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A Revision of the Neotropical Spider Genus *Echemoides*, With Notes on Other Echemines (Araneae, Gnaphosidae)

NORMAN I. PLATNICK[1] AND MOHAMMAD U. SHADAB[2]

ABSTRACT

Echemoides is redefined to include those echemines with pseudosegmented tarsi. A cladogram, map, key, diagnoses, descriptions, and illustrations are provided for the 13 known species. *Echemus argentinus* Mello-Leitão, *Echemus pampeanus* Mello-Leitão, *Echemus argentinensis* Mello-Leitão, *Echemus penicillatus* Mello-Leitão, and *Megamyrmecion gayi* Simon are transferred to *Echemoides*. Three specific names are newly synonymized: *E. pampeanus* (Mello-Leitão) and *E. uncinatus* Mello-Leitão, both with *E. argentinus* (Mello-Leitão), and *E. argentinensis* (Mello-Leitão) with *E. penicillatus* (Mello-Leitão). Nine new species are described: *E. mauryi* from Paraguay and Argentina, *E. balsa* from Argentina, *E. penai* from Peru and Chile, *E. aguilari* from Peru, and *E. tofo*, *E. schlingeri*, *E. illapel*, *E. malleco*, and *E. rossi* from Chile. The male of *E. gayi* (Simon) and the female of *E. giganteus* Mello-Leitão are described for the first time. Previous revisions of American echemines are supplemented by the description of three new species (*Zimiromus canje* from Guyana, *Z. dorado* from Peru, and *Z. nadleri* from Surinam) and the female of the Californian species *Scopodes gertschi* Platnick.

INTRODUCTION

This paper, the tenth in a series on the spider family Gnaphosidae, contains a revision of the temperate South American genus *Echemoides* and completes coverage of the New World Echeminae. As this group is not widely known, it may be useful to offer some comments on the subfamily before discussing *Echemoides* itself.

The subfamilial classification of the Gnaphosidae is not well established at present. The classical subdivision of the family into four subfamilies (Gnaphosinae, Hemicloeinae, Anagraphinae, and Drassodinae), besides ignoring some highly derived members of the group like the prodidomids and perhaps also the platorids, ammoxenids, and cithaeronids, merely isolates three groups having rather obviously autapomorphic characters and leaves a diverse assemblage of the bulk of the gnaphosids lumped in the Drassodinae. Other than Simon's (1893) classical work, previous attempts at tribal groupings have been made largely in connection with cataloging efforts (such as those of Roewer, 1954, and Bonnet, 1959) rather than

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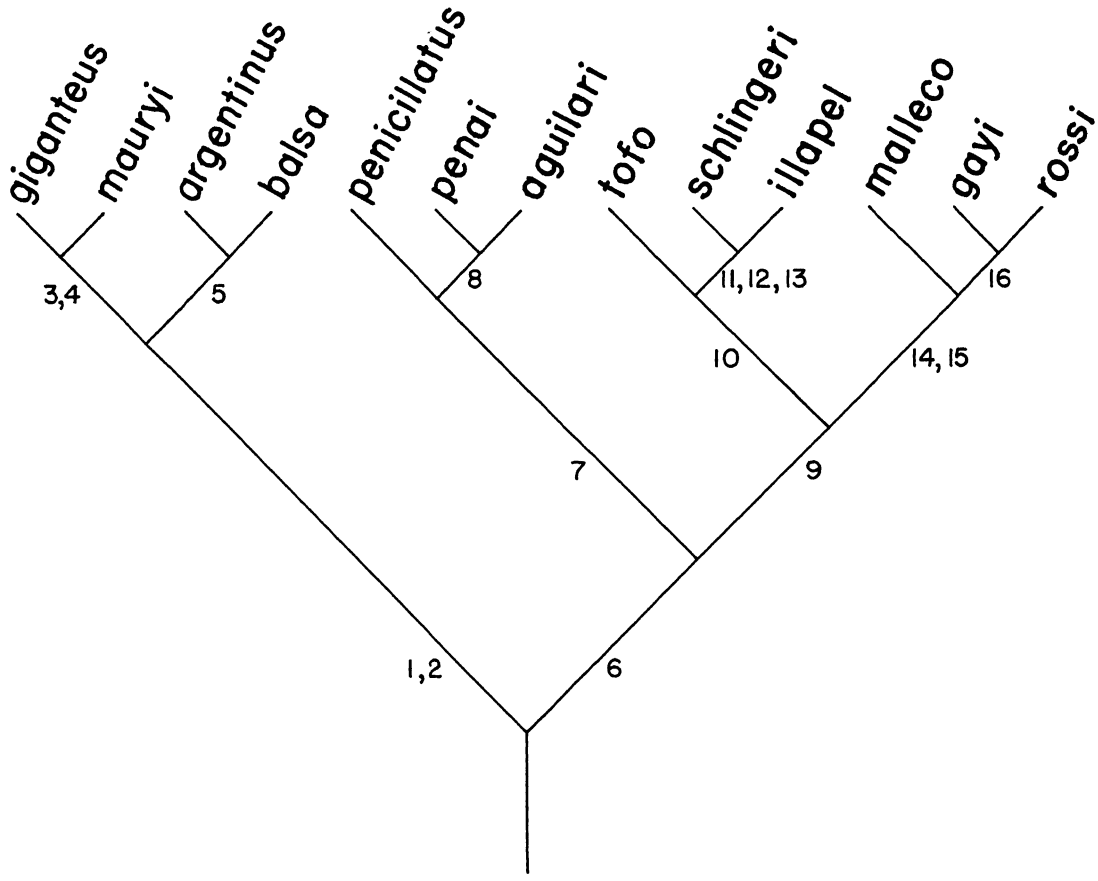


FIG. 1. Cladogram of *Echemoides* species; numbers refer to characters listed in the Introduction.

revisionary studies. One such tribal classification of the numerous gnaphosid genera, seemingly based almost entirely on the literature rather than on specimens, has remained totally unknown outside Japan; Dr. Takeo Yaginuma has brought to our attention a Japanese paper by Kishida (1932) containing a "synopsis" of the Gnaphosidae in which numerous family-group names were newly established. In view of the highly unsettled higher classification of the family, our strategy in this series of revisionary studies has been to attempt first to relimit genera on the basis of defining synapomorphies and then to place them in small but recognizably monophyletic groups. We prefer to rank these groups uniformly, as subfamilies, until such time as larger groupings of them can also be delimited on the basis of shared derived characters.

The Echeminae, as relimited by Platnick and Shadab (1976a, 1976b, 1976c), represents one such group of genera and is probably worldwide in distribution. The genera included are characterized by a strongly procurved posterior eye row (otherwise found only in the Prodidominae and some Molycriinae), dentate tarsal claws (unlike the Prodidominae), unadvanced anterior spinnerets (unlike the Molycriinae), and a male palpal structure typically involving a long embolus originating basally on the prolateral side of the tegulum. Three genera of echemines are known from the New World: *Scopodes* (revised in Platnick and Shadab, 1976a), *Zimiromus* (revised in Platnick and

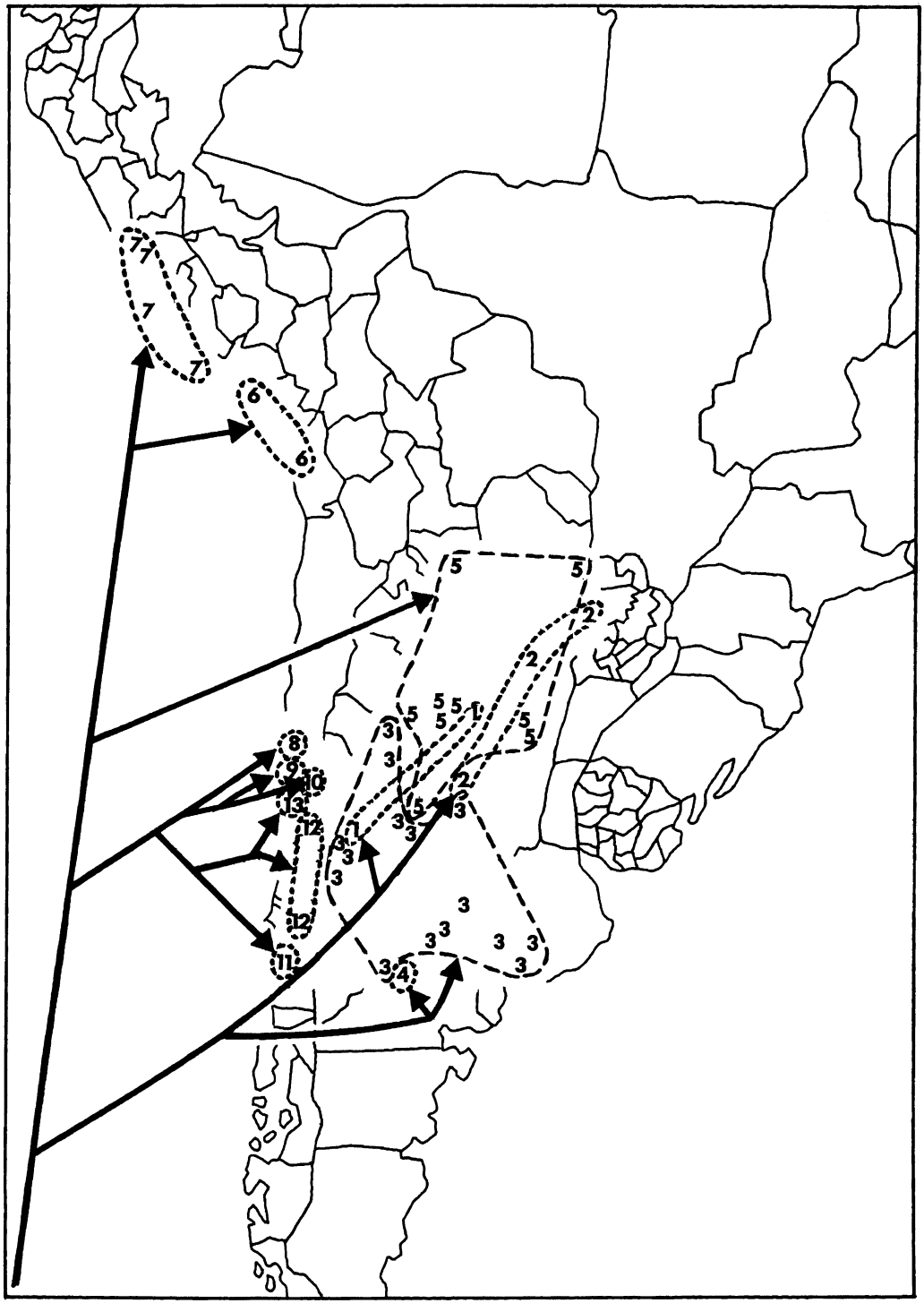


FIG. 2. Map of southern South America, showing distributions of *Echemoides giganteus* (1), *mauryi* (2), *argentinus* (3), *balsa* (4), *penicillatus* (5), *penai* (6), *aguilari* (7), *tofo* (8), *schlingeri* (9), *illapel* (10), *malleco* (11), *gayi* (12), and *rossi* (13). Cladogram of figure 1 is superimposed to show biogeographic relationships.

