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On *Teutoniella*, an American Genus of the Spider Family Micropholcommatidae (Araneae, Palpimanoidea)

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ABSTRACT

The genus *Teutoniella* Brignoli, based on the Brazilian species *T. plaumanni* Brignoli, was described in the Anapidae but does not belong to that family. On the basis of its elevated cheliceral gland mound, reduced leg spination, extensively elevated pars cephalica, and reduced booklungs, *T. plaumanni* seems to belong instead to the palpimanoid lineage including the currently recognized families Tetracellidae and Micropholcommatidae. Because it (1) has only greatly reduced booklungs (or incipient anterior tracheae), (2) lacks the two features (extension of the anterior tracheae into the prosoma, and reduction of the female

pedipalp segment number) that are suggested to be synapomorphic for *Micropholcomma*, *Pua*, and *Parapua*, and (3) lacks the one putative synapomorphy (loss of the posterior tracheae) uniting *Tetracella* (and its possible senior synonym *Eterosonycha*) and *Tricella*, *Teutoniella* may well represent the sister group of all those taxa. Rather than establish a new family-group name based on *Teutoniella*, we synonymize the Tetracellidae with the Micropholcommatidae and place *Teutoniella* in the latter family. A second species of *Teutoniella*, *T. cekalovici*, is described from Chile.

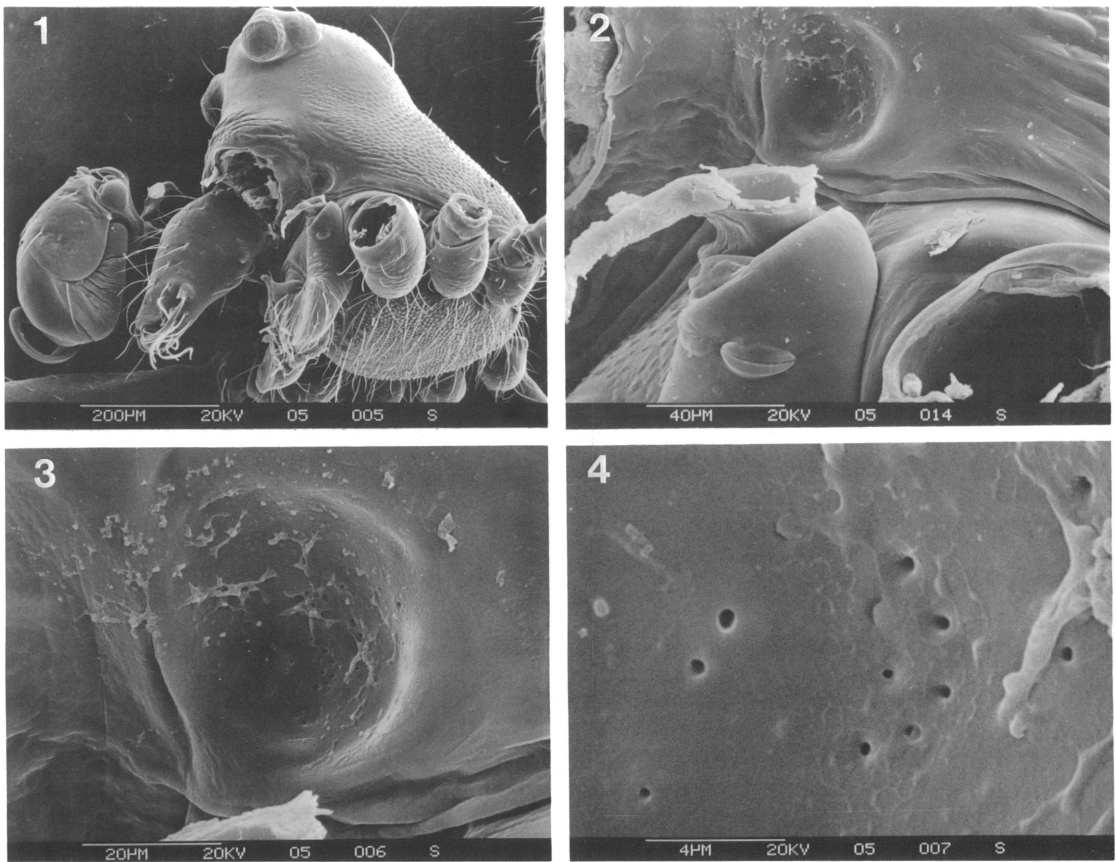
INTRODUCTION

In a wide-ranging study of the araneoid spider family Anapidae, Brignoli (1981) established a new genus, *Teutoniella*, for *T. plaumanni* Brignoli, a new species from Nova

Teutonia, Santa Catarina, Brazil. The description of this new genus was surprising, for earlier studies of the tropical American anapid fauna (Platnick and Shadab, 1978,

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Figs. 1–4. Undescribed species of *Anapisona* from Peru, male. 1. Oblique lateral view of cephalothorax; note anteriorly directed spur on labrum and circular depression on carapace (just above endite). 2–4. Circular depression on carapace, showing pores.

