

## DESCRIPTIONS OF TWO NEW SPIDER GENERA OF TRECHALEIDAE (ARANEAE, LYCOSOIDEA) FROM SOUTH AMERICA

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**ABSTRACT.** Two new genera in the spider family Trechaleidae, *Trechaleoides* and *Paratrechalea*, are described. The females of the two known species of *Trechaleoides*, *T. keyserlingi* (F.O.P.-Cambridge) (type species) and *T. biocellata* (Mello-Leitão) are redescribed and their respective males are described for the first time; both are transferred from *Trechalea*. Two additional previously described species, also both transferred from *Trechalea*, are herein placed in the genus *Paratrechalea* are redescribed from their types, i.e., the female of *P. ornata* (Mello-Leitão) (type species) and male of *P. wygodzinskyi* (Soares & Carmargo). The male of *P. ornata* is described for the first time. Four new species of *Paratrechalea*, *P. longigaster*, *P. galianoae*, and *P. azul* from females, and *P. saopaulo* from males and females are described. The immature specimen historically regarded as the holotype of *Trechalea longitarsis* (C.L. Koch) and regarded as a mistaken identity, is an unidentified species of *Trechaleoides*. The female holotype of *Trechalea limai* Mello-Leitão is confirmed to be lost but is considered to be a member of the genus *Paratrechalea* based on a study of the original description.

**Keywords:** Trechaleidae, *Trechaleoides*, *Paratrechalea*, new genera, new species

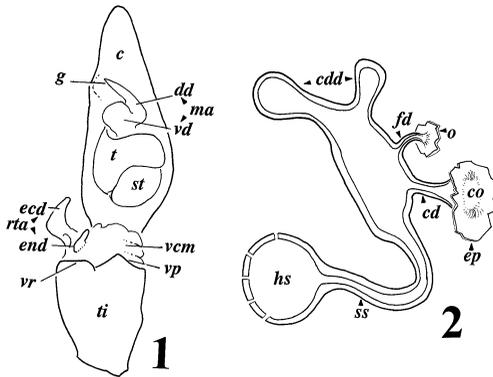
Since the reintroduction of Simon's (1890) family Trechaleidae (Carico 1986), its validity has been confirmed through the work of others (Sierwald 1990 [Trechaleidae not recognized but acknowledged as a distinct "Trechalea genus-group"], 1993, 1997; Coddington & Levi 1991 [cladistic analysis]; Griswold 1993 [cladistic analysis]). Beginning with the redefinition of the family along with a revision of its type genus *Trechalea* Thorell 1869 (Carico 1993), the goal was to reveal the taxonomy of the remaining members of this unique family through revisions of the included genera. The current work represents an additional step towards this goal.

In this work, two new genera are erected to include species (specified below) that were previously placed into *Trechalea* and additionally to contain species not previously described. In the process of defining these genera, references are made to characters used in the previously mentioned study of the genus *Trechalea* in order to further develop and refine a set of characters that will ultimately distinguish among all the closely-related monophyletic genera of the family (*sensu* Carico 1993).

These two new genera share with *Trechalea*,

and no other genus identified in the family, the characteristic of having only the tarsi flexible. However, the characteristics of the genitalia clearly distinguish these new genera from each other as well as from *Trechalea*. To distinguish the males from those of *Trechalea*, the median apophysis of the palpal bulb (Fig. 1) has a less complex ventral division in the former species. Additional features of this structure, detailed below, will distinguish between the new genera. In females of these new genera, a typical middle field of the female epigynum (Figs. 6, 20), present in *Trechalea* is absent; instead, there is a pronounced scape. Internally the notable differences with *Trechalea* are that the spermathecae are free and that pairs of diverticula (rather than only one) arise from a common chamber. Additional details of the external and internal structures of the female genitalia, as reported below, will distinguish between the new genera.

Little is known about the biology of representatives of these genera. However, there are indications from fragmentary evidence that these genera share a feature with *Trechalea*, i.e., they apparently occupy a semi-aquatic habitat based on references to place names of streams on the collection labels. The



Figures 1, 2.—Diagrammatic genitalia of *Trechaleoides* and *Paratrechalea*. 1. right palpus, ventral view; 2. internal structures of female genitalia. (Abbreviations explained in text)

unique structure of the egg sac and manner of carrying the spiderlings on it while attached to the spinnerets, first described for *Trechalea extensa* (O.P.-Cambridge) by Berkum (1982), is apparently also confirmed as a characteristic of the family. This conclusion derives from an assumption that the details of the egg sac's structure, as described by Carico (1993) for *Trechalea* and presumed to be a family trait, is consistent with the structure of egg sacs found with specimens of the new genera.

The distributions of these two genera overlap in a region of South America between 15°S and 35°S latitude, an area which includes regions of southern Brazil, northern Argentina, and Paraguay and is locally known as the "Cone Sul" (Southern Cone). Therefore, it appears that their distribution is primarily related to streams of the lower Rio la Plata river basin and the several smaller coastal streams. From a preliminary overview of the distributions of all trechaleid genera in South America, the two new genera considered herein may be the predominant representatives of the family in this region. Two species of Mello-Leitão from this region, *Trechalea limai* Mello-Leitão 1941 and *T. syntrechaleoides* Mello-Leitão 1941, whose types were previously unobtainable from the Museu Nacional, Rio de Janeiro during a previous study (Carico 1993) were never the less regarded to be misplaced in *Trechalea*. Recently, access to these specimens was obtained resulting in a conclusion that *T. limai* is lost and probably destroyed (A.B. Kury pers. comm.). Careful

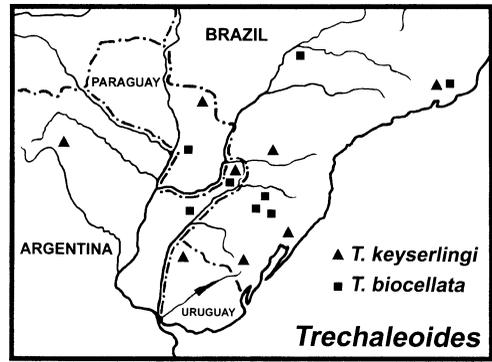


Figure 3.—Distribution of species of *Trechaleoides*.

analysis of the description of *T. limai* reveals that it is a species *nomen dubium* in the genus *Paratrechalea*. *Trechalea syntrechaleoides*, however, is not congeneric with the genera in this report, and its status will be treated elsewhere in a separate generic revision.

The nomenclature of the genitalia and other anatomical features follow Carico (1993 [genitalic terminology after Sierwald 1989, 1990]). Because of its rigidity and relative resistance to distortion, carapace length is emphasized as an index of body size, particularly in discussions of variation. Measurements and scales are in millimeters.

Specimens examined during this study are lodged in the following museums: Museu de Zoologica da Universidad de São Paulo (MZUSP); Museum of Comparative Zoology, Harvard (MCZ); Natural History Museum, London (BMNH); Museu de Ciências Naturais, Porto Alegre (MCN); Museo Argentina de Ciencias Naturales, Buenos Aires (MACN); Museo Nacional de Historia Natural, Montevideo (MNHN); Museo de la Universidad Nacional de la Plata (MLP); Museu Nacional, Rio de Janeiro (MNRJ); Universidade Federal do Rio Grande do Sul, Porto Alegre (UFRGS), and Peabody Museum of Natural History, New Haven (PMNH).