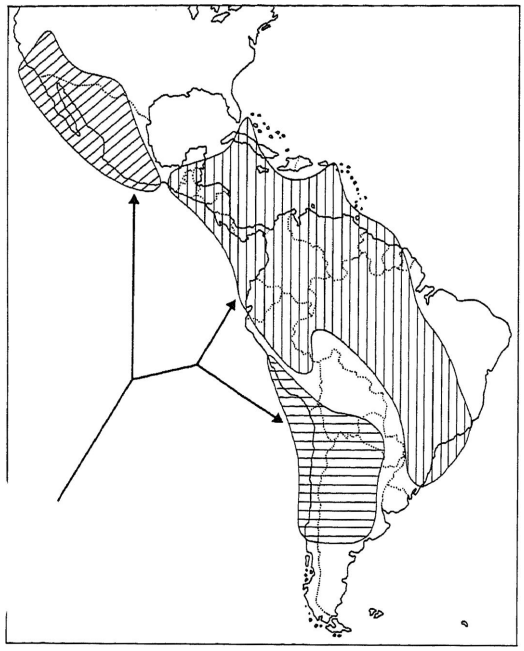


FIG. 3. Map of New World, showing ranges of *Scopodes* (diagonal hatching), *Zimiromus* (vertical hatching), and *Echemoides* (horizontal hatching). A cladogram of the three genera is superimposed to show biogeographic relationships.

Shadab, 1976c), and *Echemoides*. So far as is known, the three genera are totally allopatric, with *Scopodes* occurring from the southwestern United States south to Oaxaca, Mexico, *Zimiromus* from Chiapas, Mexico, south to northern Peru and southern Brazil, and *Echemoides* from southern Peru and Paraguay south to central Chile and Argentina (fig. 3). Of the three genera, *Zimiromus* and *Echemoides* seem to be the most closely related, as they share a development of the palpal conductor into a solid sheath surrounding the embolus that is not found in *Scopodes*. It remains possible that one or more of these genera are more closely related to Old World echemines than to each other, but even if that were true it would not falsify the above hypothesis of relationship (fig. 3).

Echemoides was established by Mello-Leitão (1938) for an Argentinean species, *E. giganteus*, unusual in that the tarsi on each leg are pseudosegmented by false articulations, flexible (much like the tarsi of Pholcidae), and, as a result, frequently curled in preserved specimens. Additional South American species sharing this feature have been described in *Echemus* by Mello-Leitão (1940, 1941, 1942) and in the Old World echemine genus *Megamyrmecion* by Simon (1904). A few other gnaphosids have pseudosegmented tarsi on the fourth legs, but none that we have seen to date possess flexible tarsi on all four legpairs, so we relimit *Echemoides* below to include all those species sharing this presumably synapomorphic character.

A hypothesis of relationships of the 13 known species of *Echemoides* (fig. 1) has been tested by the following numbered characters believed unique to the groups of species they cluster (the corresponding plesiomorphic "character states" are merely the absence of these features):

1: the retrolateral tibial apophysis is widened and displaced dorsolaterally (figs. 5, 9, 13); the male of *E. balsa* is unknown but is here predicted to have such an apophysis;
2: the epigynum has a pair of raised posterior projections (figs. 6, 10, 14, 50);
3: the palpal duct is sinuous (figs. 4, 8);
4: the epigynum has a wide septum (figs. 6, 10);
5: the paired posterior epigynal projections form lateral pockets (figs. 14, 50);
6: the epigynum is greatly enlarged and elongated, filling most of the area between the epigastric furrow and pedicel (as in fig. 18); the female of *E. rossi* is unknown but is here predicted to have such an epigynum;
7: the epigynum has a flattened, platelike central piece (figs. 18, 22, 26);
8: the retrolateral tibial apophysis has both a short ventral and a long dorsal lobe (figs. 21, 25);
9: the median apophysis is bifid (figs. 28, 32, 36, 40, 44, 48);

10. the epigynum has a widely expanded anterior extension of the atrium (figs. 30, 34, 38);
11: the epigynal atrium is widened posteriorly to more than four times its width at the middle (figs. 34, 38);
12: the retrolateral tibial apophysis is spear-shaped and directed dorsally (figs. 33, 37);
13: the tip of the palpal conductor is rounded (figs. 32, 36);
14: the palpal tegulum is ridged prolaterally (figs. 40, 44, 48);
15: the retrolateral tibial apophysis is flattened and lobelike (figs. 41, 45, 49);
16: there is a sclerite proximal to the median apophysis (figs. 44, 48).

When this cladogram is superimposed on a map showing the known distributions of these species (fig. 2), several features become apparent. Perhaps the most striking is the close clustering of the species belonging to the clade defined by character 9 in central Chile. The largely parapatric distribution of these six species suggests that at least five separate vicariance events occurred, the earliest of which divided the populations north and south of Aconcagua Province. If this was the case, one may predict that other groups of organisms with similarly endemic distributions within central Chile will show either congruent or compatible patterns of relationship (Platnick and Nelson, 1978). Also interesting is the clustering of the two species found in coastal Peru and the presence of their closest relative not in Chile but in northern Argentina and Paraguay. Given the present-day relatively arid conditions of the intervening areas, it is possible that this gap is real and not merely the result of inadequate collecting.

It would not have been possible to complete this study without the aid of the individuals listed below, some of whom (particularly Drs. Emilio A. Maury and Olga M. Blanco) spent a great deal of effort locating specimens in collections outside their own specialties; their contributions are greatly appreciated. Material was examined from the collections of the American Museum of Natural History (AMNH) and from the following: Drs. P. Aguilar F. (CPA); O. M. Blanco, Museo de La Plata (MLP); R. L. Fischer, Michigan State University (MSU); M. Hubert, Muséum National d'Histoire Naturelle (MNHN); H. W. Levi, Museum of Comparative Zoology (MCZ); P. T. Lehtinen, Museum of Zoology, University of Turku (MZT); E. A. Maury, Museo Argentino de Ciencias Naturales (MACN); M. J. Moody, California Department of Food and Agriculture (CDFA); W. B. Peck, Exline-Peck Collection (EPC); R. X. Schick, formerly of the California Academy of Sciences (CAS); E. I. Schlinger and C. Griswold, University of California, Berkeley (UCB); and F. Wanless, British Museum (Natural History), BMNH.

All measurements given below are in millimeters; the format of the descriptions and standard abbreviations of morphological terms follow those used in Platnick and Shadab (1975).

ECHEMOIDES MELLO-LEITÃO

Echemoides Mello-Leitão, 1938, p. 112 (type species by original designation *Echemoides giganteus* Mello-Leitão).

DIAGNOSIS: The combined presence of a strongly procurved posterior eye row and pseudosegmented tarsi on all the legs distinguish *Echemoides* from other gnaphosids.

DESCRIPTION: Total length 5.4-14.4. Carapace oval in dorsal view, widest at front of coxae III, narrowed at ocular area, light brown, darkest anteriorly, with coating of long dark recumbent setae and erect setae at ocular area and clypeus. Cephalic area not elevated; thoracic groove longitudinal. From above, anterior eye row slightly procurved, posterior row strongly procurved; from front, both rows strongly procurved. Anterior median eyes circular, diurnal; posterior medians irregularly oval, nocturnal; anterior and posterior laterals oval, nocturnal. Posterior median eyes largest, others usually subequal. Anterior median eyes separated by roughly their diameter, by less than their radius from anterior laterals. Posterior median eyes separated by their radius, by nearly their diameter from posterior laterals. Lateral

eyes of each side usually separated by more than their radius. Clypeal height at anterior median eyes greater than their diameter. Chelicerae with two or three promarginal teeth and a retromarginal denticle. Endites short, greatly expanded at middle, obliquely depressed, light brown with white anteromedian corners bearing weak scopulae. Labium longer than wide, truncate anteriorly, light brown, darkest posteriorly. Sternum oval, rebordered, with sclerotized extensions to coxae. Leg formula 4123. Anterior metatarsi and all tarsi scopulate; distal half of all tarsi with numerous false articulations; tarsi with two dentate claws and reduced claw tufts; trochanters notched; metatarsal preening comb lacking; distal leg segments with dorsal trichobothria. Typical leg spination pattern (only surfaces bearing spines listed): femora: I, II d1-1-1, p0-1-1, r0-1-0; III, IV d1-1-1, p0-1-1, r0-1-1; patellae: III, IV p0-1-0, r0-1-0; tibiae: I v2-2-0; II p0-0-1, v2-2-1p; III d1-0-0, p1-1-1, v2-2-2, r0-1-1; IV d1-0-1, p1-1-1, v2-2-2, r0-1-1; metatarsi: I, II v2-0-0; III p1-2-2, v2-2-2, r1-1-2; IV p1-2-2, v2-2-2, r1-2-2. Abdomen light brown, coated with long dark setae, with tiny anterior scutum on surface facing cephalothorax in males. Six spinnerets, anteriors elongated, heavily sclerotized, separated by more than their width at base, with ventral tubule and six to 11 spigots. Palp with retrolateral tibial apophysis (sometimes with two lobes), long embolus, complex conductor (secondarily reduced in *E. argentinus*), and large median apophysis (often bifid, never hook-shaped). Epigynum complex, often enlarged, occupying most of epigastric area.

KEY TO SPECIES OF *ECHEMOIDES*

1. Males 2
   Females 13
2. Palpal duct sinuous, with two or more loops (figs. 4, 8) 3
   Palpal duct not sinuous 4
3. Median apophysis relatively small (fig. 4) ..... *giganteus*
   Median apophysis relatively large (fig. 8) ..... *mauryi*
4. Retrolateral tibial apophysis (RTA) with two long lobes (figs. 17, 21, 25) 5
   Retrolateral tibial apophysis (RTA) without two long lobes 7
5. Ventral lobes of RTA as long as dorsal lobe (fig. 17). ..... *penicillatus*
   Ventral lobe of RTA shorter than dorsal lobe 6
6. Median apophysis relatively large (fig. 20); ventral lobe of RTA relatively long (fig. 21) ..... *penai*
   Median apophysis relatively small (fig. 24); ventral lobe of RTA relatively short (fig. 25) ..... *aguilari*
7. Median apophysis bifid (figs. 28, 32, 36, 40, 44, 48) 8
   Median apophysis not bifid (fig. 12) .... *argentinus*
8. Palpal tegulum with prolateral ridges (figs. 40, 44, 48) 9
   Palpal tegulum without prolateral ridges 11
9. RTA invaginated distally (fig. 40) .... *malleco*
   RTA not invaginated distally 10
10. RTA with large teeth (fig. 48) ..... *rossi*
    RTA with tiny serrations (fig. 44) ..... *gayi*
11. Palpal conductor with pointed tip (fig. 28); RTA directed distally (fig. 29) ..... *tofo*
    Palpal conductor with rounded tip (figs. 32, 36); RTA directed dorsally (figs. 33, 37) 12
12. Median apophysis relatively wide (fig. 32); RTA invaginated distally (fig. 33) ..... *schlingeri*
    Median apophysis relatively narrow (fig. 36); RTA not invaginated distally (fig. 37).. *illapel*
13. Epigynum with pair of raised posterior projections (figs. 6, 10, 14, 50) 14
    Epigynum without pair of raised posterior projections 17
14. Epigynal projections forming lateral pockets (figs. 14, 50) 15
    Epigynal projections not forming lateral pockets (figs. 6, 10) 16
15. Lateral epigynal pockets longitudinal (fig. 14) ..... *argentinus*
    Lateral epigynal pockets transverse (fig. 50) ..... *balsa*
16. Epigynal septum widest anteriorly (fig. 6) .... *giganteus*
    Epigynal septum widest posteriorly (fig. 10) ..... *mauryi*
17. Epigynum with large anterolateral projections (figs. 30, 34, 38, 42, 46) 18
    Epigynum without large anterolateral projections, with smooth anterior plate (figs. 18, 22, 26) 22
18. Epigynal atrium less than half of epigynal width at rear (fig. 42) ..... *malleco*