1979) had revealed members of only three genera (*Anapis*, *Anapisona*, and *Pseudanapis*). Additional tropical American collections examined since that time have also included only those three genera (although a large and entirely different anapid fauna, currently under study by us, is now known from Chile and southern Argentina).

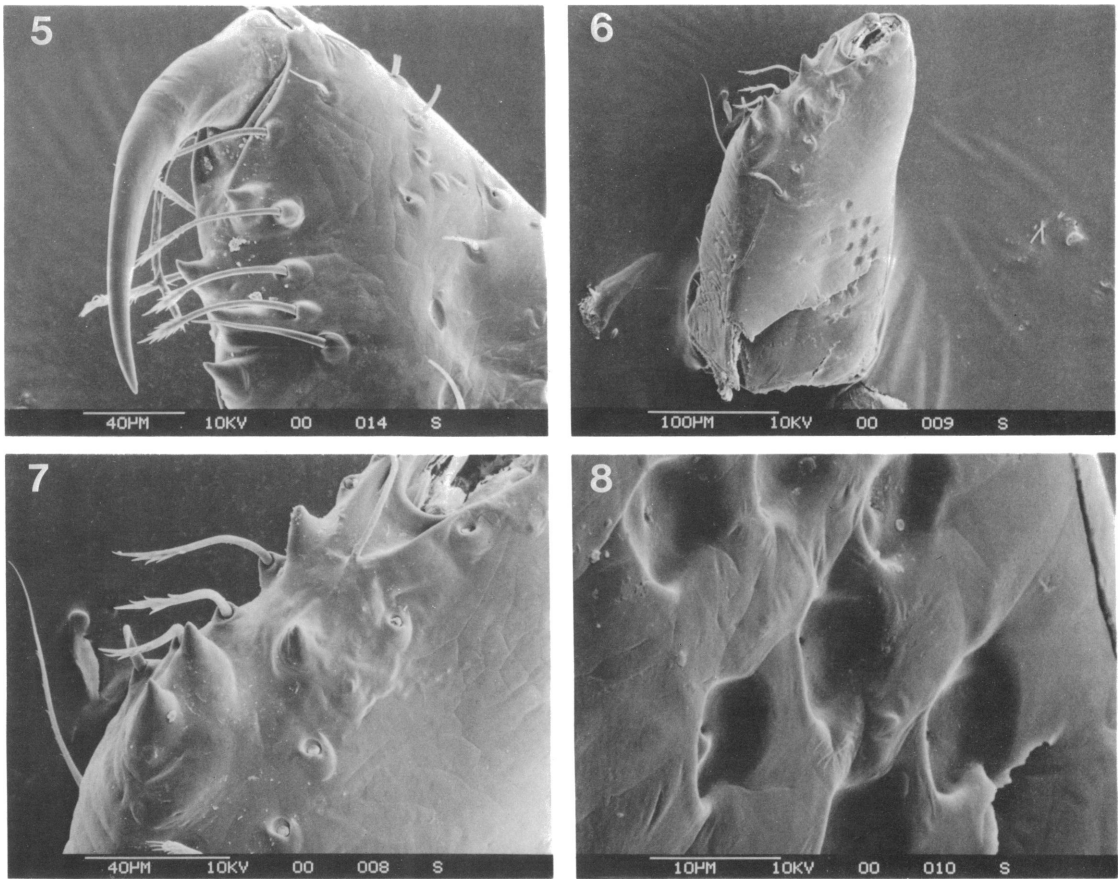
Recent collections of litter-dwelling spiders from Chile containing specimens of a second species of *Teutoniella* have allowed us to reassess the placement of the genus. Thanks to the kindness of Dr. B. Hauser of the Muséum d'Histoire Naturelle de Genève, Switzerland, we have been able to compare the Chilean species with paratypes of *T. plau-manni*.