#### *Trechaleoides* new genus

**Type species.**—*Trechalea keyserlingi* F.O.P.-Cambridge 1903.

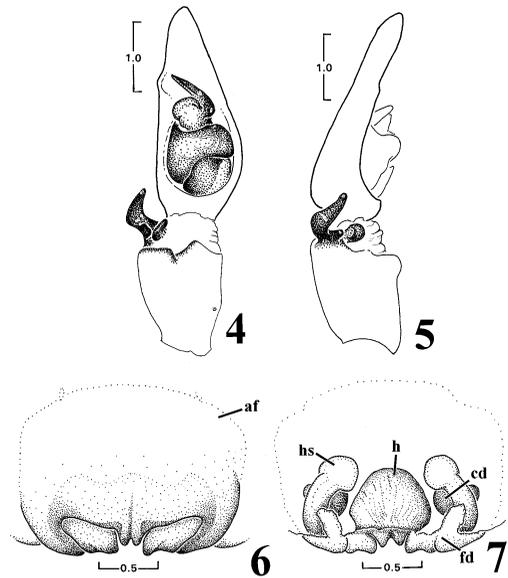
**Etymology.**—The feminine generic name indicates its relationship with the genus *Trechalea*.

**Diagnosis.**—*Trechaleoides* can be distinguished from all other described genera of

Trechaleidae (*sensu* Carico 1993) by a combination of characters. In the male palpus, the ventral division (vd) of the median apophysis (ma) is a simple, small, rounded projection rather than angular, and the guide (g) is conspicuous, more slender and tapered than in *Trechalea* and *Hesydrus*. The ventral division is also simplified and rounded in *Paratrechalea* but it is much expanded there. The epigynum is distinguished by a pair of small postero-lateral projections separated by sutures from the middle anterior field, and by details of the internal female genitalia including a postero-median hood-like chamber. A small retromarginal tooth is adjacent to the most proximal tooth and offset into the fang furrow. These are relatively large spiders with the carapace length ranging from 6.1–11.0.

**Description.**—Carapace moderately low, cephalic area not distinct, AE row straight or slightly recurved. Each basal segment of male chelicera not swollen anteriorly and without a lateral carina; promarginal teeth three with center one largest, five retromarginal teeth (occasionally four) with a smaller tooth offset between the proximal two into the fang furrow. Leg lengths variable but III always shortest while others often subequal, only tarsi flexible, all claws dentate, paired ventral macrosetae on tibia.

Male palpal bulb (Fig. 1) median apophysis (ma) with distal, curved sickle-shaped dorsal division (dd) narrow, tapered, with tip conspicuous, and directed ventrad, a small, rounded ventral division (vd) of variable size but shape distinctive for each species; retrolateral tibial apophysis (rta) arising distally and laterally from near the ventro-distal rim (vr) with ectal division (ecd) divided into two subdivisions, dorsal one longer and curved and ental division (end) partly surrounded by ventral cymbio-tibial membrane (vcm); tibial ventral rim (vr) of ventral protuberance (vp) folded over to create a particularly deep depression in the ventral cymbio-tibial membrane (vcm). The epigynum (Fig. 6) is a slightly convex, nearly circular anterior field (af) with pair of small projections at posterior margin whose long axes tend to transverse, middle field (mf) absent; internally (Figs. 2, 7) the stalked spermathecum head (hs) large and not attached to other components; a pair of diverticula arising from a large common chamber (probably enlarged portion of copulatory duct), both cop-



Figures 4–7.—Genitalia of *Trechaleoides keyserlingi*. 4, 5. right palpus; 4. ventral view, 5. retrolateral view; 6, 7. female genitalia; 6. ventral view, 7. dorsal view. af = anterior field, cd = copulatory duct, fd = fertilization duct, h = hood, hs = head of spermathecum, mf = middle field.

ulatory duct (cd) and fertilization duct (fd) arising from this common chamber; large, hood-shaped structure (h) located postero-medially.

**Natural history.**—Egg sacs show the basic trechaleid construction as described for *Trechalea* (Carico 1993, fig. 6), i.e., a flattened disc with a peripheral “skirt”. The aquatic habitat preference is suggested by the reference to “Arroyo” or “Rio” on some collection labels and is consistent with what is known of other genera, i.e.; *Trechalea* (Carico 1993), *Hesydrus* (pers. obs.), and *Paradossenus* F.O.P.-Cambridge 1903 (Brescovit et al. 2000).

**Distribution.**—Found in South America southward from the Brazilian state of Minas Gerais into Paraguay, northern Argentina, and Uruguay (Fig. 3).

**Remarks.**—The specimen mistakenly regarded by F.O.P.-Cambridge (1903) as the type of *Trechalea longitarsis* is actually an immature female of this new genus (Carico 1993) as indicated by the unique characters of retromarginal teeth of the chelicerae, particularly by the presence of a small tooth placed into the fang furrow between the proximal two

larger teeth. Although the typical number of retromarginal teeth is five, there are specimens which have four on one of the chelicera. The locality label with that specimen, "Brazil," is also consistent with the location of this genus. Because of immaturity and the general poor condition of this specimen, it cannot be confidently attributed to any of the species recognized in this work.

*Trechaleoides keyserlingi*  
(F.O.P.-Cambridge 1903)  
Figs. 3–7

*Trechalea keyserlingi* F.O.P.-Cambridge 1903:163, plate 15, figs. 1, 2; Roewer 1954:142; Bonnet 1959:4679; Petrunkevitch 1911:549; Carico 1993:237 (non *Trechalea*); Platnick 2004.

**Type material.**—Holotype female, Rio Grande do Sul, Brazil, Keyserling (BMNH, examined).

**Material examined.**—ARGENTINA: *Tucumán*: San Pedro de Colalao, 26°22'S, 65°57'W, March 1967, A. Barrio, 1 ♀ (MACN); *Misiones*: Puali, 27°00'S, 55°00'W, Sciap, J. Carlo?, 1 ♀ (MACN). BRAZIL: *Rio Grande do Sul*: São Jerônimo-Fazenda Casa Branca, 29°58'S, 51°43'W, 20–21 May 1982, J.E. Hennig, 1 ♂ (MCN #10373); São Leopoldo, 29°46'S, 51°09'W, 25 March 1983, C.J. Becker, 1 ♂ (MCN #11517); no locality, 28 October 1981, A.A. Lise, 1 ♀ (MCN #9955); state unknown, 22 November 1987, A.D. Brescovit, 2 ♀ (MCN #17222). PARAGUAY: near Pedro Juan Caballero, 23°00'S, 56°00'W, 25–27 November 1956, C.J.D. Brown, 1 ♀ (MCZ). URUGUAY: *Salto*: Rio Arapey, 30°55'S, 57°49'W, 13 December 1954, collector unknown, 1 ♀ (MNHN).

**Diagnosis.**—Females of this species are distinguished by the pair of posterior protuberances of the epigynum which are smooth and not folded, and males by the palpal tibia which is approximately half the length of the cymbium.

**Description.**—*Male (São Jerônimo, Rio Grande do Sul, Brazil)*: Carapace medium brown with wide submarginal light bands, dark marginal bands widening posteriorly, black in eye region, length 7.9, width 7.0. Sternum light, with median dusky band on anterior two-thirds, length 4.2, width 3.7; labium reddish-brown, lighter at distal margin, length 1.57, width 1.30. Clypeus height 0.88, width 3.20. Anterior eye row slightly recurved, a

cluster of bristles posterior to each PLE, eye measurements in Table 1. Cheliceral faces medium reddish-brown, each with a dark longitudinal band clothed with scattered light and dark hairs, five retromarginal teeth, subequal in size except smaller fifth one between first and third offset into the fang groove. Legs II–IV–I–III, measurements in Table 2, ventral macrosetae pairs on tibiae I–4, II–4, III–3, IV–3. Color of legs medium brown, marked only with faint maculae on dorsum of each femur. Abdomen hairless above (probably rubbed) with distinct dorsal pattern, length 8.0. Palpus (Figs. 4, 5) tibia length approximately half length of cymbium, bulb t and st prominent, vd of ma flattened, moderate-sized, rounded in outline, and not covering the dd, ecd of rta prominent and angular.