Epigynal atrium more than half of epigynal width at rear (figs. 30, 34, 38, 46) 19

19. Epigynal atrium expanded anteriorly (figs. 30, 34, 38) 20
Epigynal atrium not expanded anteriorly (fig. 46) .....*gayi*

20. Epigynal atrium squared laterally (fig. 34) .....*schlingeri*
Epigynal atrium rounded laterally (figs. 30, 38) 21

21. Epigynal midpiece relatively narrow (fig. 30) .....*tofo*
Epigynal midpiece relatively wide (fig. 38) ... .*illapel*

22. Epigynal plate relatively narrow (figs. 22, 26) 23
Epigynal plate relatively wide (fig. 18) ....*penicillatus*

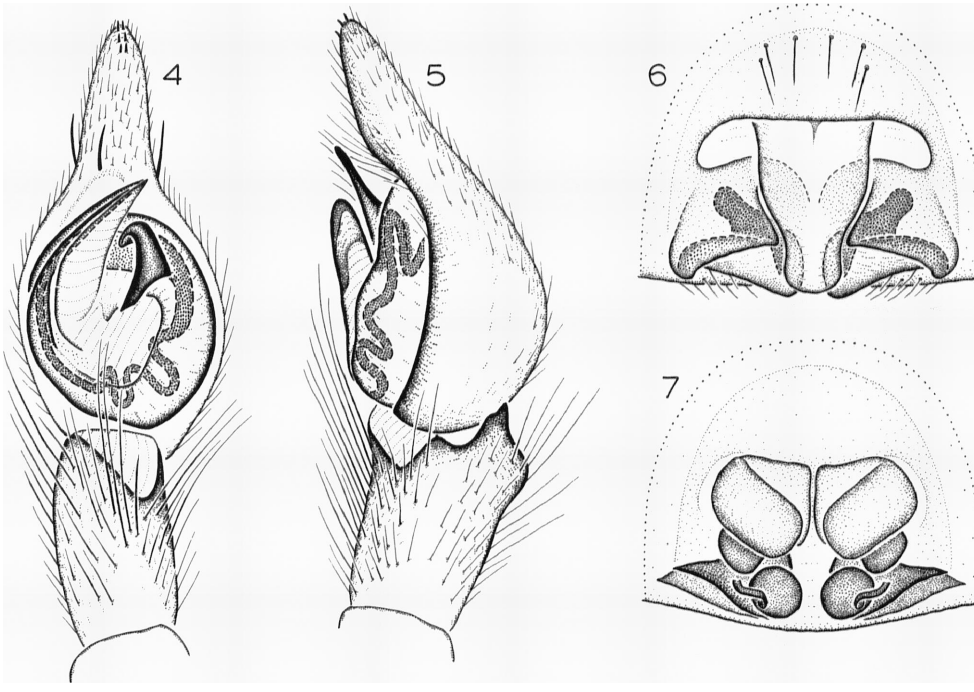
23. Epigynal plate relatively narrow at middle (fig. 22) .....*penai*
Epigynal plate relatively wide at middle (fig. 26) .....*aguilari*

Echemoides giganteus Mello-Leitão
Figures 4-7

Echemoides giganteus Mello-Leitão, 1938, p. 112 (male holotype from Chacras de Coria, Mendoza, Argentina, in MLP, examined).

DIAGNOSIS: Males of *E. giganteus* may be recognized by the sinuous palpal duct and small median apophysis (fig. 4), females by the wide epigynal septum (fig. 6).

MALE: Total length 7.17, 10.49. Carapace 3.28, 4.19 long, 2.35, 3.28 wide. Femur II 2.95 long (two specimens). Eye sizes and interdistances: AME 0.18, ALE 0.16, PME 0.22, PLE 0.17; AME-AME 0.16, AME-ALE 0.06, PME-PME 0.09, PME-PLE 0.14, ALE-PLE 0.11. MOQ length 0.56, front width 0.53, back width 0.53. Palpal duct with two loops (fig. 4). Retrolateral tibial apophysis short, displaced dorsally (fig. 5). Leg spination: femora: III



FIGS. 4-7. *Echemoides giganteus* Mello-Leitão. 4. Palp, ventral view. 5. Palp, retrolateral view. 6. Epigynum, ventral view. 7. Epigynum, dorsal view.

p1-1-1; IV p1-1-1, r1-1-1; tibiae: I p0-0-1, v2-2-1p; IV p0-1-1, r1-1-1; metatarsi: I, II v2-1r-0; IV r2-2-2.

FEMALE: Total length 9.90. Carapace 3.78 long, 2.95 wide. Femur II 2.92 long (one specimen). Eye sizes and interdistances: AME 0.18, ALE 0.18, PME 0.21, PLE 0.16; AME-AME 0.16, AME-ALE 0.08, PME-PME 0.08, PME-PLE 0.11, ALE-PLE 0.07. MOQ length 0.44, front width 0.52, back width 0.50. Epigynum with posterior projections and wide septum (figs. 6, 7). Leg segments other than femora I, II, and IV missing; spination of segments present typical for genus.

MATERIAL EXAMINED: **Argentina:** *Mendoza*: Chacras de Coria (D. P. Jörgensen, MLP), 1♂ (holotype). *Santiago del Estero*: Colonia Dora, 1940 (A. Prosen, MACN), 1♂, 1♀.

Echemoides mauryi, new species
Figures 8-11

TYPES: Male holotype from Cabana, Córdoba, Argentina (no date; M. Birabén), deposited in BMNH, and female paratype from Aviá Terai, Chaco, Argentina (no date; Castellanos, Perez Moró), deposited in MACN.

ETYMOLOGY: Named for Dr. Emilio A. Maury, who made the only known female of this species, and numerous other specimens, available for study.

DIAGNOSIS: Males of *E. mauryi* may be recognized by the sinuous palpal duct and large median apophysis (fig. 8), females by the anteriorly narrowed epigynal septum (fig. 10).

MALE: Total length 7.67, 8.82. Carapace 3.31, 3.38 long, 2.41, 2.66 wide. Femur II 2.99 long (two specimens). Eye sizes and interdistances: AME 0.13, ALE 0.14, PME 0.20, PLE 0.17; AME-AME 0.15, AME-ALE 0.09, PME-PME 0.07, PME-PLE 0.11, ALE-PLE 0.09. MOQ length 0.47, front width 0.42, back width 0.47. Palpal duct with three loops (fig. 8). Retrolateral tibial apophysis short, wide, displaced dorsally (fig. 9). Leg spination: femur IV r1-1-1; tibiae: I v1p-2-0; II p0-0-0, v1p-2-1p; metatarsus II v2-1r-0.

FEMALE: Total length 14.40. Carapace 5.00 long, 3.74 wide. Femur II 4.00 long (one specimen). Eye sizes and interdistances: AME 0.18, ALE 0.18, PME 0.21, PLE 0.16; AME-AME 0.17, AME-ALE 0.09, PME-PME 0.16, PME-PLE 0.17, ALE-PLE 0.16. MOQ length 0.61, front width 0.53, back width 0.58. Epigynum with posterior projections and anteriorly narrowed septum (figs. 10, 11). Leg spination: tibia IV r1-1-1; metatarsus II v2-1r-0.

ADDITIONAL MATERIAL EXAMINED: **Paraguay**: *Central*: Asunción, Sept. 15, 1956 (C. J. D. Brown, MCZ), 1♂.

Echemoides argentinus (Mello-Leitão), new combination
Figures 12-15

Echemus argentinus Mello-Leitão, 1940, p. 44, fig. 42 (female holotype from Puerto Belgrano, Buenos Aires, Argentina, in MLP, examined).

Echemus pampeanus Mello-Leitão, 1940, p. 45, fig. 43 (male holotype from Puelches, La Pampa, Argentina, in MLP, examined). NEW SYNONYMY.

Echemoides giganteus (misidentification): Mello-Leitão, 1941, p. 172, fig. 62.

Echemoides uncinatus Mello-Leitão, 1943, p. 111, fig. 12 (male holotype from Río Diamante, Mendoza, Argentina, in MLP, examined). NEW SYNONYMY.

DIAGNOSIS: Males of *E. argentinus* may be recognized by the retrolaterally expanded cymbium (fig. 12), females by the longitudinally oriented lateral epigynal pockets (fig. 14).

MALE: Total length 6.99±0.77. Carapace 3.20±0.36 long, 2.50±0.31 wide. Femur II 2.65±0.30 long (11 specimens examined). Eye sizes and interdistances: AME 0.11, ALE 0.14, PME 0.18, PLE 0.14; AME-AME 0.14, AME-ALE 0.05, PME-PME 0.09, PME-PLE 0.09, ALE-PLE 0.06. MOQ length 0.39, front width 0.37, back width 0.46. Conductor reduced, cymbium expanded retrolaterally (fig. 12). Retrolateral tibial apophysis with large proximal and small bifid distal lobes (fig. 13). Leg spination: femur IV r1-1-1; metatarsus II v2-1r-0.

FEMALE: Total length 8.64±2.14. Carapace 3.54±0.60 long, 2.81±0.52 wide. Femur II 2.85±0.71 long (17 specimens examined). Eye sizes and interdistances: AME 0.15, ALE 0.15, PME 0.20, PLE 0.16; AME-AME 0.12, AME-ALE 0.06, PME-PME 0.11, PME-PLE 0.14,

ALE-PLE 0.14. MOQ length 0.56, front width 0.43, back width 0.51. Epigynum with posterior projections forming longitudinal lateral pockets (figs. 14, 15). Leg spination: tibiae: II v2-2-0; III p0-1-1.

MATERIAL EXAMINED: **Argentina**: *Buenos Aires*: Abra de la Ventana (no collector, MACN), 1♀; between Puan and Pigüé, Nov., 1967 (E. A. Maury, J. M. Gallardo, MACN), 2♀; Puerto Belgrano, Feb. 2, 1938 (M. Birabén, MLP), 1♀; Sierra de la Ventana, Apr. 25, 1969 (J. M. Gallardo, MACN), 2♀, Dec., 1972 (Cesari, MACN), 1♀; Villa Ventana, Arroyo El Loro, Nov.-Dec., 1972 (Cesari, MACN), 1♂. *Córdoba*: no specific locality, 1947 (J. Cullen, MACN), 1♂; Calamuchita, Dec., 1941 (J. M. Viana, MACN), 3♀. *La Pampa*: 20 km. S. Parque Luro, Oct. 19, 1962 (no collector, MACN), 1♂; Puelches, Mar. 23, 1938 (M. Birabén, MLP), 1♂; Sierra Limuel-Calel, Oct. 20, 1962 (A. Bachmann, MACN), 1♂, Nov. 1, 1975 (B. Toth, E. A. Maury, MACN), 1♂, 1♀. *La Rioja*: Ascha, Mar., 1944 (C. Freyre, MACN), 2♂, 1♀. *Mendoza*: 8 km. SSW Estación Cacheuta, elevation 1500 m., Apr., 1958 (B. Patterson, MCZ), 1♀; Potrerillos, Mar. 16-19, 1920 (no collector, AMNH), 1♂; Río Diamante (M. Birabén, MLP), 1♂; Tupungato, Aug., 1969 (Orando, MACN), 1♂. *Río Negro*: Balsa (General Roca), Mar. 24, 1959 (A. Bachmann, MACN), 1♂, 1♀. *San Luis*: La Carolina, Sept., 1970 (Williner, J. M. Viana, MACN), 1♀; San Francisco, Nov., 1970 (J. M. Viana, MACN), 1♀.