We are also grateful to Dr. T. Cekalovic K. of the Universidad de Concepción for col-

lecting much of the Chilean material reported on here, to Dr. H. W. Levi of the Museum of Comparative Zoology, Harvard University, for loaning specimens, to Ms. C. M. Tibbetts for providing illustrations, and to Dr. J. Coddington of the National Museum of Natural History, Smithsonian Institution, for reviewing a draft of the manuscript. Fieldwork in Chile was supported by the Eppley Foundation for Research and the National Science Foundation (grant no. BSR-8312611), and our research has been supported by the National Science Foundation (grant no. BSR-8406225) and the Scientific Distribution Committee of the Golden Kiwi Lottery Fund.

SUPERFAMILIAL PLACEMENT

Only one synapomorphy of anapids has been suggested in the literature: the presence

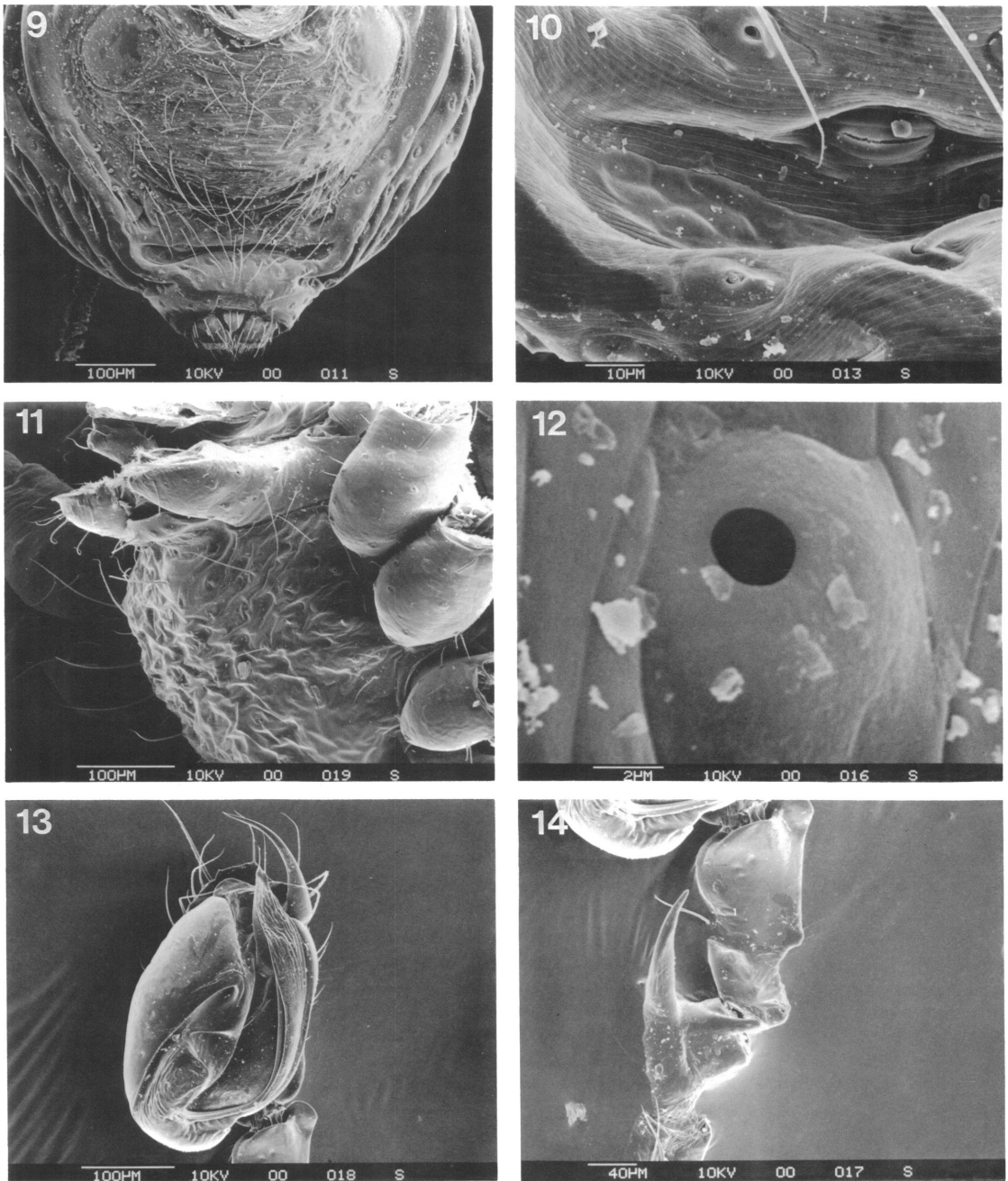


Figs. 5–8. *Teutoniella cekalovici*, new species, male. 5. Right chelicera, anterior view; note straight, stiff, proximal promarginal seta (peg tooth?). 6. Left chelicera, oblique posteroventral view; note circular proximal depressions. 7. Same; note elevated cheliceral gland mound fused to most proximal promarginal tooth. 8. Same, circular proximal depressions, showing pores.