*Female (holotype)*: Carapace light with submarginal bands, broad dark median band divided longitudinally by a narrow median band widened between eyes and thoracic grooves, length 9.0, width 8.2. Sternum unmarked, length 5.0, width 4.2; labium length 1.65, width 1.60. Clypeus dark medially and light laterally, height 1.11, width 2.84. Anterior eye row slightly recurved, eye measurements in Table 1. Chelicerae dark and clothed with light hair, three promarginal teeth, five retromarginal teeth on right side and five on left, the smallest ones next to the most proximal teeth. Legs IV–II–I–III, measurements in Table 3, femora with irregular dark maculae, all other segments dark; tarsi flexible, spines not longer than one-third of respective segment. Abdomen dark median band with distinct lateral indentations in the posterior third, sides light with scattered maculae, venter light length 11.0. Pair of smooth projections at posterior margin of epigynum (Figs. 6, 7), internal structures as for genus.

**Variation.**—Carapace length of males average 7.17 (6.6–7.9,  $n = 3$ ) and of females 7.13 (6.1–8.8,  $n = 10$ ). Dorsal pattern similar in both sexes with little variation noted.

**Natural history.**—An egg sac from near Pedro Juan Caballero, Paraguay, collected late November, measured 15.0.

**Distribution.**—Northern Argentina, eastern tributaries of Rio Paraná in southern Paraguay and southern Brazil. Also, in some coastal drainages of southern Brazil (Fig. 3).

**Remarks.**—According to F.O.P.-Cambridge (1903), the type specimen was originally iden-

Table 1.—Eye measurements for species of *Trechaleoides* and *Paratrechalea* in mm. Measurements are dimensions within outer margins of entitties included. AE row = width of anterior eye row, PE row = width of posterior eye row, OQA = width of ocular quadrangle anteriorly (width of anterior median eye), OQP = width of ocular quadrangle posteriorly (width of posterior median eye), OQH = height of ocular quadrangle (height of anterior median eye and posterior median eye), PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye, ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE-PME = interdistance between posterior lateral eye and posterior median eye, PME-AME = interdistance between posterior median eyes, ALE-AME = interdistance between anterior lateral eye and anterior median eye, AME-AME = interdistance between anterior lateral eye and anterior median eyes. (“—” = not observed).

	<i>Tre-</i>		<i>Tre-</i>		<i>Tre-</i>		<i>Para-</i>		<i>Para-</i>		<i>Para-</i>		<i>Para-</i>		<i>Para-</i>	
	<i>chaleoides</i>		<i>chaleoides</i>		<i>chaleoides</i>		<i>ornata</i>		<i>ornata</i>		<i>zinskyyi</i>		<i>longigaster</i>		<i>galianovae</i>	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
AE row	1.40	1.70	1.70	1.50	0.79	0.80	1.14	0.80	0.84	1.11	0.78	0.76	0.78	1.11	0.78	0.76
PE row	2.46	3.12	3.1	2.76	1.50	1.45	1.96	1.44	1.64	1.90	1.45	1.46	1.45	1.90	1.45	1.46
OQA	0.75	0.90	0.90	0.81	0.44	0.44	0.58	0.40	0.46	0.57	0.40	0.38	0.40	0.57	0.40	0.38
OQP	1.15	1.35	1.45	1.33	0.73	0.70	1.03	0.75	0.83	0.96	0.72	0.76	0.72	0.96	0.72	0.76
OQH	1.06	1.37	1.28	1.14	0.61	0.58	0.94	0.61	0.70	0.84	0.62	0.60	0.62	0.84	0.62	0.60
PLE	0.50	0.60	0.60	0.55	0.32	0.26	0.44	0.25	0.35	0.41	0.33	0.33	0.33	0.41	0.33	0.33
PME	0.50	0.59	0.53	0.52	0.30	0.27	0.45	0.25	0.36	0.38	0.35	0.34	0.35	0.38	0.35	0.34
ALE	0.27	0.30	0.20	0.25	0.16	0.15	0.21	0.15	0.15	0.21	0.15	0.16	0.15	0.21	0.15	0.16
AME	0.33	0.39	0.36	0.37	0.17	0.17	0.26	0.17	0.22	0.18	0.19	0.18	0.19	0.18	0.19	0.18
PLE-PME	0.47	0.70	—	0.55	0.30	0.32	0.35	0.33	0.23	0.42	0.25	0.30	0.25	0.42	0.25	0.30
PME-AME	0.25	0.32	—	0.38	0.20	0.20	0.17	0.18	0.20	0.25	0.17	0.24	0.17	0.25	0.17	0.24
ALE-AME	0.11	0.16	—	0.15	0.03	0.05	0.06	0.08	0.06	0.08	0.08	0.10	0.08	0.08	0.08	0.10
AME-AME	0.17	0.20	—	0.19	0.11	0.13	0.06	0.08	0.10	0.10	0.12	0.12	0.12	0.10	0.12	0.12

Table 2.—Leg measurements of *Trechaleoides keyserlingi* male in mm.

Leg segment	I	II	III	IV
Femur	9.5	9.75	7.5	9.5
Tibia-patella	13.0	13.0	9.5	12.3
Metatarsus	10.3	10.4	7.8	11.6
Tarsus	7.4	8.1	4.2	7.4
Total	40.2	41.25	29.0	40.8

tified by Keyserling (1891) as *Trechalea longitarsis* (C.L. Koch 1848). However, the former recognized that the five retromarginal teeth of the chelicera and the shape of the epigynum clearly distinguish this species from the Koch species. It is these same characters, which, among others, also define the new genus, *Trechaleoides*.

*Trechaleoides biocellata* (Mello-Leitão 1926)  
NEW COMBINATION  
Figs. 3, 8–12

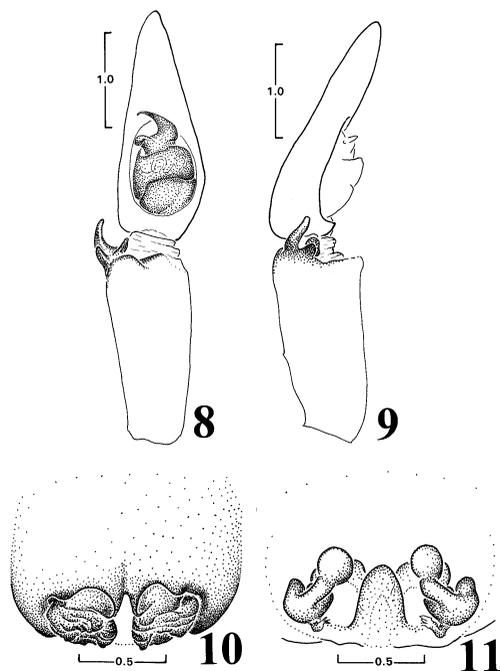
*Trechalea biocellata* Mello-Leitão 1926:3; Roewer 1954:142; Bonnet 1959:4678; Platnick 2004.

**Type material.**—Holotype female, Santa Catharina e Petrópolis, Rio de Janeiro, Brazil, Fr. Thomaz Borgmeyer (MNRJ, presumed lost, not examined)

**Material examined.**—ARGENTINA: *Misiones*: Paulitz(?), 27°00'S, 55°00'W, 1954, Schiapelli & De Carlo?, 1 ♂ (MACN); no locality, November 1954, Scial. Corio?, 1 ♂ (MACN). BRAZIL: *Rio Grande do Sul*: Ituba-Arroio do Tigre, 29°20'S, 53°06'W, 11 April 1978, A.A. Lise, 1 ♂ (MCN #7928); same locality, 12 April 1978, A.A. Lise, 1 ♀ (MCN #7978); same locality, 12 April 1978, C.J. Becker, 1 ♀, 1 juvenile (MCN #7904); same locality, 17 April 1978, A.A. Lise, 1 ♂, 5 juveniles (MCN #7978); Estreito Augusto César, Marcelino Ramos, 3 February, 1990, C. Martinazzo, 1 ♂, 1 juvenile (MCN #19532);

Table 3.—Leg measurements of *Trechaleoides keyserlingi* female in mm.