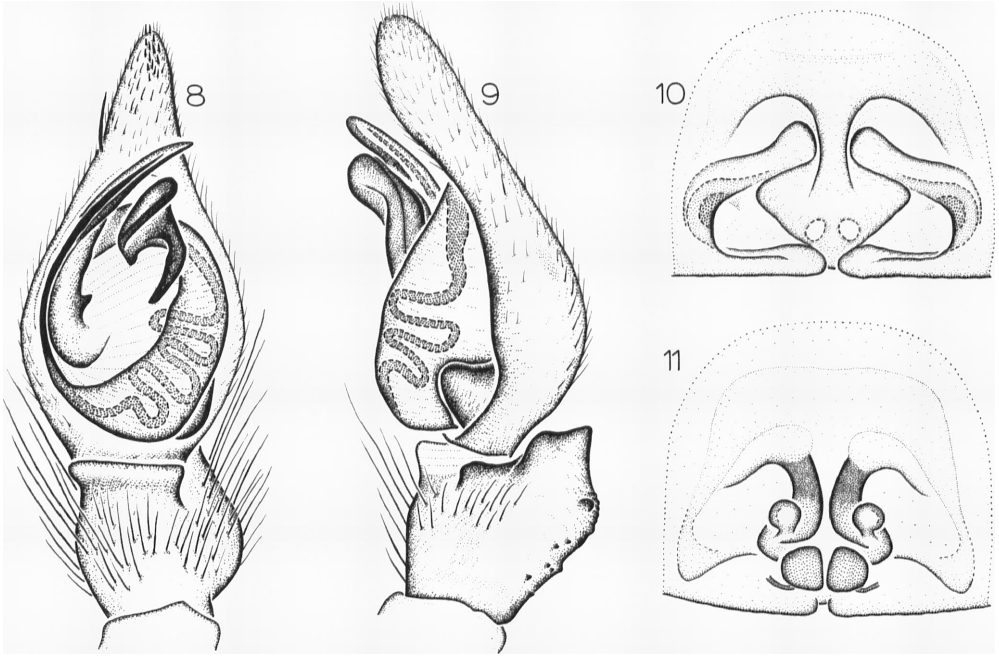
Echemoides balsa, new species

Figures 50, 51

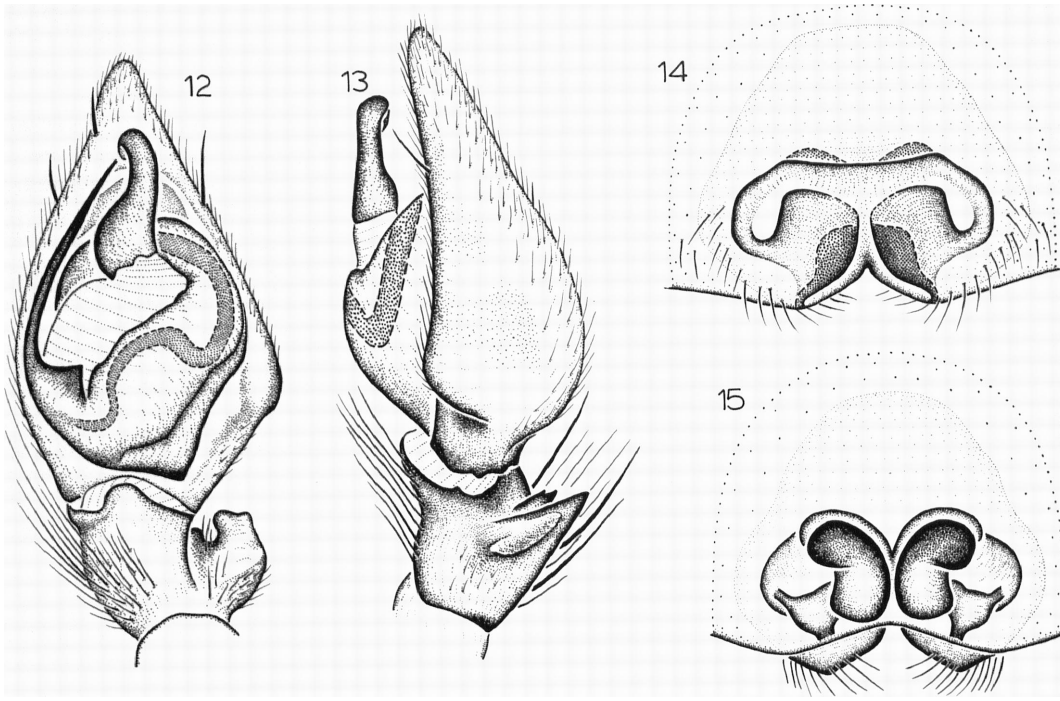
TYPE: Female holotype from Balsa, General Roca, Río Negro, Argentina (January, 1962; A. Bachmann), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females of *E. balsa* may be recognized by the transversely oriented lateral epigynal pockets (fig. 50).



FIGS. 8-11. *Echemoides mauryi*, new species. 8. Palp, ventral view. 9. Palp, retrolateral view. 10. Epigynum, ventral view. 11. Epigynum, dorsal view.



FIGS. 12-15. *Echemoides argentinus* (Mello-Leitão). 12. Palp, ventral view. 13. Palp, retrolateral view. 14. Epigynum, ventral view. 15. Epigynum, dorsal view.

MALE: Unknown.

FEMALE: Total length 8.28. Carapace 2.99 long, 2.27 wide. Femur II 2.56 long (holotype). Eye sizes and interdistances: AME 0.14, ALE 0.13, PME 0.17, PLE 0.13; AME-AME 0.12, AME-ALE 0.05, PME-PME 0.08, PME-PLE 0.10, ALE-PLE 0.07. MOQ length 0.42, front width 0.40, back width 0.42. Epigynum with posterior projections forming transverse lateral pockets (figs. 50, 51). Leg spination: tibiae: I v1p-1p-0; II p0-0-0, v1p-2-0.

MATERIAL EXAMINED: Only the holotype.

Echemoides penicillatus (Mello-Leitão), new combination
Figures 16-19

Echemus argentinus Mello-Leitão, 1941, p. 167, fig. 57, pl. ix, fig. 43 (male holotype from Andalgalá, Catamarca, Argentina, in MLP, examined). Preoccupied by *Echemus argentinus* Mello-Leitão (1940).

Echemus penicillatus Mello-Leitão, 1942, p. 411, fig. 37 (female holotype from Simbol, Santiago del Estero, Argentina, in MLP, examined).

Echemus argentinensis Mello-Leitão, 1942, p. 387 (*nomen novum* for *Echemus argentinus* Mello-Leitão, 1941). NEW SYNONYMY.

DIAGNOSIS: Males of *E. penicillatus* may be recognized by the two equally long lobes of the retrolateral tibial apophysis (fig. 17), females by the anterolateral projections and smooth anterior plate of the epigynum (fig. 18).

MALE: Total length 7.60-10.33. Carapace 3.47-4.39 long, 2.74-3.71 wide. Femur II 2.92-3.78 long (seven specimens). Eye sizes and interdistances: AME 0.20, ALE 0.18, PME 0.25, PLE 0.24; AME-AME 0.17, AME-ALE 0.09, PME-PME 0.07, PME-PLE 0.20, ALE-PLE 0.17. MOQ length 0.72, front width 0.56, back width 0.57. Conductor with sharply pointed extension (fig. 16). Retrolateral tibial apophysis with two subequal lobes (fig. 17).

Leg spination: tibia II v1r-2-1p; metatarsus III v2-1r-2.

FEMALE: Total length 7.45-11.74. Carapace 3.38-4.39 long, 2.88-3.60 wide. Femur II 2.90-3.46 long (seven specimens). Eye sizes and interdistances: AME 0.15, ALE 0.17, PME 0.20, PLE 0.18; AM-AME 0.17, AME-ALE 0.09, PME-PME 0.07, PME-PLE 0.13, ALE-PLE 0.11. MOQ length 0.51, front width 0.47, back width 0.47. Epigynum with prominent anterolateral projections and smooth median anterior plate (figs. 18, 19). Leg spination: tibiae: II v1r-2-1p; III v1p-2-2; metatarsus III v2-1r-2.

MATERIAL EXAMINED: **Argentina**: *Catamarca*: Andalgalá (M. Birabén, MLP), 1♂. *Salta*: Río Carapari, Mar. 30, 1949 (N. Kormilev, MACN), 1♀. *San Luis*: San Francisco, Nov., 1970 (Williner, MACN), 1♂. *Santa Fe*: Departamento de Nueve de Julio, 1945 (A. Aiello, A. Giai, MACN), 1♂; Departamento de Vera, Sept., 1945 (J. Cranwell, A. Giai, MACN), 1♀. *Santiago del Estero*: Colonia Dora, 1940 (A. Prosen, MACN), 3♂, 3♀; Santiago del Estero, Apr. 2, 1965 (H. W. Levi, MCZ), 1♂. **Paraguay**: *Boquerón*: Puerto Casado, Dec., 1945 (J. Cranwell, A. Giai, MACN), 1♀.

NOTE: Although the name *argentinensis* has page priority over *penicillatus*, as first revisers we choose the latter name so as to avoid the confusion of having an *argentinus* and an *argentinensis* in the same genus.