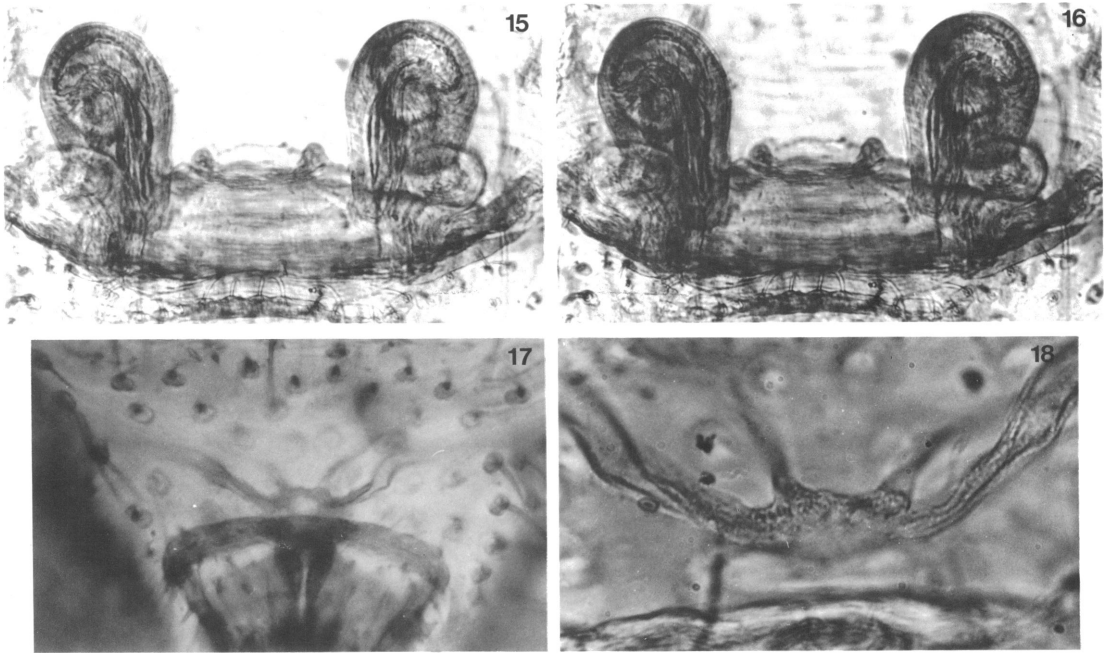
of a labral spur that protrudes anteriorly between the chelicerae (fig. 1; Platnick and Shadab, 1978, fig. 1, 1979, fig. 10). Examination of *Teutoniella* specimens has revealed no trace of a labral spur (fig. 11), or of one other previously unreported character that is widespread among the Anapidae and may prove to be a second synapomorphy for that family. That feature consists of a pair of pore-bearing, circular depressions found at the anterolateral corners of the carapace, just above the endites (figs. 1–4). In addition, the shape of the carapace in *Teutoniella* is unlike that of other anapids (and their close relatives, the symphytognathids and mysmenids; see Coddington, in press) in that the entire pars cephalica, rather than just the ocular area, is

greatly elevated. We conclude that Brignoli's placement of the genus in the Anapidae is unsupported.

At first glance, one might be tempted to consider *Teutoniella* a member of the (araneoid?) family Cyatholipidae, for externally the abdominal venter seems to show the two widely separated posterior tracheal spiracles characteristic of that group (figs. 9, 10). However, the apparent "spiracles" are just heavily sclerotized patches of cuticle, and the posterior tracheal system is actually a simple, four-branched one originating from a single spiracle situated near the base of the spinnerets (figs. 17, 18). The outer pair of tracheal tubes extend to just beyond the epigastric furrow, whereas the median pair are slightly



Figs. 9–14. *Teutoniella cekalovici*, new species, male. 9, 10. Abdomen, ventral view; note coxal invaginations anterolaterally on epigastric plate, large colulus, and false appearance of paired “spiracles.” 11. Sternum, labium, and endites, oblique ventral view; note absence of an anteriorly directed labral spur. 12. Tarsal organ from palpal cymbium. 13. Right palpal bulb, ventral view. 14. Right palpal patella, ventral view, showing two apophyses.