Leg segment	I	II	III	IV
Femur	11.1	11.6	9.5	11.6
Tibia-patella	15.0	14.8	11.0	14.2
Metatarsus	10.8	10.1	9.0	13.3
Tarsus	8.0	8.1	5.0	8.5
Total	44.9	44.6	34.5	47.6



Figures 8–11.—Genitalia of *Trechaleoides biocellata*. 8, 9. right palpus; 8. ventral view, 9. retro-lateral view; 10, 11. female genitalia; 10. ventral view, 11. dorsal view.

Viamão, near Porto Alegre, 30°05'S, 51°02'W, 22 March 1975, A.A. Lise, 1 ♂ (MCN #02537); Garruchos São Borja, 28°11'S, 55°39'W, 10 December 1975, A.A. Lise, 3 ♂, 3 ♀ (MCN #3245); Arroio do Meio, Linha Alegre, 9 January 1985, A.A. Lise, 1 ♂ (MCN #13019). PARAGUAY: near Piribeby, Arroyo Pirareta, 25°29'S, 57°03'W, 13 December 1956, C.J.D. Brown, 1 ♀ (MCZ).

**Diagnosis.**—This species is distinguished by characteristics of the genitalia. The pair of posterior projections of the epigynum are folded and not smooth, and the palpal tibia is approximately equal to the length of the cymbium.

Table 4.—Leg measurements of *Trechaleoides biocellata* male in mm.

Leg segment	I	II	III	IV
Femur	11.9	12.6	9.3	12.1
Tibia-patella	16.5	16.7	11.5	15.1
Metatarsus	12.7	14.3	9.0	14.3
Tarsus	9.7	9.0	5.2	9.6
Total	50.8	52.6	35.0	51.1

Table 5.—Leg measurements of *Trechaleoides biocellata* female in mm. Leg I missing.

Leg segment	I	II	III	IV
Femur	—	13.5	10.5	13.2
Tibia-patella	—	17.0	12.6	15.3
Metatarsus	—	13.0	10.8	16.7
Tarsus	—	8.5	6.2	9.6
Total	—	52.0	40.1	54.8

**Description.**—*Male (Misiones, Argentina):* Carapace medium brown with wide submarginal light bands, marginal bands widening posteriorly, black in eye region, length 7.9, width 7.0. Sternum light, unmarked, length 4.2, width 3.7; labium reddish-brown, lighter at distal margin, length 1.57, width 1.30. Clypeus height 0.88, width 3.20. Anterior eye row slightly recurved, a cluster of bristles posterior to each PLE, eye measurements in Table 1. Cheliceral faces medium reddish-brown, each with a dark longitudinal band clothed with scattered light and dark hairs, five retromarginal teeth, subequal in size except smaller fifth one between first and third offset into the fang groove. Legs II-IV-I-III, measurements in Table 4, ventral macrosetae pairs on tibiae are I-4, II-4, III-3, IV-3. Color of legs medium brown, marked only with faint maculae on dorsum of each femur. Abdomen hairless above (probably rubbed), with distinct dorsal pattern, length 8.0. Palpus (Figs. 8, 9) tibia length approximately equal to length of cymbium, bulb t and st prominent, vd of ma small, flattened, rounded in outline, and not covering dd, ecd of rta prominent and angular.

*Female (Paineiras, Brazil [substitute for holotype, see note below]):* Carapace (Fig. 12) light brown with irregular submarginal lighter bands; irregular light marks between PE and thoracic groove, length 8.5, width 7.8. Sternum light yellow, unmarked, length 4.5, width 3.6; labium light brown, unmarked, length 1.80, width 1.60. Clypeus with faint darker marks beneath PLE and AE, height 0.86, width 3.5. Anterior eye row straight, eye measurements in Table 1. Chelicerae reddish brown, five retromarginal teeth, subequal in size with smallest one subproximal. Legs: IV-II-II (I missing), measurements in Table 5, yellow with irregular and indistinct darker marks on dorsal surfaces of femora, tibiae. Abdomen mid-dorsal dark band distinct with

light marks at anterior and lateral edges; sides with irregular, parallel dark marks, venter unmarked, length 8.6. Pair of protuberances at posterior margin of epigynum (Figs. 10, 11) with irregular folds and creases, internal structures as for genus.

**Variation.**—Carapace length of males average 7.72 (7.2–8.6,  $n = 13$ ) and of females 9.2 (7.2–11.0,  $n = 6$ ). Average abdominal lengths equal 0.93 of carapace lengths in males and 0.97 in females. Dorsal pattern similar in both sexes with little variation noted.

**Natural history.**—See generic description.

**Distribution.**—Eastern tributaries of Rio Paraná in northern Argentina, southern Paraguay, and southern Brazil. Also some coastal drainages of southern Brazil (Fig. 3).

**Remarks.**—The female described above from the Museu Nacional do Rio de Janeiro, was identified by Mello-Leitão as *Trechalea biocellata* and is assumed to be the name bearer for the purposes of this report. I am reluctant to designate it as a neotype in view of the possibilities that the original holotype might be found in the future.