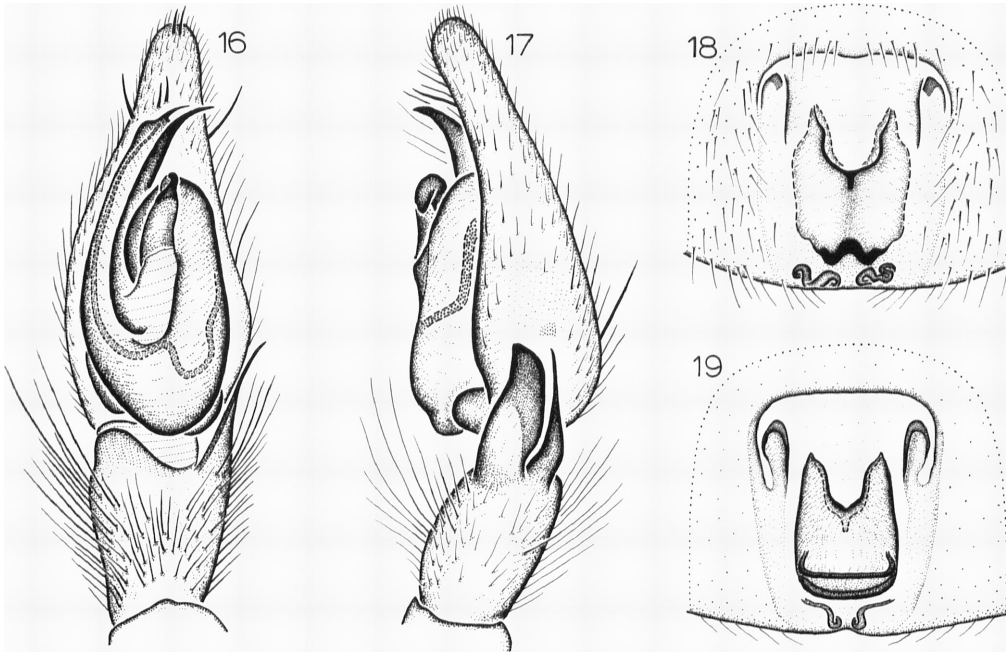
Echemoides penai, new species

Figures 20-23

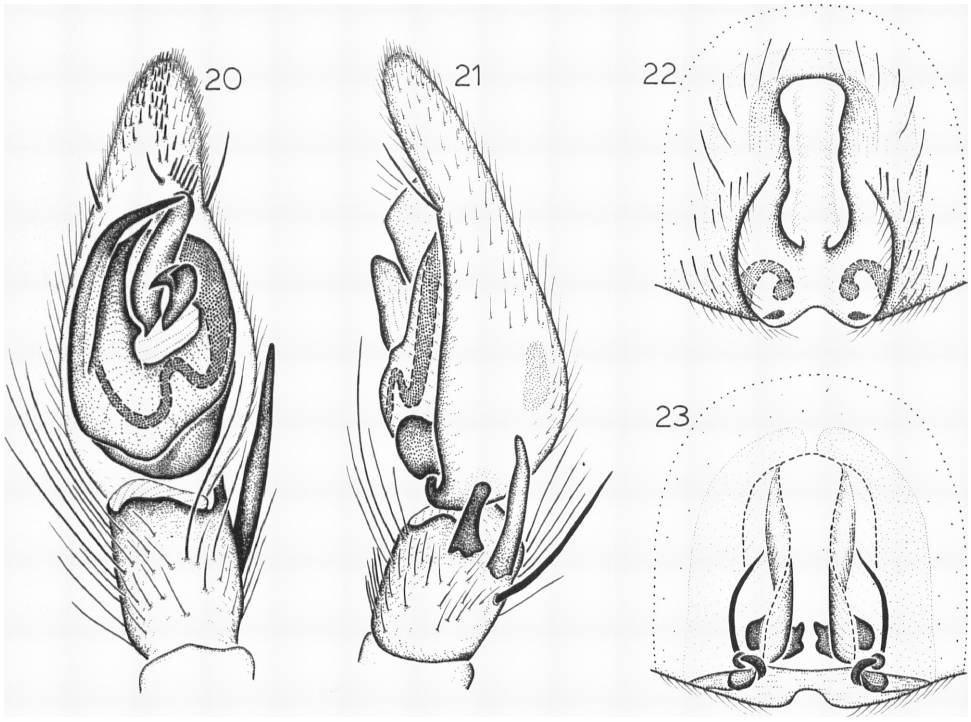
TYPES: Male holotype from an elevation of 2600 m. at Camiña Canyon, Chapiquilta, Tarapacá, Chile (June 6, 1968; L. Peña), deposited in MCZ, and female paratype from Lomas de Mollendo, Arequipa, Peru (November 19, 1950; Ross and Michelbacher), deposited in CAS.

ETYMOLOGY: Named for the collector of the holotype.

DIAGNOSIS: Males of *E. penai* may be recognized by the unequal lobes of the retrolateral tibial apophysis and widely spaced distal palpal



FIGS. 16-19. *Echemoides penicillatus* (Mello-Leitão). 16. Palp, ventral view. 17. Palp, retrolateral view. 18. Epigynum, ventral view. 19. Epigynum, dorsal view.



FIGS. 20-23. *Echemoides penai*, new species. 20. Palp, ventral view. 21. Palp, retrolateral view. 22. Epigynum, ventral view. 23. Epigynum, dorsal view.

elements (figs. 20, 21), females by the rounded epigynal margins (fig. 22).

MALE: Total length 6.88. Carapace 3.02 long, 2.41 wide. Femur II 2.66 long (holotype). Eye sizes and interdistances: AME 0.10, ALE 0.11, PME 0.13, PLE 0.12; AME-AME 0.14, AME-ALE 0.06, PME-PME 0.08, PME-PLE 0.07, ALE-PLE 0.06. MOQ length 0.39, front width 0.33, back width 0.33. Palp with widely spaced distal elements; conductor narrow (fig. 20). Retrolateral tibial apophysis with two unequal lobes (fig. 21). Leg spination: femora; I, II, III p1-1-1, r1-1-1; IV p1-1-1; tibiae: I v2-2-2; II p1-0-1, v2-2-2; metatarsus II v2-2-0 (metatarsus and tibia IV lacking).

FEMALE: Total length 6.01. Carapace 2.92 long, 2.27 wide. Femur II 2.30 long (paratype). Eye sizes and interdistances: AME 0.10, ALE 0.12, PME 0.14, PLE 0.12; AME-AME 0.13, AME-ALE 0.04, PME-PME 0.09, PME-PLE 0.09, ALE-PLE 0.07. MOQ length 0.35, front width 0.33, back width 0.37. Epigynum with narrow anterior plate and rounded posterolateral margins (figs. 22, 23). Leg spination: femora: I r0-1-1; II, III p1-1-1, r1-1-1; IV p1-1-1; tibia I v2-2-1p; metatarsus II v2-2-0.

MATERIAL EXAMINED: Only the types.

Echemoides aguilari, new species
Figures 24-27

TYPES: Male holotype and female paratype from *Tillandsia* bromeliads at Punta Hermosa, Lima, Peru (1975; P. Aguilar), deposited in AMNH.

ETYMOLOGY: Named for the collector of the types.

DIAGNOSIS: Males of *E. aguilari* may be recognized by the unequal lobes of the retrolateral tibial apophysis and closely spaced distal palpal elements (figs. 24, 25), females by the straight epigynal margins (fig. 26).

MALE: Total length 6.16-7.81. Carapace 2.88-3.67 long, 2.27-2.95 wide. Femur II

2.77-3.67 long (seven specimens). Eye sizes and interdistances: AME 0.12, ALE 0.14, PME 0.16, PLE 0.15; AME-AME 0.10, AME-ALE 0.04, PME-PME 0.06, PME-PLE 0.08, ALE-PLE 0.07. MOQ length 0.38, front width 0.33, back width 0.39. Palp with closely spaced distal elements; conductor wide (fig. 24). Retrolateral tibial apophysis with two unequal lobes (fig. 25). Leg spination: femora: I rl-1-1; II, III, IV pl-1-1, rl-1-1; tibiae: I pl-0-0; II pl-0-1.

FEMALE: Total length 7.56±1.46. Carapace 3.25±0.53 long, 2.54±0.46 wide. Femur II 2.81±0.47 long (15 specimens examined). Eye sizes and interdistances: AME 0.11, ALE 0.13, PME 0.16, PLE 0.14; AME-AME 0.12, AME-ALE 0.04, PME-PME 0.06, PME-PLE 0.09, ALE-PLE 0.07. MOQ length 0.38, front width 0.34, back width 0.38. Epigynum with narrow anterior plate and straight posterolateral margins (figs. 26, 27). Leg spination: femora: I r0-1-1; II, III, IV pl-1-1, rl-1-1; tibiae: I vlp-lp-0; II v2-2-0; metatarsus I vlp-0-0.

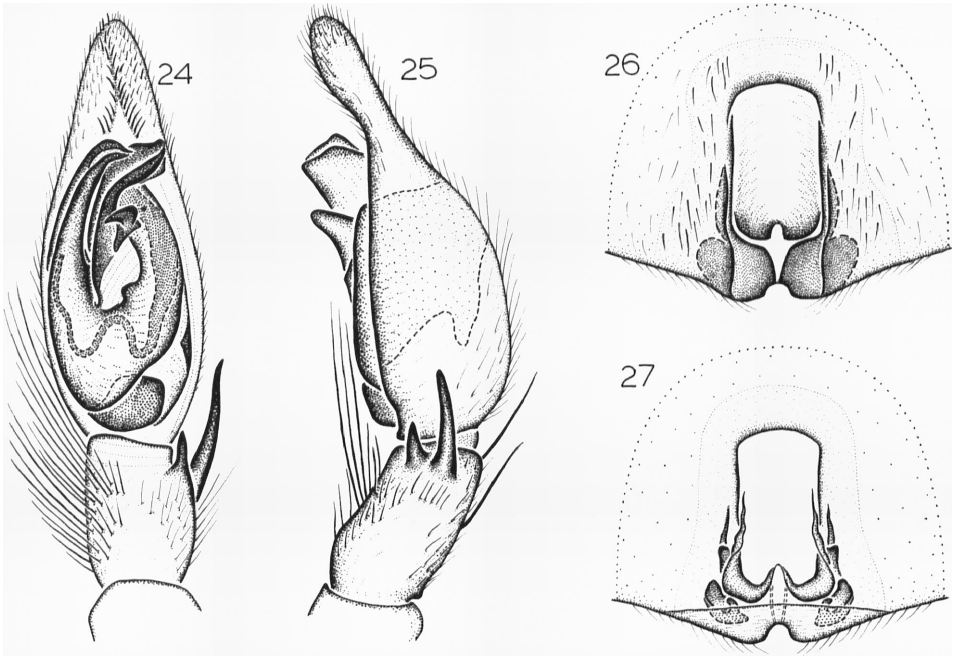
MATERIAL EXAMINED: **Peru**: *Arequipa*: Chala, Dec. 10, 1951 (W. Weyrauch, EPC), 1♀. *Ica*: North Island, Islas de Chinca, Dec., 1941 (W. Vogt, AMNH), 1♀. *Lima*: Chosica, garden in dry slope, Nov. 9, 1977 (P. T. Lehtinen, MZT), 1♀; 5 km. E La Molina, elevation 400 m., under loose *Tillandsia* bromeliads, Dec. 30, 1975 (O. F. Francke, AMNH), 1♂; Lomas de Atocongo, stony desert, Nov. 5, 1977 (P. T. Lehtinen, MZT), 1♂; Miraflores, in house or garden, Feb. 6, 1965 (H. W. Levi, MCZ), 2♀; Punta Hermosa, *Tillandsia* bromeliads, 1975 (P. Aguilar, CPA, AMNH), 3♂, 7♀; Quebrada Verde (P. Aguilar, EPC), 1♂, 2♀, Aug., 1948 (W. Weyrauch, EPC), 1♂, Sept. 5, 1952 (D. L. Frizzell, W. Weyrauch, EPC), 1♀.

Echemoides tofo, new species

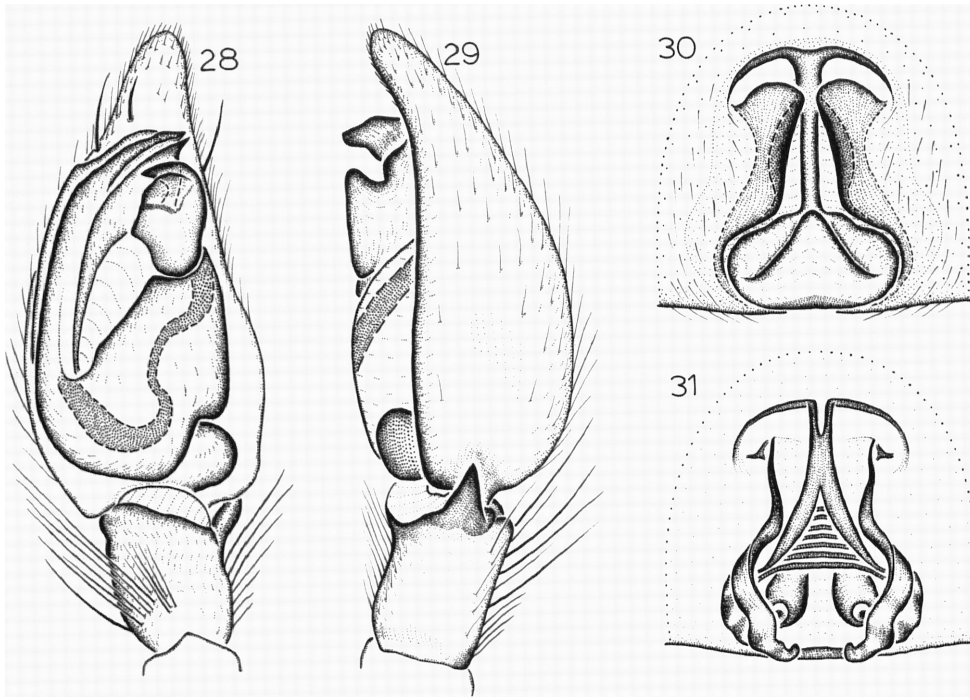
Figures 28-31

TYPES: Male holotype and female paratype from El Tofo, Coquimbo, Chile (no date or collector), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.



