 22, 1989 (T. Cekalovic, AMNH), 1♀; Quebrada de Alvarado, Aug. 21, 1985 (L. E. Peña, AMNH), 2♂.

DISTRIBUTION: Known only from Región de Valparaíso (V), central Chile.



Figs. 22–25. *Taintnops goloboffi*, new species. 22. Left male palp, prolateral view. 23. Same, ventral view. 24. Same, retrolateral view. 25. Female genitalic system, dorsal view.

Taintnops, new genus

TYPE SPECIES: *Taintnops goloboffi*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: Members of the genus can be separated from the other previously known caponiid genera as follows: from *Nops*, *Nopsides*, *Orthonops*, and *Tarsonops* by having the tarsi entire rather than subsegmented, from *Caponia*, *Calponia*, and *Notnops* by having only two eyes, from *Diploglena* Purcell by the normal (rather than anteriorly expanded) palpal endites, and from *Caponina* by the short, distally situated embolus of males and the distinct pad of shortened setae on the distodorsal surface of the female palpal tarsus. Because only a single pair of specimens is available for study, no scanning electron microscopy was carried out, and several characters of the genus therefore remain unstudied in detail.

DESCRIPTION: Small caponiids with two eyes. Carapace elongate, smoothly narrowed from widest point opposite coxae II; pars ce-

phalica flat, ocular tubercle not projecting forward of eyes; pars thoracica relatively flat, gradually sloping toward sides and back, without submarginal elevations opposite coxal bases or submarginal depressions opposite coxal interspaces; cuticle of pars cephalica glabrous, pars thoracica with sculpturing consisting of roughly hexagonal cells, bearing scattered long, dark setae; thoracic groove represented only by slight depression; clypeus without pair of rounded elevations at lateral corners. Eyes represented by single pair (fig. 3) of anterior medians, dark, separated by less than their diameter, united by oval ring of black pigment, ring projecting backward in female to form w-shaped posterior margin. Chelicerae with median lamina terminating in toothlike tip; almost all of space between lamina and base of fang occupied by white membranous lobe; lateral surface with stridulatory ridges; pick for stridulatory ridges situated at base of prolateral side of palpal femur. Endites strongly convergent, not protuberant posteriorly, anterior surface apparently with serrula consisting of single tooth row, proximal setae not

scanned. Labium elongate, triangular, widest at about one-third of length, fused to sternum along deep posterior groove; anterior surface of labrum not scanned. Sternum oval, cuticle glabrous; cephalothoracic membranes with three epimeric sclerites dorsal of coxae I, II, and III plus IV; epimeric sclerites not fused with tiny triangular sclerites extending from sternal margin to and between coxae. Female palpal tarsus greatly expanded, without claw, with numerous long setae, including conspicuous, dense patch of setae prolaterally and distinct distodorsal pad of shortened setae. Leg formula 4123; legs without spines; metatarsi and tarsi entire, without subsegmentation or membranous processes; tarsi with three claws; paired claws with about seven teeth, most distal of which are largest; unpaired claw without teeth, distinctly protruding from onychium. Tarsal organ and trichobothrial morphology unstudied. Abdomen with two pairs of respiratory spiracles clustered around epigastric groove; tracheal morphology unstudied. Spinnerets in typical caponiid arrangement; anterior laterals greatly reduced, less than half as wide as posterior medians, females apparently with one major ampullate gland spigot and two smaller piriform gland spigots; posterior medians with single enlarged, medially situated spigot presumed to serve minor ampullate gland and several smaller, more peripheral spigots, arranged in ring, presumed to serve aciniform glands; posterior laterals with peripheral ring of several presumed aciniform gland spigots. Male palpal femur without dorsal tubercle; patella and tibia very short, tibia not excavated ventrally to cup bulb; cymbium only slightly expanded, with distinct distodorsal pad of short setae; bulb originating at about one-sixth of cymbium length, small, with distally situated, short, prolaterally bent embolus; tip of embolus arrow-shaped (figs. 22–24). Sclerotized portions of female genitalia consisting of large, oval median receptaculum bearing two triangular posterior extensions (fig. 25).

***Taintnops goloboffi*, new species**

Figures 3, 22–25

Types: Male holotype and female allotype taken at an elevation of 20 m on a beachside hill 6 km S Cruz Grande, Elqui, Región de

Coquimbo (IV), Chile (Oct. 6, 1992; N. I. Platnick, P. A. Goloboff, K. M. Catley), deposited in AMNH.