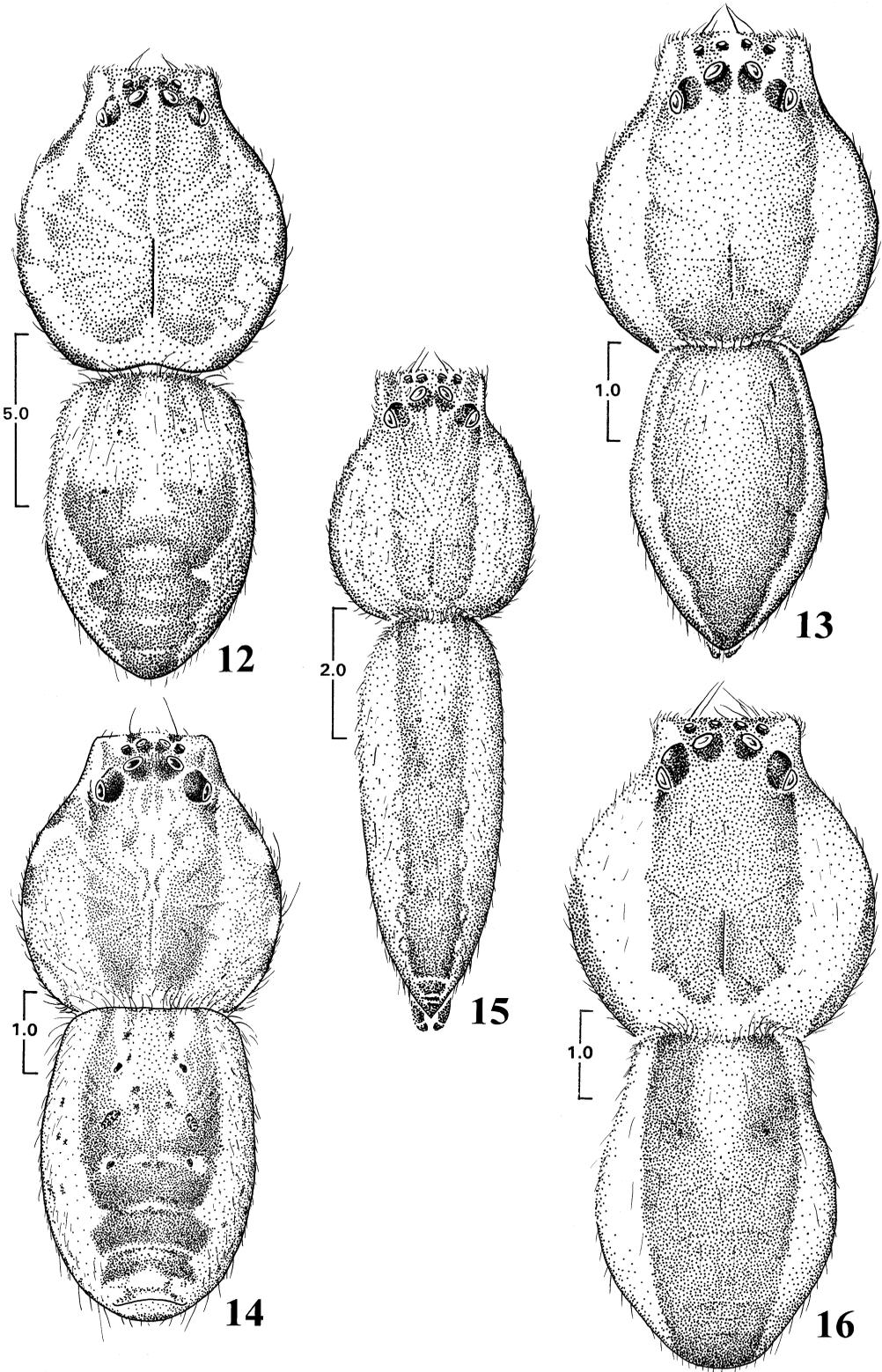
#### *Paratrechalea* new genus

**Type species.**—*Trechalea ornata* Mello-Leitão 1943.

**Etymology.**—The feminine Latin generic name indicates the relationship with the genus *Trechalea*.

**Diagnosis.**—*Paratrechalea* can be distinguished from all other described genera of Trechaleidae (*sensu* Carico 1993) by a combination of characters. In the male palpus the ventral division (vd) of the median apophysis (ma) is flattened, rounded in outline, and greatly expanded to mostly obstruct the dorsal division including its guide (g). The epigynum is distinguished by the presence of a conspicuous external postero-median scape. These are moderate-sized spiders with the carapace length ranging 3.3–3.8 except for the male of *P. wygodzinskyi* which is 5.2.

**Description.**—Carapace moderately low, cephalic area relatively distinct, AE row straight. Each basal segment of male chelicera swollen anteriorly with lateral carina on distal half (except *P. wygodzinskyi*); three promarginal teeth with center one largest, three, four or five retromarginal teeth, variable in size and interdistance. Leg lengths variable but III al-



ways shortest while others often subequal, only tarsi flexible, all claws dentate.

Male palpal bulb (Fig. 1) with tip of distal, curved sickle-shaped dorsal division (dd) of median apophysis (ma) directed ventrad and obscured by broad, rounded ventral division (vd); retrolateral tibial apophysis (rta) arising distally and laterally from near the ventrodistal rim (vr) with ectal division (ecd) curved and ental division (end) partly surrounded by ventral cymbio-tibial membrane (vcm); tibial ventral rim (vr) of ventral protuberance (vp) folded over to create deep depression in ventral cymbio-tibial membrane (vcm). Nearly circular anterior field (af) of epigynum slightly convex, a single prominent postero-median scape; dorsal aspect, on each side of the female genitalia (Fig. 21) with large, free, stalked, spermathecal head (hs); two diverticula arising from large common chamber (probably an extension of copulatory duct); large, hood-shaped structure (h) located postero-medially; copulatory duct (cd) and fertilization duct (fd) arising from common chamber.

**Natural history.**—The aquatic habitat preference is suggested by the reference to “Arroyo” or “Rio” on some collection labels and is consistent with what is known of other trechaleid genera.

**Distribution.**—Found in South America southward from the Brazilian state of Mato Grosso through northern Argentina into Uruguay (Fig. 17).

**Nomen dubium.**—Unlike many of Mello-Leitão’s species descriptions, the one for *T. limai* Mello-Leitão 1941 was relatively complete and was accompanied by drawings of the habitus and epigynum. Unfortunately the epigynum drawing was not diagnosable at either the generic or species level. The habitus was helpful however and when combined with the description, it is possible to determine the genus with some confidence. Specifically this decision is based upon body length, number of macrosetae pairs on the tibiae, relative length of the legs, and geographic location. Therefore, I believe that *T. limai* is a member

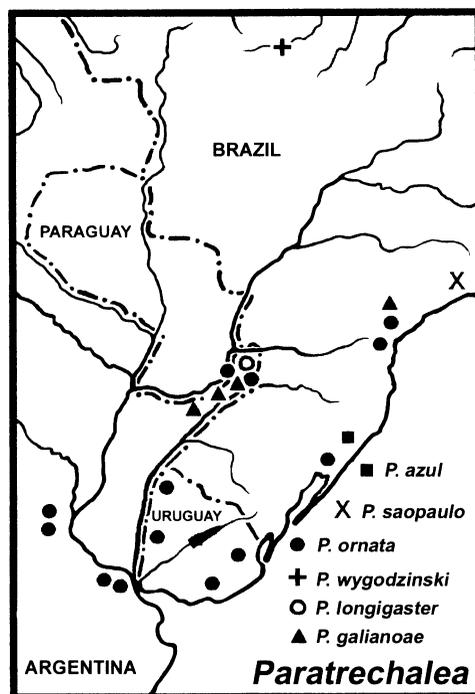


Figure 17.—Distribution of species of *Paratrechalea*.

of the genus *Paratrechalea*. Because of the inability to determine the relationship of this species to others in the genus, I have determined that it should remain as a nomen dubium until and if the holotype is ever recovered.

*Paratrechalea ornata* (Mello-Leitão 1943)  
NEW COMBINATION  
Figs. 13, 14, 17–21

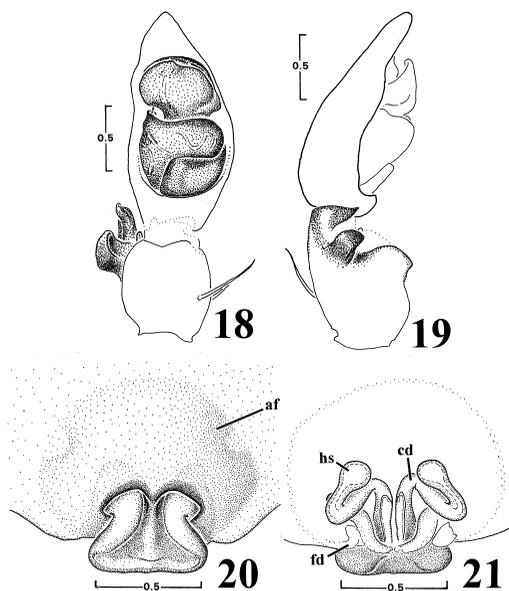
*Trechalea ornata* Mello-Leitão 1943:107, fig. 7;  
Roewer 1954:143; Platnick 2004.

**Type material.**—Holotype female, Bosque Alegre, Córdoba, Argentina, 31°35'S, 64°34'W, January–March 1940, M. Birabén (MLP #15690, examined).

**Material examined.**—ARGENTINA: *Misiones*: Isla Maria, 27°00'S, 55°00'W, November 1954, Schiapella?, 1 ♀ (MACN); *Cordoba*: Santa Rosa, Dept. de Calamuchita,

←

Figures 12–16.—Dorsal patterns of species of *Trechaleoides* and *Paratrechalea*. 12. *T. biocellata* female; 13–16. *Paratrechalea*; 13, 14. *P. ornata*; 13. male; 14. female; 15. *P. longigaster* female; 16. *P. galianoae* female.