Figs. 15–18. *Teutoniella cekalovici*, new species, female. 15, 16. Epigynum, dorsal view. 17, 18. Posterior tracheal system, dorsal view.

shorter and terminate just behind the furrow. The posterior tracheae thus resemble those of the palpimanoid genus *Micropholcomma*, which have been described and illustrated by Hickman (1944) and Forster (1959).

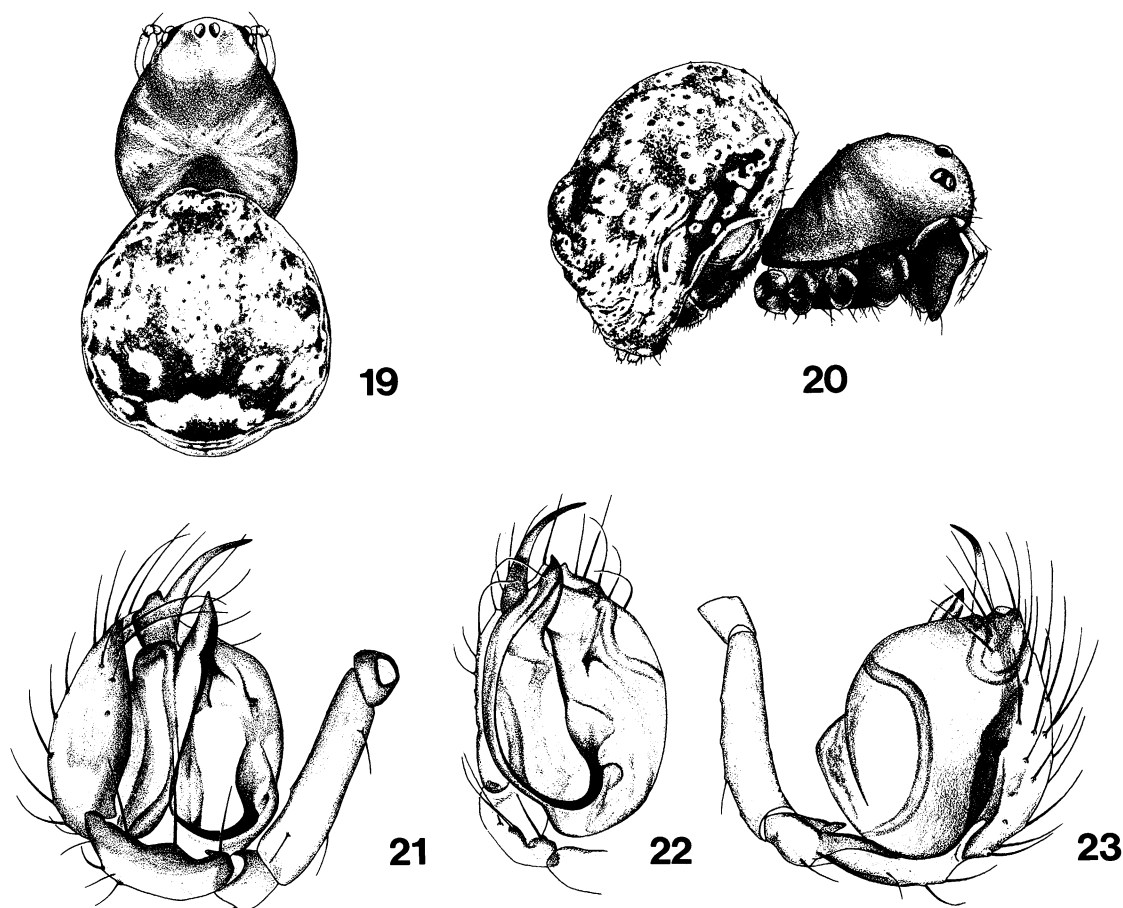
A number of other features of *Teutoniella* suggest that these spiders do indeed belong to the superfamily Palpimanoidea (rather than Araneoidea). The palpimanoids are currently united by two synapomorphies (Forster and Platnick, 1984, pp. 99–100, figs. 34–39, 116–124): the presence of an elevated cheliceral gland mound, and peg teeth on the cheliceral promargin (although the peg teeth are often reduced or absent in one or both sexes). The cheliceral gland mound of *Teutoniella* is distinctly elevated, forming a single unit together with the most proximal promarginal cheliceral tooth (fig. 7), as has been recorded also in the palpimanoid family Tetracellidae (compare Forster and Platnick, 1984, fig. 371). No distinct peg teeth have been observed in *Teutoniella*, although the most proximal promarginal seta is stiffened and unfringed (figs. 5–7) and might represent a reduced (or incompletely developed) peg tooth.