ETYMOLOGY: The specific name is a patronym in honor of one of the collectors of the types.

DIAGNOSIS: With the characters of the genus, male palp as in figures 22–24, and internal female genitalia as in figure 25.

MALE (holotype): Total length 2.34. Carapace 0.98 long, 0.60 wide. Femur II 0.61 long. Carapace and sternum orange, chelicerae and mouthparts light orange, legs yellow, femora and tibiae darkest, abdomen creamy white. Palpal bulb small, not as wide as cymbium, embolus originating distally, curved (figs. 22–24).

FEMALE (allotype): Total length 3.50. Carapace 1.13 long, 0.75 wide. Femur II 0.66 long. Coloration as in male. Internal genitalia including thin, flattened plate with two posterior extensions (fig. 25).

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from the type locality in northern Chile.

***Tisentnops*, new genus**

TYPE SPECIES: *Caponina leopoldi* Zapfe.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: Members of the genus can be immediately separated from those of all other caponiid genera by two characters. The two eyes are small and situated near the front of the carapace (fig. 4); all other caponiids have at least some of the eyes more posteriorly situated. The palpal endites (at least of females) are uniquely modified, extending posteriorly far beyond the posterior margin of the labium, and bearing anteriorly a marginal row of squared tubercles and a few submarginal tubercles as well (fig. 26).

***Tisentnops leopoldi* (Zapfe),
new combination**

Figures 4, 26

Caponina leopoldi Zapfe, 1962: 3, figs. 1–4 (female holotype from Papos, Antofagasta, Región de Antofagasta (II), Chile, in MNS, examined).

DISCUSSION: Zapfe (1962) indicated that five specimens of this species were collected in

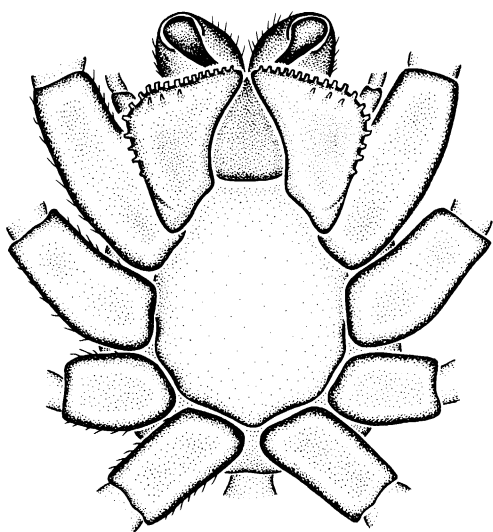


Fig. 26. *Tisentnops leopoldi* (Zapfe), female, sternum, labium, and endites, ventral view.

January, 1959, but only the holotype can now be located in MNS. It is in extremely poor condition, having apparently been dried and subsequently returned to alcohol on more than one occasion. Almost none of its characters can be studied in detail; in the condition in which it was found, one could merely presume, for example, that the animal at one time had spinnerets and that they might have been in the standard caponiid arrangement! However, prolonged immersion in lactic acid softened the cuticle sufficiently to suggest that the caponiid spinneret pattern is indeed present.

The type is apparently a female (although the palpal tarsus is long, only slightly inflated,

and lacks a distodorsal pad of short setae), but few genitalic details can be observed. The external genital region apparently bears an unusually shaped, arched sclerotization (Zapfe, 1962: fig. 4); internally the arch is accompanied by a membranous anteromedian receptaculum (probably extended dorsally and posteriorly as in *Calponia* and *Notnops*). Because so many questions are posed but unanswered by this single enigmatic specimen, various colleagues and I made two attempts (in 1993 and 1994) to recollect this species at the type (and nearby) localities. Despite about ten person/days of effort, those attempts were unsuccessful (although specimens of *Caponina chilensis* were taken on both occasions).

The animal is clearly misplaced in *Caponina* (see Platnick, 1994). Although I am loath to establish a new genus on the basis of a single specimen in such pitiful condition, there appears to be no alternative. The endite modifications (fig. 26) mentioned above apparently separate the species from all other known spiders, and the eye pattern (fig. 4) is unique within the family (the single pair might be the anterior laterals, rather than the anterior medians, judging by their small size and the similarities in their position to the placement of the anterior laterals in the genus *Nopsides*). Enough leg segments remain to indicate that the species is definitely not a nopine (the entire tarsi have paired claws with about five teeth and a smooth unpaired claw distinctly protruding from the onychium), but until new material is collected most of the characters of the genus will remain unknown and its relationships to the other non-nopine genera will remain obscure.

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