Figures 18–21.—Genitalia of *Paratrechalea ornata*. 18, 19. right palpus; 18. ventral view, 19. retrolateral view; 20, 21. female genitalia; 20. ventral view, 21. dorsal view. af = anterior field, cd = copulatory duct, fd = fertilization duct, hs = head of spermathecum.

32°04'S, 64°33'W, February 1952, M.J. Viana, 2 ♀ (MACN); *Buenos Aires*: Arroyo Pararito, Delta del Paraná, Partido do Tigre, 34°25'S, 58°35'W, 29 November 1953, A.O. Bachman, 1 ♂, 2 ♀, 7 juveniles (MACN); same locality, October 1954, A.O. Bachman, 3 ♀ (MACN); same locality, 1 November 1953, A.O. Bachman, 3 ♂, 6 ♀, 4 juveniles (MACN); same locality, 26 December 1953, A.O. Bachman, 2 ♀ (MACN), 8 March 1953, A.O. Bachman, 1 ♀, (MACN); same locality, 18 October 1953, A.O. Bachman, 2 ♂, 7 juveniles (MACN); Arroyo, Carancho, Delta del Paraná, 36°12'S, 58°10'W, 6 January 1952, A.O. Bachman, 3 ♀ (MACN); Arroyo Correa, near San Antonio River, Delta del Paraná, Partido de Tigre, 34°25'S, 58°35'W, 2 March 1951, A.O. Bachman, 1 ♀ (MACN); Arroyo de las Moras, Delta del Paraná, Partido de Tigre, 34°25'S, 58°35'W, 3 February 1955, A.O. Bachman, 3 ♀ (MACN). BRAZIL: *Paraná*: Rio Bronco do Sul, 4°10'N, 60°47'W, 16 April 1987, A.D. Brescovit, 1 ♀ (MCN #17153); *Rio Grande do Sul*: Caxias do Sul, Água Azul, 27°23'S, 52°25'W, 15 January 1975, A.A. Lise, 1 ♀ (MCN). URUGUAY: *Treinta-y-Tres*: Arroyo Yermal, 33°19'S, 54°42'W, 7 January 1963,

Table 6.—Leg measurements of *Paratrechalea ornata* male in mm.

Leg segment	I	II	III	IV
Femur	4.0	4.2	3.3	4.5
Tibia-patella	5.5	5.6	4.0	5.7
Metatarsus	4.2	4.2	3.0	5.2
Tarsus	2.2	2.4	1.5	2.6
Total	15.9	16.4	11.8	18.0

Gambardella, 33°19'S, 54°42'W, 1 ♀ (MNHN); *Paysandú*: Santa Rita, R. Uruguay, 8 November 1955, collector unknown, 1 ♀ (MNHN); *Salto*, Rio Arapey, 30°55'S, 57°49'W, 13 December 1954, collector unknown, 1 ♀ (MNHN); *Maldonado*: Sa. De las Ánimas, 34°42'S, 55°19'W, 18 May 1989, R. Capocasale, F Costa, 1 ♂, 1 ♀ (MNHN).

**Diagnosis.**—This species is distinguished by the small body size and details of the genitalia. The broad median scape of the epigynum has a median concavity. The male palpal tibia is approximately half the length of the cymbium but with a large rta. On the palpal bulb the vd of the ma is much expanded so that the tip of the g is out of view from the ventral side.

**Description.**—*Male* (*Argentina, Arroyo de la Moras, Provincia Buenos Aires*): Carapace (Fig. 13) moderately high, cephalic area not elevated, medium brown with wide submarginal light band, marginal bands widening posteriorly, black in eye region, length 3.3, width 3.0. Sternum light, unmarked, length 1.72, width 1.80; labium reddish-brown, lighter at distal margin, length 0.60, width 0.60. Clypeus height 0.30, width 1.70. Anterior eye row slightly recurved, eye measurements in Table 1. Cheliceral faces swollen, glabrous, yellowish, lateral longitudinal carinae present, four retromarginal teeth subequal in size except smallest subproximal. Legs IV-II-I-III,

Table 7.—Leg measurements of *Paratrechalea ornata* female in mm.

Leg segment	I	II	III	IV
Femur	4.3	4.5	3.6	5.0
Tibia-patella	5.6	5.7	4.0	5.9
Metatarsus	4.1	4.1	3.1	5.3
Tarsus	2.3	2.2	1.5	2.4
Total	16.3	16.5	12.2	18.6

measurements in Table 6, ventral macrosetae pairs on tibiae are I-5, II-4, III-3, IV-3. Color of legs light brown, unmarked. Abdomen with wide median dark band, narrow light line on each lateral margin, length 3.6. Palpus (Figs. 18, 19) tibia approximately half length of cymbium with end cupped of very prominent *rt*; bulb *t* and *st* prominent, *vd* of *ma* large, flattened, rounded, and covering most of *dd* including *g*.

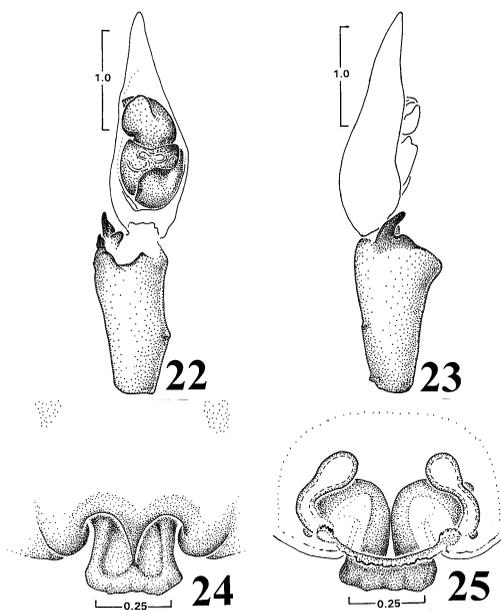
**Female (holotype):** Carapace (Fig. 14) moderately high, cephalic area not elevated, color pattern with a broad, dark median band, light submarginal bands with irregular areas of white hair, margin with short marginal dark areas, length 3.5, width 3.2. Sternum light, unmarked, length not determined, width 1.40; labium medium brown, lighter at distal margin, length 0.65, width 0.56. Clypeus height 0.27, width 1.38. Anterior eye row straight, eye measurements in Table 1. Chelicerae each with dark longitudinal band on base; three promarginal teeth on left side, two on the right, four retromarginal teeth on both sides. Legs IV-II-I-III, measurements on Table 7, indistinct grey maculae present except on tibia III, tibial macrosetae not observed. Abdomen median dark band with irregular margins, lateral areas with scattered small dark maculae, venter unmarked, length 4.0. Median scape of epigynum (Figs. 20, 21), wider than long, prominent and widened posteriorly and with a single medial depression, internal structures as for genus.

**Variation.**—Carapace length of males average 3.5 (3.3–3.8,  $n = 10$ ) and of females 3.65 (2.8–4.5,  $n = 30$ ). Average abdomen lengths equal 1.05 of carapace lengths in males and 1.18 in females. Dorsal pattern in both sexes ranges from a distinct median dark band with lateral light bands (Fig. 13) to a much more diffuse pattern (Fig. 14). The diameters of three egg sacs measuring 5.5, 6.0, and 5.1 were recorded.

**Natural history.**—See generic description.

**Distribution.**—Southward from the southern Brazilian state of Paraná to northern Argentina and Uruguay (Fig. 17).

**Remarks.**—This species is not to be confused with *Hesydrus ornatus* Mello-Leitão 1941. The type of the latter species is a small spiderling and is treated as a *nomen dubium* in a revision of the genus *Hesydrus* (Carico 2005).