Within the Palpimanoidea, *Teutoniella*

seems to be clearly allied with the lineage including the currently recognized families Tetracellidae and Micropholcommatidae, as indicated by the following characters that define the components of a cladogram of the superfamily (Forster and Platnick, 1984, fig. 394). The reduced leg spination associates the genus with the bulk of the superfamily (component 16) rather than with the Mimetidae; the absence of palpimanid-like spatulate hairs on the anterior legs and the presence of a pars cephalica elevated for its entire length place the genus in the archaeid-tetracellid lineage (component 13) rather than with the typical palpimanoids; and finally, the absence of archaeid-like carapace modifications and the reduction of the booklungs to just five or six elongated leaves (that could be regarded either as reduced lamellae or incipient tracheae) place the genus within the tetracellid-micropholcommatid lineage (component 12).

FAMILIAL PLACEMENT

No definitive cladistic analysis has ever been conducted for either the Tetracellidae or Micropholcommatidae (both of which are



Figs. 19–23. *Teutoniella cekalovici*, new species. 19, 20. Female, dorsal and lateral views. 21–23. Left male palp, prolateral, ventral, and retrolateral views.

very inadequately known, with numerous undescribed Australasian taxa sitting unworked in collections), and their limits (with respect to each other) are currently somewhat ambiguous. At present, *Textricella* Hickman (1945), its possible senior synonym *Eterosonycha* Butler (1932; see Davies, 1985), and *Tricella* Forster and Platnick (1981) are assigned to the Tetricellidae, whereas the three genera *Micropholcomma* Crosby and Bishop (1927, including its synonyms *Microlinypheus* Butler, 1932, and *Plectochetos* Butler, 1932), *Pua* Forster (1959), and *Parapua* Forster (1959) are placed in the Micropholcommatidae (see Brignoli, 1983).

So far as is known (Hickman, 1944, 1945; Forster, 1959; Forster and Platnick, 1977, 1981, 1984), all of these taxa are lungless;

insofar as *Teutoniella* might be construed as still possessing anterior booklungs (rather than tracheae), it would therefore appear to constitute the sister group of all the above genera taken together. This hypothesis gains credibility when an attempt is made to place *Teutoniella* in either the Micropholcommatidae or Tetricellidae.

Only two characters have been noted in the literature which seem at all likely to be synapomorphic for *Micropholcomma*, *Pua*, and *Parapua*: the extension of at least one pair of the anterior tracheal tubes into the prosoma (Hickman, 1944, figs. 34, 35; Forster, 1959, figs. 135–138, 141), and the reduction in the number of segments of the female pedipalp (Butler, 1932, fig. 4; Hickman, 1944, figs. 8, 12, 19, 29, 1981, fig. 32; Forster, 1959, figs.

75, 81). Neither of these characters is found in *Teutoniella*.

The problem is even worse in the Textricellidae; only one feature has been suggested as a familial synapomorphy (Forster and Platnick, 1981), namely the presence of only anterior tracheae that are confined to the abdomen. This loss of the posterior tracheae appears to have happened at least twice independently, however, as both *Pua* and *Parapua* resemble *Textricella* and *Tricella* in lacking posterior tracheae (Forster, 1959), a problem that was overlooked in the brief discussion of micropholcommatids provided by Forster and Platnick (1984). In any case, as indicated above, *Teutoniella* resembles *Micropholcomma* rather than textricellids in having posterior tracheae, and there is thus no basis for placing it within the Textricellidae.

Given this rather unsatisfactory situation, only two possibilities are open. One is to place *Teutoniella* in a family of its own, considered to be the sister group of the Textricellidae and Micropholcommatidae together (or at least to form a trichotomy with them). The other, preferred here in view of the homoplasy clearly indicated in the loss of the posterior tracheal system, is to accept that the Textricellidae, as currently defined, may well be paraphyletic (in excluding the current Micropholcommatidae), and to recognize only one family for the entire range of taxa. Accordingly, the younger name (Textricellidae) is synonymized below.