FIGS. 24-27. *Echemoides aguilari*, new species. 24. Palp, ventral view. 25. Palp, retrolateral view. 26. Epigynum, ventral view. 27. Epigynum, dorsal view.



FIGS. 28-31. *Echemoides tofo*, new species. 28. Palp, ventral view. 29. Palp, retrolateral view. 30. Epigynum, ventral view. 31. Epigynum, dorsal view.

DIAGNOSIS: Males of *E. tofo* may be recognized by the triangular retrolateral tibial apophysis (fig. 29), females by the anteriorly expanded, posteriorly rounded epigynal atrium (fig. 30).

MALE: Total length 7.70-9.65. Carapace 3.62-4.21 long, 2.70-3.38 wide. Femur II 2.77-3.64 long (three specimens). Eye sizes and interdistances: AME 0.15, ALE 0.18, PME 0.17, PLE 0.18; AME-AME 0.16, AME-ALE 0.04, PME-PME 0.11, PME-PLE 0.18, ALE-PLE 0.13. MOQ length 0.54, front width 0.46, back width 0.45. Median apophysis bifid, squared (fig. 28). Retrolateral tibial apophysis short, triangular (fig. 29). Leg spination: tibia III d1-0-1, p0-1-1; metatarsi: I v2-1p-0; II v2-2-0; III r2-1-2; IV v1r-2-2, r2-2-2.

FEMALE: Total length 8.39. Carapace 4.72 long, 3.53 wide. Femur II 3.60 long (paratype). Eye sizes and interdistances: AME 0.16, ALE 0.17, PME 0.19, PLE 0.17; AME-AME 0.13, AME-ALE 0.04, PME-PME 0.11, PME-PLE 0.19, ALE-PLE 0.11. MOQ length 0.49, front width 0.46, back width 0.49. Epigynum with posteriorly rounded but anteriorly expanded atrium and paired lateral arms invaginated medially (figs. 30, 31). Leg spination: tibia I v2-2-1p; metatarsus II v2-1r-0 (leg III and tibia and metatarsus IV lacking).

MATERIAL EXAMINED: Two males taken with the types (AMNH).

Echemoides schlingeri, new species
Figures 32-35

TYPES: Male holotype and female paratype from an elevation of 100 to 500 m. at Fray Jorge National Park, Coquimbo, Chile (October 21, 1966; E. I. Schlinger and M. Irwin), deposited in UCB, on indefinite loan to CAS.

ETYMOLOGY: Named for one of the collectors of the types.

DIAGNOSIS: Males of *E. schlingeri* may be recognized by the dorsally directed, distally

bifid retrolateral tibial apophysis (fig. 33), females by the posteriorly squared epigynal atrium (fig. 34).

MALE: Total length 6.84-9.07. Carapace 3.94-4.43 long, 3.08-3.42 wide. Femur II 3.28-3.67 long (three specimens). Eye sizes and interdistances: AME 0.11, ALE 0.16, PME 0.17, PLE 0.17; AME-AME 0.20, AME-ALE 0.06, PME-PME 0.09, PME-PLE 0.16, ALE-PLE 0.13. MOQ length 0.51, front width 0.42, back width 0.43. Tegulum with sharp point proximal to median apophysis (fig. 32). Retrolateral tibial apophysis long, directed dorsally, with tooth below base (fig. 33). Leg spination: femur IV r1-1-1; tibia I v2-2-1p; metatarsi: I v2-1r-0; II v2-2-0.

FEMALE: Total length 7.18. Carapace 3.74 long, 2.74 wide. Femur II 2.77 long (paratype). Eye sizes and interdistances: AME 0.14, ALE 0.14, PME 0.17, PLE 0.15; AME-AME 0.14, AME-ALE 0.04, PME-PME 0.05, PME-PLE 0.12, ALE-PLE 0.09. MOQ length 0.49, front width 0.42, back width 0.39. Epigynum with posteriorly squared, anteriorly expanded atrium (figs. 34, 35). Leg spination: tibia I v2-2-1p; metatarsus II v2-1r-0.

MATERIAL EXAMINED: Two males taken with the types (UCB, AMNH).

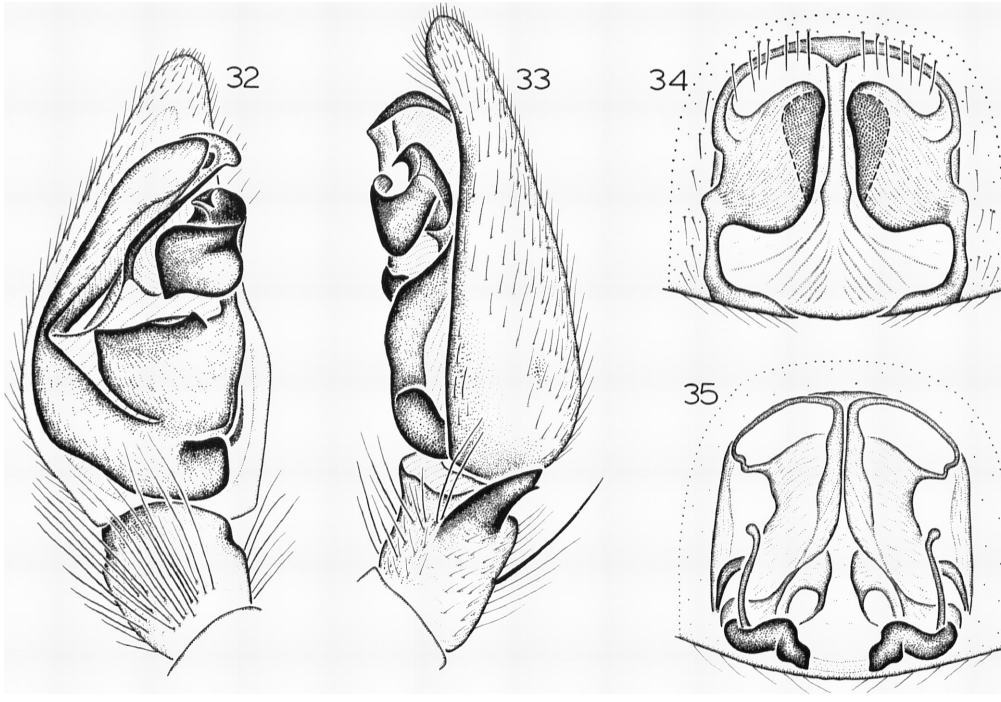
Echemoides illapel, new species

Figures 36-39

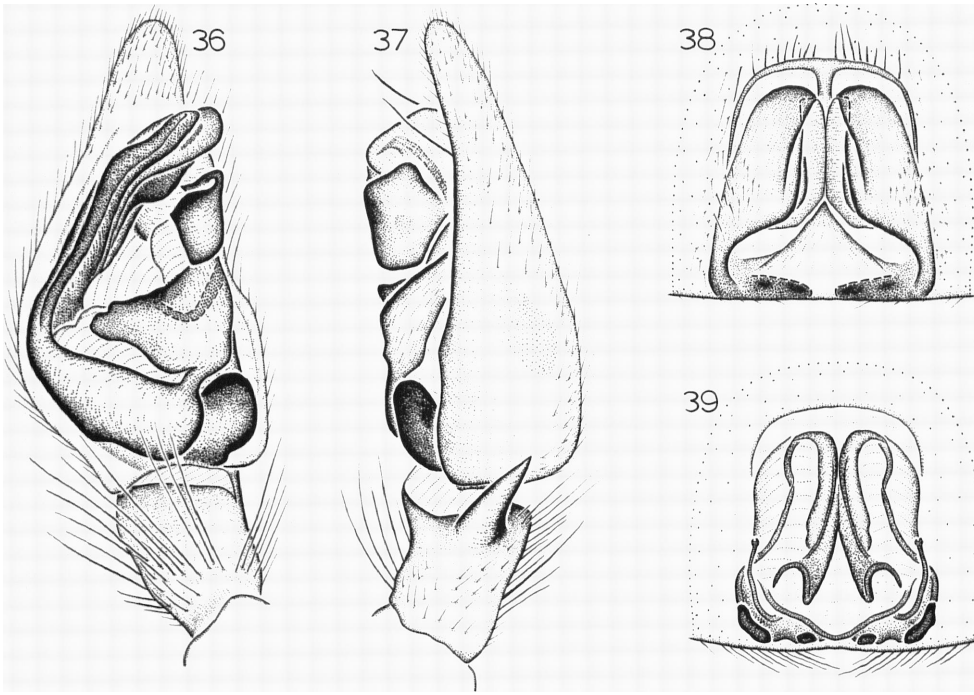
TYPES: Male holotype and female paratype from an elevation of 600 to 900 m. at Hacienda Illapel, Coquimbo, Chile (October 19, 1966; E. I. Schlinger, M. Irwin, L. Peña), deposited in UCB, on indefinite loan to CAS.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males of *E. illapel* may be recognized by the dorsally directed, distally pointed retrolateral tibial apophysis (fig. 37), females by the four-layered lateral epigynal arms (fig. 38).



FIGS. 32-35. *Echemoides schlingeri*, new species. 32. Palp, ventral view. 33. Palp, retrolateral view. 34. Epigynum, ventral view. 35. Epigynum, dorsal view.



FIGS. 36-39. *Echemoides illapel*, new species. 36. Palp, ventral view. 37. Palp, retrolateral view. 38. Epigynum, ventral view. 39. Epigynum, dorsal view.

MALE: Total length 7.42-9.40. Carapace 3.85-4.72 long, 2.88-3.56 wide. Femur II 2.95-4.03 long (four specimens). Eye sizes and interdistances: AME 0.16, ALE 0.15, PME 0.21, PLE 0.18; AME-AME 0.14, AME-ALE 0.05, PME-PME 0.11, PME-PLE 0.17, ALE-PLE 0.11. MOQ length 0.54, front width 0.46, back width 0.53. Tegulum without point proximal to median apophysis (fig. 36). Retrolateral tibial apophysis long, directed dorsally, entire (fig. 37). Leg spination: femora: I, II r0-1-1; IV r1-1-1; tibia I v2-2-1p; metatarsi I, II v2-1r-0.

FEMALE: Total length 8.68. Carapace 3.28 long, 3.28 wide. Femur II 3.24 long (paratype). Eye sizes and interdistances: AME 0.15, ALE 0.17, PME 0.15, PLE 0.15; AME-AME 0.13, AME-ALE 0.04, PME-PME 0.15, PME-PLE 0.17, ALE-PLE 0.13. MOQ length 0.54, front width 0.43, back width 0.45. Epigynum with lateral arms in four layers (figs. 38, 39). Leg spination indeterminate as specimen was collected while molting.

MATERIAL EXAMINED: Three males taken with the types (UCB, AMNH).

Echemoides malleco, new species
Figures 40-43

TYPES: Male holotype and female paratype from 10 km. west of Collipulli, Malleco, Chile (January 4, 1961; J. K. Greer), deposited in AMNH courtesy of Dr. R. L. Fischer.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males of *E. malleco* may be recognized by the broad, distally invaginated retrolateral tibial apophysis (fig. 41), females by the posteriorly narrow epigynal atrium (fig. 42).