Figures 22–25.—Genitalia of *Paratrechalea* species. 22, 23, right palpus of *P. wygodzinskyi*; 22, ventral view; 23, retrolateral view; 24, 25, female genitalia of *P. longigaster*, 24, ventral view, 25, dorsal view.

*Paratrechalea wygodzinskyi* (Soares & Camargo 1948)  
Figs. 17, 22, 23

*Trechalea wygodzinskyi* Soares & Camargo 1948: 358, figs. 6, 7; Roewer 1954:143; Carico 1993: 237 (non *Trechalea*); Platnick 2004.

**Type material.**—Holotype male, Chavantina, Mato Grosso, Brazil, 14°40'S, 52°21'W, October 1946, H. Sick (MZUSP, #E.788, C.1293, examined)

**Diagnosis.**—The pedipalp is distinguished from *P. ornata* by the relatively elongated tibia which is approximately the length of the cymbium and the small *rt*.

**Description.**—*Male (holotype):* Carapace low, cephalic area not elevated, light with a narrow marginal band and indistinct darker central area, dark lines between each AME and clypeus margin, length 5.2, width 4.6. Sternum light with a pair of dark spots in posterior half, length 2.52, width 2.70; labium reddish-brown, length 0.46, width 0.41. Clypeus height 0.72, width 1.93. Anterior eye row straight, eye measurements in Table 1. Chelicerae face reddish brown with indistinct darker areas in distal half, without lateral carina or

Table 8.—Leg measurements of *Paratrechalea wygodzinskyi* male in mm. Leg I missing.

Leg segment	I	II	III	IV
Femur	—	8.3	6.7	8.5
Tibia-patella	—	11.9	7.7	9.8
Metatarsus	—	9.7	7.1	11.7
Tarsus	—	4.6	3.8	5.3
Total	—	34.5	25.3	35.3

frontal enlargement on basal segment, four subequal retromarginal teeth. Legs IV-II-III (I missing), measurements in Table 8, ventral macrosetae pairs on tibiae are II-5, III-4, IV-4. Color of legs light with dark maculae especially on ventral side of femora, less so on distal segments. Abdomen light with striated patterns of pigment laterally and above, particularly dorsolaterally except for pair of light areas at two-thirds of length, light ventrally but darker laterally, length 5.0. Palpus (Figs. 22, 23) tibia approximately 0.8 length of cymbium, bulb t and st prominent, vd of ma large, flattened, rounded, and covering most of the dd but leaving g visible; ecd of rta narrow and curved ventrally, end very low.

*Female*: Unknown.

**Natural history**.—Unknown.

**Material examined and distribution**.—Known only from the type specimen collected in Mato Grosso, Brazil (Fig. 17).

*Paratrechalea longigaster* new species

Figs. 15, 17, 24, 25

**Type material**.—Holotype female, Santa Maria, Misiones, Argentina, 27°00'S, 55°00'W, 1956, M.J. Viana (MACN).

**Etymology**.—The name means "long stomach" and is derived from Latin.

**Diagnosis**.—This species is characterized by the details of the median epigynal scape which includes a pair of deep depressions laterally separated by a wedge-shaped elevation. Additionally, there are three retromarginal teeth, and the abdomen, when compared with other species, is narrow and elongated, about twice its width.

**Description**.—*Female (holotype)*: Carapace (Fig. 15) low, cephalic area not elevated, color pattern with a broad, dark median band, light submarginal bands with irregular maculae, narrow dark margin, length 3.8, width 3.2. Sternum light, median longitudinal macula,

Table 9.—Leg measurements of *Paratrechalea longigaster* female in mm. Leg I missing.

Leg segment	I	II	III	IV
Femur	—	5.0	3.5	6.0
Tibia-patella	—	6.5	4.0	6.3
Metatarsus	—	4.6	3.7	5.8
Tarsus	—	2.4	1.5	2.7
Total	—	18.5	12.7	20.8

three small maculae each side, length 1.95, width 1.80; labium medium brown, lighter at distal margin, length 0.30, width 0.30. Clypeus height 0.25, width 1.50. Anterior eye row straight, eye measurements in Table 1. Chelicerae each with dark longitudinal band on base; three promarginal teeth, three retromarginal teeth. Legs IV-II-III (leg I missing), measurements on Table 9, color light with small dark spots on ventral side of femora. Abdomen median dark band bordered laterally with three light spots, lateral sides indistinctly marked, venter with numerous small dark spots, length 6.50. Median scape of epigynum (Figs. 24, 25) prominent, pair of deep depressions laterally separated by median, wedge-shaped elevation, internal structures as for genus.

**Natural history**.—Unknown.

**Material examined and distribution**.—Known only from the type specimen collected in Argentina (Fig. 17).

*Paratrechalea galianoae* new species

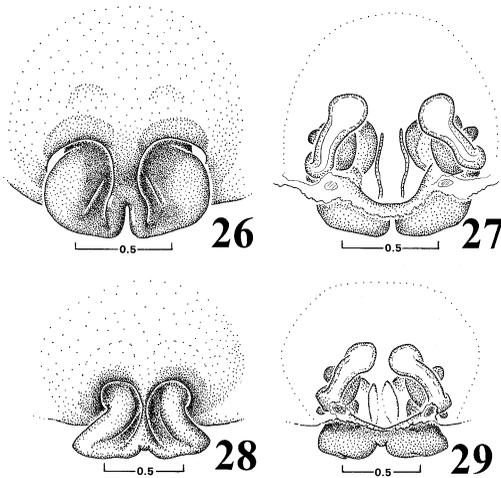
Figs. 16, 17, 26, 27

**Type material**.—Holotype female, General M. Belgrado, Misiones, Argentina, 27°00'S, 55°00'W, January 1966, M.E. Galiano (MACN).

**Other material examined**.—ARGENTINA: *Misiones*, General Manuel Belgrado, January 1966, M.E. Galiano, 1♀ (MACN), Tobuna, February 1959, W. Partridge, 1♀ (MACN). BRAZIL: *Paraná*, Rio Branco do Sul, 16 April 1987, A.D. Brescovit, 1♀ (MCN #17153). (Fig. 17).

**Etymology**.—The name is in honor of the collector, the late M.E. Galiano, in recognition of her contributions to arachnology and in appreciation for her aid to the author in this project.

**Diagnosis**.—This species is characterized by the details of the epigynum which include a unique Y-shaped median ridge on the round-



Figures 26–29.—Female genitalia of *Paratrechalea* species. 26, 27. *P. galianoae*; 26. ventral view, 27. dorsal view; 28, 29. *P. azul*; 28. ventral view, 29. dorsal view.

ed scape with a deep cleft found at the postero-median margin. Additionally, the carapace and abdomen have a broad, median dark band which is flanked by a light submarginal band on the carapace with white hairs.

**Description.**—*Female (holotype)*: Carapace (Fig. 16) moderately high, cephalic area not elevated, color pattern with a broad, dark median band, light submarginal bands with white hairs, narrow dark margin along posterior half, length 3.8, width 3.5. Sternum light, unmarked, length 1.95, width 1.80; labium medium brown, lighter at distal margin, length 0.66, width 0.70. Clypeus height 0.33, width 1.62. Anterior eye row slightly recurved, eye measurements in Table 1. Chelicerae each with faint longitudinal band on base; three promarginal teeth, four retromarginal teeth. Legs IV-II-I-III, measurements in Table 10, ventral macrosetae pairs on tibiae are I-4 II-4, III-3, IV-3, color light and unmarked. Abdomen with distinct median dark band, sides light and unmarked, venter medium with indistinct mottling, length 3.7. Rounded scape of epigynum (Figs. 26, 27) prominent, with a median elevation extending posteriad from the af terminating in a Y-shaped ridge on the posterior margin around a deep cleft, internal structures as for genus.