BIOGEOGRAPHY

The distributions of the genera discussed above are as follows: *Textricella* and *Eterosonycha* contain numerous species, probably representing several different genera (Forster and Platnick, 1981), from Australia, Tasmania, New Guinea, New Zealand, and the Auckland and Campbell Islands; *Tricella* contains one species from Chile; *Micropholcomma* contains several species from Australia and Tasmania; and *Pua* and *Parapua* each contain a single described species from New Zealand.

Given that *Tricella* is already known from Chile, it is perhaps not too surprising that a second species of *Teutoniella*, described be-

low, should be found there as well. Because of the remarkably high degree of generic endemism in Chilean litter-dwelling spiders, however, the presence of *Teutoniella* in both Chile and southern Brazil might seem anomalous. In a brief recent discussion of the collections amassed by the original collector of *Teutoniella*, Fritz Plaumann, Penny and Ratcliffe (1985, p. 23) pointed out that "The mountainous area of Santa Catarina and Parana [where Plaumann did much of his collecting] is one of only two temperate forest areas in South America, and, as such, shows some faunal affinity to southern Chile."

MICROPHOLCOMMATIDAE HICKMAN

Micropholcommatidae Hickman, 1944, p. 183 (type genus *Micropholcomma* Crosby and Bishop).

Textricellidae Hickman, 1945, p. 136 (type genus *Textricella* Hickman). NEW SYNONYMY.

DIAGNOSIS: Micropholcommatids can be distinguished from other spiders by the combined presence of an elevated cheliceral gland mound and anterior booklungs reduced to either a few elongated leaves or true tracheae; males typically have one or more apophyses on the palpal patella.

DESCRIPTION: See Hickman (1944, 1945), Forster (1959), Forster and Platnick (1977, 1981, 1984), and Davies (1985).

SYNONYMY: See Familial Placement, above; both families were previously synonymized with the Symphytognathidae by Forster (1959) but were removed from that group and considered valid by Forster and Platnick (1977, 1984), Brignoli (1983), and Davies (1985).

Teutoniella Brignoli

Teutoniella Brignoli, 1981, p. 119 (type species by original designation *Teutoniella plaumanni* Brignoli).

DIAGNOSIS: Species of *Teutoniella* can be separated from those of *Micropholcomma*, *Pua*, and *Parapua* by the presence of a normal pedipalp in females and the restriction of the anterior "tracheae" to the abdomen, and from those of *Textricella* and *Tricella* by the presence of posterior tracheae.

DESCRIPTION: See Brignoli (1981); the for-

mat of the species description follows that of Forster and Platnick (1981).

Teutoniella cekalovici, new species

Figures 5–23

TYPES: Male holotype and female paratype from a Berlese sample of concentrated forest floor litter taken at an elevation of 90 m in a modified forest at Estero Nonquen, Provincia de Concepción, Region del Bío-Bío (VIII), Chile (November 16, 1981; N. I. Platnick, R. T. Schuh, T. Cekalovic K.), deposited in the American Museum of Natural History; male and female paratypes (same data) deposited in the Muséum d'Histoire Naturelle de Genève, Switzerland.

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

DIAGNOSIS: Males can be distinguished from those of *T. plaumanni* by their longer embolus, the most proximal section of which is directed proximally rather than prolaterally (figs. 21, 22), females by the relatively longer spermathecae (figs. 15, 16).

MALE: Total length 0.97. Carapace 0.49 long, 0.50 wide, 0.27 high. Abdomen 0.55 long, 0.49 wide. Carapace orangish brown, without reticulate patterning. Abdomen without dorsal scutum, pale gray with darker reticulate patterning and small brown sclerotizations (figs. 19, 20). Legs with femora and tibiae orangish, other segments lighter.

Carapace with pars cephalica elevated from anterior edge back to thoracic groove; surface coated with tiny, closely packed, almost circular depressions, with two long setae along median line of pars cephalica and shorter setae along posterior declivity and clypeus; aperture of pedicel in advance of posterior margin. Ratio of ALE:PME:PLE, 3:4:4. AME absent, ALE separated by six times their diameter. Lateral eyes contiguous. PME separated by almost their diameter, by twice their diameter from PLE. Clypeal height four times the ALE diameter. From front, posterior eye row procurved.