MALE: Total length 6.84, 8.50. Carapace 3.19, 3.62 long, 2.52, 2.92 wide. Femur II 2.38, 2.52 long (two specimens). Eye sizes and interdistances: AME 0.12, ALE 0.12, PME 0.18, PLE 0.16; AME-AME 0.15, AME-ALE 0.06, PME-PME 0.08, PME-PLE 0.16, ALE-

PLE 0.08. MOQ length 0.51, front width 0.39, back width 0.44. Tegulum with many prolateral ridges (fig. 40). Retrolateral apophysis distally invaginated (fig. 41). Leg spination: tibiae: II v1r-2-0; III p0-1-1.

FEMALE: Total length 9.50, 10.19. Carapace 3.35, 3.67 long, 2.87, 2.91 wide. Femur II 2.88, 2.90 long (two specimens). Eye sizes and interdistances: AME 0.12, ALE 0.15, PME 0.16, PLE 0.14; AME-AME 0.14, AME-ALE 0.05, PME-PME 0.09, PME-PLE 0.16, ALE-PLE 0.11. MOQ length 0.49, front width 0.37, back width 0.41. Epigynum with projecting lateral arms and narrow atrium (figs. 42, 43). Leg spination: femur I r0-0-1; tibiae: I v1p-2-1p; II v1r-2-1p.

MATERIAL EXAMINED: One male and one female taken with the types (MSU).

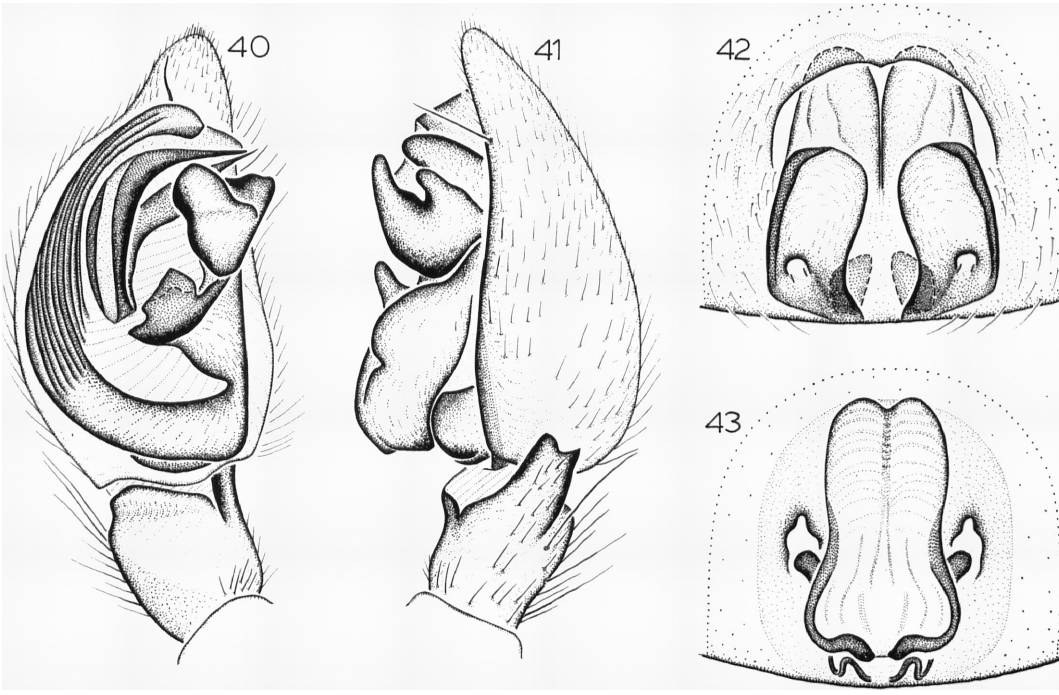
Echemoides gayi (Simon), new combination
Figures 44-47

Megamyrmecion gayi Simon, 1904, p. 89 (female holotype from Peñaflor, Santiago, Chile, in MNHN, examined).

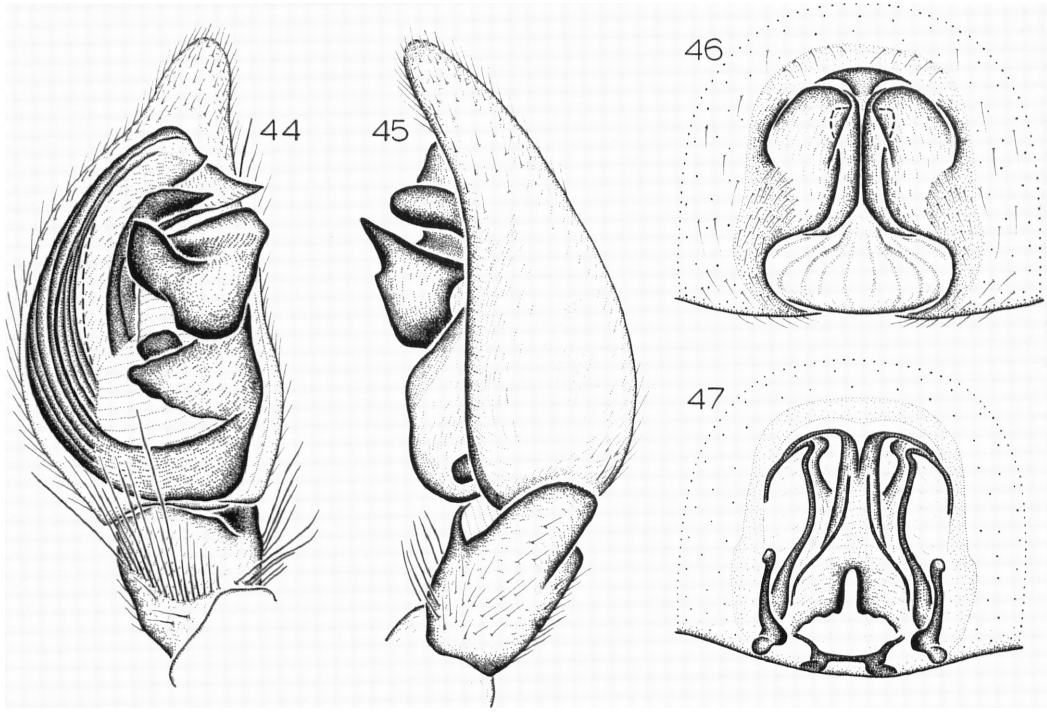
DIAGNOSIS: Males of *E. gayi* may be recognized by the broad, rounded retrolateral tibial apophysis (fig. 45), females by the anteriorly narrowed epigynal atrium (fig. 46).

MALE: Total length 5.87-10.80. Carapace 3.38-4.79 long, 2.66-4.01 wide. Femur II 2.81-4.07 long (seven specimens). Eye sizes and interdistances: AME 0.13, ALE 0.13, PME 0.18, PLE 0.16; AME-AME 0.10, AME-ALE 0.05, PME-PME 0.05, PME-PLE 0.13, ALE-PLE 0.09. MOQ length 0.47, front width 0.36, back width 0.41. Sclerite present proximal to median apophysis (fig. 44). Retrolateral tibial apophysis rounded, with minute serrations distally (fig. 45). Leg spination: femur IV r1-1-1; tibiae: I v2-2-1p; II v1r-2-1p; metatarsi I, II v2-1r-0.

FEMALE: Total length 13.10. Carapace 5.18 long, 3.82 wide. Femur II 3.89 long (holotype). Eye sizes and interdistances: AME 0.14,



FIGS. 40-43. *Echemoides malleco*, new species. 40. Palp, ventral view. 41. Palp, retrolateral view. 42. Epigynum, ventral view. 43. Epigynum, dorsal view.



FIGS. 44-47. *Echemoides gayi* (Simon). 44. Palp, ventral view. 45. Palp, retrolateral view. 46. Epigynum, ventral view. 47. Epigynum, dorsal view.

ALE 0.17, PME 0.18, PLE 0.18; AME-AME 0.14, AME-ALE 0.07, PME-PME 0.15, PME-PLE 0.22, ALE-PLE 0.11. MOQ length 0.57, front width 0.42, back width 0.61. Epigynal atrium not expanded anteriorly (figs. 46, 47). Leg spination: femora I, II r0-1-1; tibiae: I v2-2-1p; II v2-2-2; metatarsi: I, II v2-1r-0; III r2-1-2; IV r2-2-2.

MATERIAL EXAMINED: **Chile**: *Ñuble*: Polcura, Jan.-Mar., 1955 (E. Reed, AMNH), 1♂. *Santiago*: La Rinconada, Sept., 1966 (no collector, UCB), 1♂; Las Condes, Jan. 5, 1967 (E. I. Schlinger, UCB), 1♂; Peñaflor (C. Porter, MNHN), 2♂, 1♀; Quebrada de La Plata, elevation 700 m., Oct. 3, 1966 (E. I. Schlinger, UCB), 1♂; Santiago, Mar., 1961 (R. Donso, A. F. Archer, AMNH), 1♂.

Echemoides rossi, new species
Figures 48, 49

TYPE: Male holotype from Zapallar, Aconcagua, Chile (November 27, 1950; E. S. Ross, Michelbacher), deposited in CAS.

ETYMOLOGY: Named for one of the collectors of the holotype.

DIAGNOSIS: Males of *E. rossi* may be recognized by the presence of relatively few lateral ridges on the palpal tegulum (fig. 48) and three distal teeth on the retrolateral tibial apophysis (fig. 49).

MALE: Total length 7.78, 9.27. Carapace 3.26, 4.03 long, 2.63, 3.11 wide. Femur II 2.79, 3.42 long (two specimens). Eye sizes and interdistances: AME 0.12, ALE 0.13, PME 0.18, PLE 0.17; AME-AME 0.13, AME-ALE 0.05, PME-PME 0.09, PME-PLE 0.16, ALE-PLE 0.14. MOQ length 0.52, front width 0.37, back width 0.45. Tegulum with few lateral ridges (fig. 48). Retrolateral tibial apophysis with three distal teeth (fig. 49). Leg spination: femora: I, II r0-1-1; IV r1-1-1; tibia III d1-0-1; metatarsi I, II v2-1p-0.

FEMALE: Unknown.

MATERIAL EXAMINED: One male taken with the holotype (CAS).

NOTES ON OTHER ECHEMINES

The following descriptions of specimens recently sorted from accumulated material in the American Museum of Natural History or recently sent to us for identification are intended to supplement previously published revisions of the genera *Zimiromus* (see Platnick and Shadab, 1976c) and *Scopodes* (see Platnick and Shadab, 1976a).

Zimiromus canje, new species
Figures 52, 53

TYPE: Male holotype from Canje, Ikuruwa River, East Berbice, Guyana (August-December, 1961; G. Bentley), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species, a member of the *tropicalis* group, will key to *Z. chickeringi* in our published key but may be distinguished from that species by the presence of tubercles on the palpal tibia (figs. 52, 53).