**Variation.**—Carapace length ranges 3.0–3.8 among three females. Dorsal pattern may

Table 10.—Leg measurements of *Paratrechalea galianoae* female in mm.

Leg segment	I	II	III	IV
Femur	5.0	5.3	3.8	5.7
Tibia-patella	6.7	6.7	4.4	6.3
Metatarsus	6.5	6.5	3.6	6.2
Tarsus	2.5	2.5	1.7	3.1
Total	20.7	21.0	13.5	21.3

be with dark median band (Fig. 16) or diffuse without distinct bands.

*Paratrechalea azul* new species

Figs. 17, 28, 29

**Type material.**—Holotype female, Águia Azul, Caixas do Sul, Rio Grande do Sul, Brazil, 27°23'S, 52°25'W, 15 January 1975, A.A. Lise (MCN #02551).

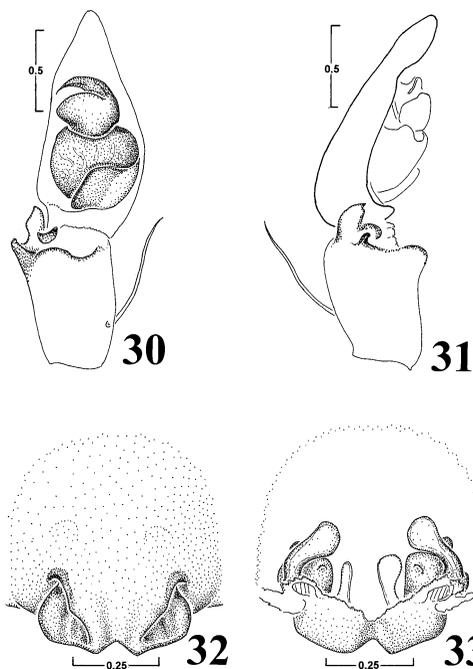
**Etymology.**—The name is a noun in apposition suggested by the name of the type locality.

**Diagnosis.**—This species is characterized by the details of the epigynum which has a pronounced lateral flare to the posterior, wider-than-long scape and a median indentation on the postero-median margin. The body is distinctly larger than females of other species measured by the carapace length. Also, the legs are proportionally longer as determined by the ratio of carapace length/leg IV length, e.g., 6.0 vs. 5.4 average (5.3–5.6) for other species.

**Description.**—*Female (holotype)*: Carapace moderately high, cephalic area not elevated, color pattern with a diffuse arrangement of mottling, length 5.1, width 4.5. Sternum light with faint maculae near base of femora, length 2.50, width 2.4; labium light, lighter at distal margin, length 0.88, width 0.85. Clypeus height 0.41, width 2.04. Anterior eye row slightly recurved to straight, eye

Table 11.—Leg measurements of *Paratrechalea azul* female in mm.

Leg segment	I	II	III	IV
Femur	7.0	7.4	6.0	8.0
Tibia-patella	9.3	9.7	7.0	9.5
Metatarsus	7.4	7.1	5.3	9.0
Tarsus	4.0	4.0	2.4	4.3
Total	27.7	28.2	20.7	30.8



Figures 30–33.—Genitalia of *Paratrechalea saopaulo*. 30, 31. right palpus; 30. ventral view, 31. retrolateral view; 32, 33. female genitalia; 32. ventral view, 33. dorsal view.

measurements in Table 1. Chelicerae each without distinct marks on base; three promarginal teeth, four retromarginal teeth. Legs IV-II-I-III, measurements in Table 11, ventral macrosetae pairs on tibiae are I-4 II-4, III-3, IV-3, color light with indistinct maculae. Abdomen with diffuse arrangement of mottling, sides light and unmarked, venter medium without mottling, length 5.6. Scape of epigynum (Figs. 28) prominent, wider than long, with a flared posterior scape extending posteriad from the af terminating with an indentation on postero-medial margin, median longitudinal ridge; internal structures as for genus (Fig. 29).

**Distribution.**—Known only from the type specimens collected in Brazil (Fig. 17).

*Paratrechalea saopaulo* new species

Figs. 17, 30–33

**Type material.**—Holotype male, São Paulo, São Paulo, Brazil, 22°00'S, 49°00'W 1897, Moenkhouse (PMNH). Paratypes: 9 males, 10 females same data as holotype (PMNH).

**Etymology.**—The name is a noun in apposition suggested by the name of the type locality.

Table 12.—Leg measurements of *Paratrechalea saopaulo* male in mm.

Leg segment	I	II	III	IV
Femur	4.3	4.2	3.4	4.8
Tibia-patella	6.2	5.9	4.0	5.5
Metatarsus	4.6	4.5	3.3	5.5
Tarsus	2.5	2.3	1.5	2.5
Total	17.6	16.9	12.2	18.3

**Diagnosis.**—This species is distinguished by the small body size and details of the genitalia. Externally, the median division of the epigynum separates two postero-lateral divisions and has a furrow along the posterior edge. The male palpal tibia is approximately equal the length of the cymbium. The rtal ental division is a small, dark, sclerotized projection while the ectal division is larger, acute, white and lightly sclerotized. On the palpal bulb the vd of the ma is much expanded and rounded while the tip of the g is visible from the ventral side.

**Description.**—*Male (holotype):* Carapace moderate high, cephalic area not elevated, color pattern faded due to age but faintly resembles Fig. 15, length 3.8, width 3.2. Sternum light, central dark macula, length 2.1, width 1.6; labium light reddish-brown, lighter at distal margin, length 0.63, width 0.54. Clypeus height 0.28, width 1.60. Anterior eye slightly recurved, eye measurements in Table 1. Chelicerae faces swollen, glabrous, yellowish, lateral longitudinal carinae present, three retromarginal teeth subequal. Legs IV-I-II-III, measurements in Table 12, ventral macrosetae pairs on tibiae are I-5, II-5, III-3, IV-3. Color of legs light with small maculae at the bases of most macrosetae. Abdomen color faded from age but similar to Fig. 15, length 4.7. Palpus (Figs. 30, 31) tibia approximately equal to length of cymbium, cupped end of

Table 13.—Leg measurements of *Paratrechalea saopaulo* female in mm.

Leg segment	I	II	III	IV
Femur	4.1	4.2	2.5	5.2
Tibia-patella	5.6	5.5	3.7	5.3
Metatarsus	4.0	3.8	3.0	5.0
Tarsus	2.0	1.9	1.4	2.1
Total	15.7	15.4	10.6	17.6

prominent rta white, acute and ect a small dark projection; bulb t and st prominent; vd of ma large, flattened, rounded, and covering most of dd but g is prominent.

*Female (Paratype):* Carapace moderately high, cephalic area not elevated, color pattern as with male, length 3.8, width 3.3. Sternum light, small central macula, length 1.7, width 1.8; labium medium brown, lighter at distal margin, length 0.61, width 0.60. Clypeus height 0.42, width 1.60. Anterior eye row slightly recurved, eye measurements in Table 1. Chelicerae medium; three promarginal teeth, three retromarginal teeth equidistant and equal in size. Legs IV-I-II-III, measurements in Table 13, color as in male. Abdomen color as in male, length 5.3. Pair of protuberances at posterior-laterally on margin of epigynum continuous with median elevation (Fig. 32), median elevation widened anteriorly and with a medial furrow at posterior margin; internal parts (Fig. 33) as for genus.

**Variation.**—Carapace length of males average 3.6 (3.3–3.9,  $n = 10$ ) and of females 3.5 (3.3–3.9,  $n = 10$ ). The diameters of two egg sacs measuring 4.8 and 5.3 were recorded. Egg sac structure is typical for the family but with upper valve arched higher.

**Natural history.**—Unknown.

**Distribution.**—Known only from the type series collected in Brazil composed of 10 males and 10 females (Fig. 17).

#### ACKNOWLEDGMENTS

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