Chelicerae (figs. 5–8) vertical, with slight lateral boss, promargin with five or six stiff setae, most proximal of which is unfringed, and three true teeth, most proximal of which

is fused to elevated cheliceral gland mound; retromargin with one true tooth; posterior surface of paturon with patch of about eight large, circular, pore-bearing depressions, situated at about half length of paturon.

Sternum shield-shaped, slightly wider than long, coarsely punctate; posterior margin broadly truncated; coxae IV separated by twice their diameter. Endites almost twice as long as wide, convergent but still widely separated at tips. Labium triangular, wider than long in ratio of 14:11, not rebordered.

Legs clothed with fine hairs, tibiae each with two long paramedian dorsal bristles, no spines. Two trichobothria on tibiae, one subdistal on metatarsi; bothria unmodified. Tarsal organ obliquely elevated, subproximal, with circular aperture (fig. 12). Measurements:

	I	II	III	IV	Palp
Femur	0.65	0.47	0.42	0.52	0.23
Patella	0.14	0.14	0.13	0.14	0.11
Tibia	0.54	0.43	0.29	0.47	0.16
Metatarsus	0.18	0.16	0.13	0.17	—
Tarsus	0.49	0.40	0.39	0.39	0.27
Total	2.00	1.60	1.36	1.69	0.77

Abdominal cuticle thickened, ridged laterally, with rows of round to oval sclerotizations between ridges; epigastric area strongly sclerotized, sclerotization extending narrowly around sides of petiole, expanded laterally at dorsal edge of petiole. Six spinnerets, medians tiny, not encircled by sclerotized scutum; colulus large, triangular plate (fig. 10).

Palp as in figures 13, 14, 21–23; patella with long, spike-shaped, subdistal retrolateral apophysis and shorter, pronglike, prolaterally directed, distoventral apophysis; tibia short, ventrally excavated, bearing two strong prolateral bristles; cymbium small, unmodified, embolus long, originating ventrally, supported distally by sinuous conductor situated just ventrally of long, distal apophysis.

FEMALE: As in male, except for the following. Total length 1.21. Carapace 0.54 long, 0.49 wide, 0.29 high. Abdomen 0.83 long, 0.67 wide. Measurements:

	I	II	III	IV	Palp
Femur	0.65	0.58	0.47	0.55	0.18
Patella	0.16	0.14	0.14	0.16	0.09
Tibia	0.58	0.48	0.36	0.50	0.11
Metatarsus	0.25	0.20	0.16	0.18	—
Tarsus	0.45	0.44	0.39	0.40	0.20
Total	2.09	1.84	1.52	1.79	0.58

Pedipalp normal. Epigynum as in figures 15, 16.

ADDITIONAL MATERIAL EXAMINED: All specimens are deposited in the American Museum of Natural History unless otherwise noted. **CHILE: Region del Bío-Bío (VIII): Provincia de Concepción:** Agua de la Gloria, Aug. 14, 1978 (T. Cekalovic K., Museum of Comparative Zoology), 1♀; Cerro Caracol, Mar. 25, 1973, Berlese (T. Cekalovic K.), 1♀, Apr. 10, 1977, Berlese (T. Cekalovic K.), 1♂, 2♀; Estero Bellavista-Dichoco, Apr. 12, 1984, Berlese (T. Cekalovic K.), 1♂; Estero Nonquen, Nov. 16, 1981, Berlese, concentrated forest floor litter from modified forest, elev. 90 m (N. I. Platnick, R. T. Schuh, T. Cekalovic K.), 5♂, 12♀, Dec. 6, 1981, Berlese (T. Cekalovic K.), 3♂, 10♀, Dec. 3, 1982, Berlese (T. Cekalovic K.), 1♂, 2♀, Apr. 2, 1983, Berlese (T. Cekalovic K.), 1♂, 2♀; Parque Hualpén, Jan. 19, 1979, Berlese (T. Cekalovic K., Museum of Comparative Zoology), 1♂, 1♀, Dec. 10, 1981, Berlese (T. Cekalovic K.), 8♂, 9♀; Tomé, Oct. 8, 1983, Berlese (T. Cekalovic K.), 3♂, 5♀. **Region de los Lagos (X): Provincia de Chiloé:** Canan, Isla de Chiloé, Feb. 26, 1972, Berlese (T. Cekalovic K.), 8♂, 8♀.

DISTRIBUTION: South-central Chile.

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