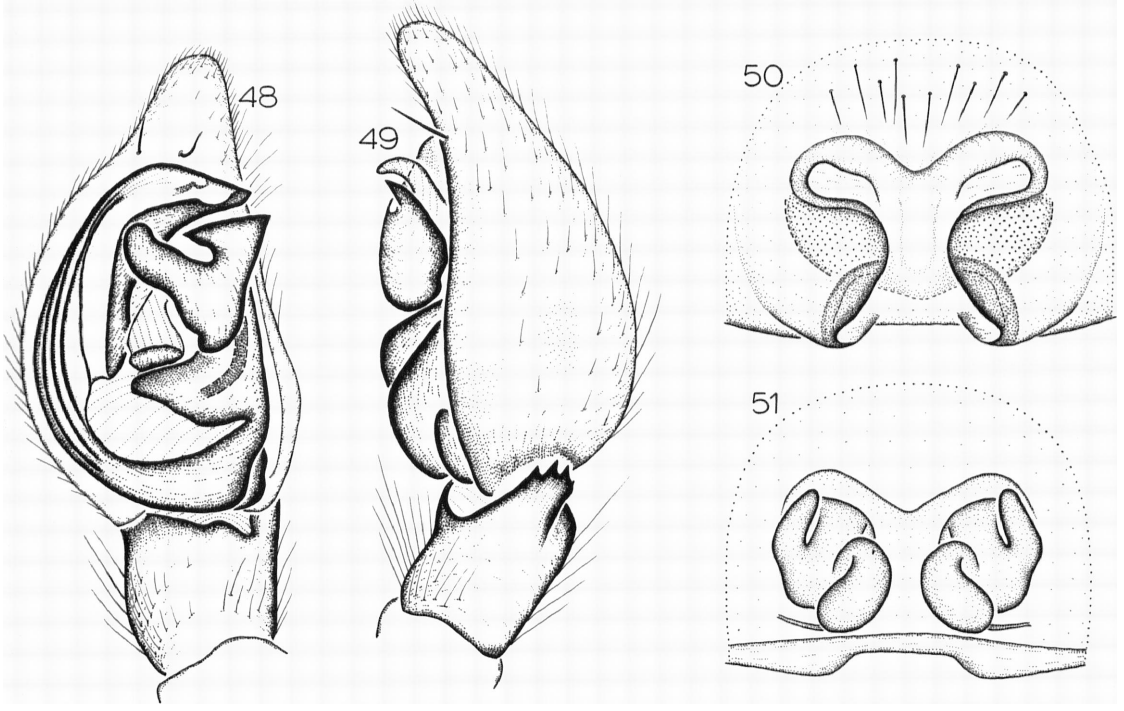
MALE: Total length 4.07. Carapace 1.58 long, 1.24 wide. Femur II 1.40 long (holotype). Eye sizes and interdistances: AME 0.11, ALE 0.10, PME 0.12, PLE 0.10; AME-AME 0.09, AME-ALE 0.04, PME-PME 0.08, PME-PLE 0.05, ALE-PLE 0.04. MOQ length 0.27, front width 0.32, back width 0.32. Median apophysis displaced retrolaterally (fig. 52). Palpal tibia with tubercles (fig. 53). Leg spination: femur I d1-1-1; tibiae: I v1r-2-2; IV d1-0-1; metatarsus III v1p-1r-1p, r0-2-2.

FEMALE: Unknown.

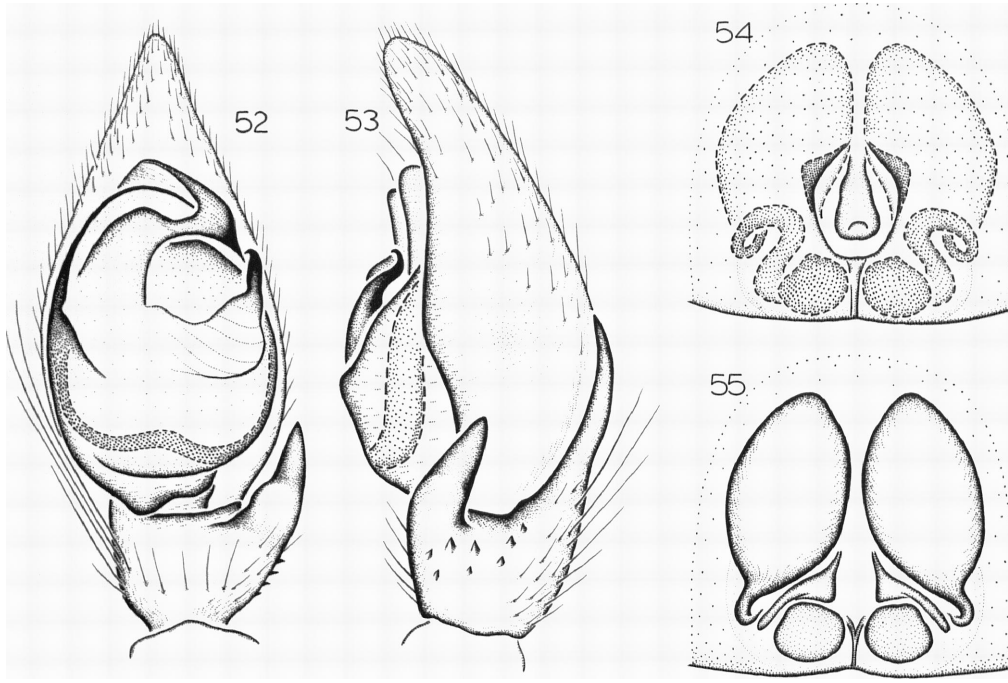
MATERIAL EXAMINED: Only the holotype.

Zimiromus dorado, new species
Figures 54, 55

TYPE: Female holotype collected under a log



FIGS. 48-51. 48, 49. *Echemoides rossi*, new species, palp. 48. Ventral view. 49. Retrolateral view. 50, 51. *E. balsa*, new species, epigynum. 50. Ventral view. 51. Dorsal view.



FIGS. 52-55. 52, 53. *Zimiromus canje*, new species, palp. 52. Ventral view. 53. Retrolateral view. 54, 55. *Z. dorado*, new species, epigynum. 54. Ventral view. 55. Dorsal view.

at an elevation of 1500 m. at Quillabamba, Cerro Dorado, Cuzco, Peru (June 18, 1964; B. Malkin), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species, a member of the *lubricus* group, will key to *Z. reichardti* in our published key but may be distinguished from that species by the narrower epigynal scape (fig. 54) and spermathecal ducts (fig. 55).

MALE: Unknown.

FEMALE: Total length 4.43. Carapace 2.03 long, 1.62 wide. Femur II lacking (holotype). Eye sizes and interdistances: AME 0.13, ALE 0.13, PME 0.13, PLE 0.12; AME-AME 0.09, AME-ALE 0.05, PME-PME 0.10, PME-PLE 0.06, ALE-PLE 0.05. MOQ length 0.32, front width 0.35, back width 0.35. Epigynum with narrow, unstriated scape (fig. 54). Spermathecal ducts narrow (fig. 55). Leg spination: femur IV p0-1-1; patella IV p0-0-0; metatarsus IV p1-2-2 (legs I-III lacking).

MATERIAL EXAMINED: Only the holotype.

Zimiromus nadleri, new species
Figures 56, 57

TYPE: Female holotype from the Paramaribo Botanical Gardens, Suriname, Surinam (February 20, 1959; A. M. Nadler), deposited in AMNH.

ETYMOLOGY: Named for the collector of the holotype.

DIAGNOSIS: This species, a member of the *jamaicensis* group, will key to *Z. piura* in our published key but may be distinguished from that species by the presence of an epigynal hood (figs. 56, 57).

MALE: Unknown.

FEMALE: Total length 3.10. Carapace 1.44 long, 1.08 wide. Femur II 0.86 long (holotype). Eye sizes and interdistances: AME 0.09, ALE 0.08, PME 0.08, PLE 0.06; AME-AME 0.08, AME-ALE 0.02, PME-PME 0.07, PME-PLE 0.06, ALE-PLE 0.02. MOQ length 0.21, front width 0.26, back width 0.23. Epigynum with small hood (figs. 56, 57). Leg spination:

femur II d1-1-0; patellae III, IV p0-0-0; tibiae: I v0-0-1p; II p0-0-0, v0-0-1p; III, IV d0-0-0, p1-1-1, v1p-2-2; metatarsi: I, II v0-0-0; III p0-1-2, v2-1r-2; IV v1r-2-2, r1-2-2.

MATERIAL EXAMINED: Only the holotype.

Scopodes gertschi Platnick
Figures 58, 59

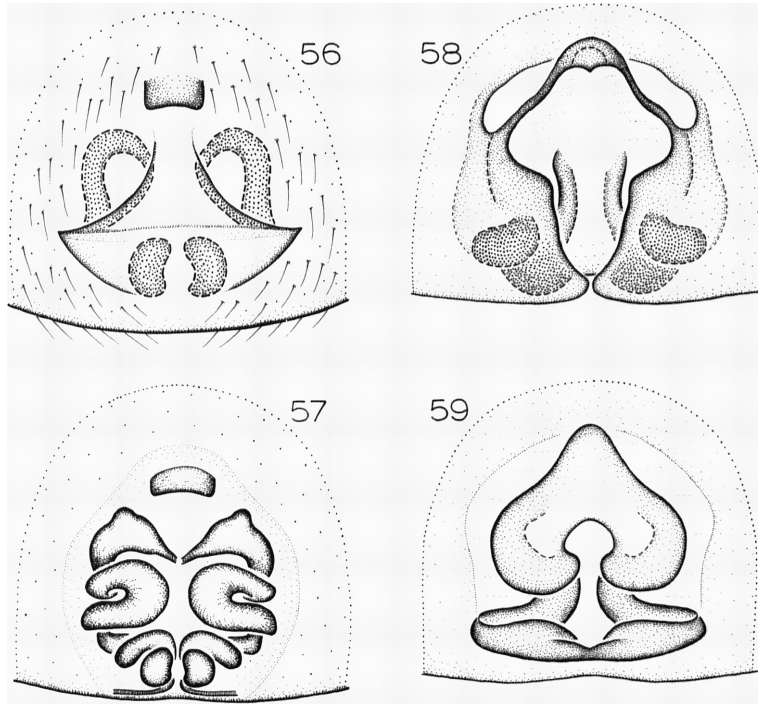
Scopodes gertschi Platnick, 1978, p. 181, figs. 1, 2 (male holotype from Kawea River, Tulare County, California, in AMNH, examined).

DIAGNOSIS: Females of *S. gertschi* may be recognized by the short epigynal hood (fig. 58) and fused anterior spermathecal lobes (fig. 59). The combined presence of an epigynal septum and a palpal conductor place the species in the *catharius* group, and it is most closely related to either the clade containing *S. catharius* and *S. kastoni* (as indicated by the conductor being situated beside the embolus but the epigynal atrium being small and rounded) or the clade containing the remaining species of the group (as indicated by the absence of a retromarginal cheliceral denticle in females but not males), as shown in Platnick and Shadab (1976a, fig. 39).

MALE: Described by Platnick (1978).

FEMALE: Total length 5.02, 7.49. Carapace 2.40, 3.28 long, 1.84, 2.36 wide. Femur II 1.91, 2.52 long (two specimens). Eye sizes and interdistances: AME 0.11, ALE 0.15, PME 0.14, PLE 0.12; AME-AME 0.12, AME-ALE 0.04, PME-PME 0.09, PME-PLE 0.12, ALE-PLE 0.06. MOQ length 0.39, front width 0.33, back width 0.37. Epigynal hood short (fig. 58). Spermathecal lobes fused anteriorly (fig. 59). Leg spination: tibiae: I v2-1p-1p; II p0-0-1; metatarsi: I v1p-0-0; III r1-2-2.

MATERIAL EXAMINED: **United States**: *California*: Kern Co.: 5 mi. N Blackwell's Corner, under oil barrels, July 28, 1969 (L. Davis, AMNH), 1♀; 3 mi. W McKittrick, under rock, July 23, 1969 (M. J. Moody, L. Davis, CDFA), 1♀.



FIGS. 56-59. 56, 57. *Zimiromus nadleri*, new species. 58, 59. *Scopodes gertschi* Platnick. 56, 58. Epigyna, ventral views. 57, 59. Epigyna, dorsal views.

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