

AMERICAN MUSEUM *Novitates*

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK, N.Y. 10024
Number 2760, pp. 1-18, figs. 1-56
May 27, 1983

A Review of the *chilensis* Group of the Spider Genus *Echemoides* (Araneae, Gnaphosidae)

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ABSTRACT

The *chilensis* group contains those *Echemoides* species in which the median apophysis of the male palp is bifid. A cladogram, map, key, diagnoses, descriptions, illustrations, and scanning electron micrographs are provided for the eight known species, which occur only in northern and central

Chile (from Atacama south to Malleco provinces) and which are largely or entirely allopatric. The female of *E. rossi* Platnick and Shadab is described for the first time, and two new species, *E. chilensis* and *E. cekalovici*, are described.

INTRODUCTION

One of the most surprising results of a recent revision of the Neotropical spider genus *Echemoides* by Platnick and Shadab (1979) was the discovery of a monophyletic species group within the genus containing no fewer than six species that are restricted entirely to northern and central Chile. Those authors described as new five of the species, each known from a single locality only, and indicated that: "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" (p. 5). Hence, when the oppor-

tunity arose to do fieldwork in Chile during 1981, attempting to re-collect these taxa so as to judge the validity of their specific status and the true extent of their ranges became a primary focus of attention. These efforts were quite successful, in that populations of each of the five newly described species were located and sampled. Thanks to this newly collected material, and to collecting by two leading Chilean naturalists, Drs. Luis E. Peña G. and Tomás Cekalovic K., the present review of these spiders, the seventeenth in a series of papers on the family Gnaphosidae, is based on more than four times as many specimens as were available for the 1979 study.

Two additional members of the species group have been discovered. One, described below as *E. cekalovici*, is from a locality in Talca province not previously known to house

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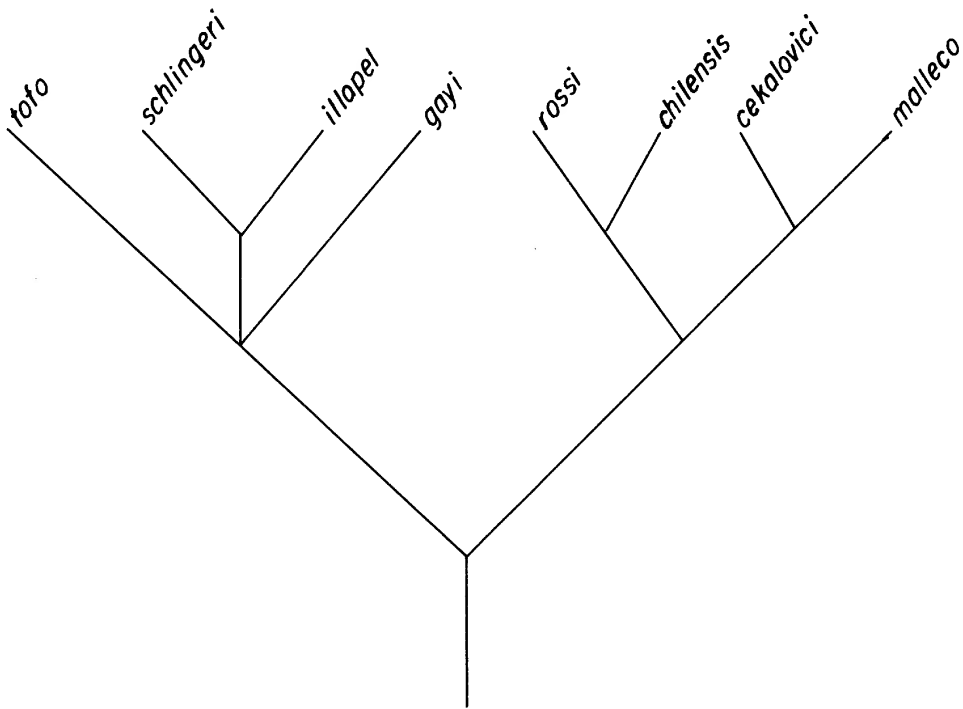


FIG. 1. Cladograms of species of the *Echemoides chilensis* group; see Introduction for defining characters of groups.

any *Echemoides*. The other, described below as *E. chilensis*, is the species common around Santiago and has therefore been collected fairly frequently. In previous studies, however, it has consistently been misidentified because of problems with the type material of the only species described in the classical literature, *Echemoides gayi* (Simon). Although Simon's (1904) original description was based on a single female said to be from "Peñaflor" (presumably Peñaflor, Santiago province), the type vial in the Paris museum includes two males as well. Platnick and Shadab (1979) assumed that the males were taken at the same locality as the female, and regarded them as conspecific. The new collections make it clear that they are not conspecific, and that the male belongs to *E. chilensis* rather than *E. gayi*. This is not particularly surprising, for it is well known that Simon frequently combined specimens he regarded as conspecific into a single vial even if they were from different localities. The puzzle that remains with regard to Simon's *Echemoides* material is that although

the males could easily be from Peñaflor, it seems unlikely that the holotype female was actually collected in Santiago province.

As was inferred from the previously known material, the members of the Chilean species group fall into two very distinctive subgroups (Platnick and Shadab, 1979, fig. 1), each of which is distinguished by a unique type of both male and female genitalia. A more northerly group, consisting of *E. tofo*, *E. schlingeri*, *E. illapel*, and the female holotype of *E. gayi*, is characterized by having the median apophysis of the male palp divided into a long proximal lobe and a short, hook-shaped distal lobe (as in figs. 11, 17, 21) and the female epigynum bearing a pair of anterolateral lobes projecting over an expanded anterior extension of the atrium (as in figs. 13, 23). A more southerly group, consisting of *E. rossi*, *E. chilensis*, *E. cekalovici*, and *E. malleco*, is characterized by having the base of the embolus of the male palp bearing several ridges prolaterally (as in fig. 47), a flattened lobelike retrolateral tibial apophysis (as in figs. 38, 54), and the female epigynum bearing

a pair of widely spaced posterolateral ridges (as in figs. 29, 55). If we ignore Simon's specimen of *E. gayi*, the two groups are entirely allopatric, with the northern group restricted to Atacama and Coquimbo provinces and the southern group occurring from Aconcagua province south. Until additional specimens of *E. gayi* are collected either at Peñaflor or farther north, the type locality of the species will remain uncertain.

Although the ranges of the species are now known to be wider than they were in 1979, the species within each subgroup do appear to be allopatric, with a single specimen again being problematical. This is a male of *E. chilensis* said to be collected at Polcura in Ñuble province and so recorded (under the name *E. gayi*) by Platnick and Shadab (1979, p. 18). This locality is far outside the otherwise authenticated range of *E. chilensis*, and it seems likely that the province designation on the label is erroneous and that the spider was actually collected at the Polcura in Santiago province instead. Here again, it would be useful to collect for additional *Echemoides* at both sites.

A cladogram for the eight species of the *chilensis* group is presented in figure 1; the group as a whole is equivalent to the branch of Platnick and Shadab's cladogram (1979, fig. 1) defined by their character 9, a bifid median apophysis (otherwise unknown in *Echemoides*). The two subgroups of four species each, based on the characters detailed above, correspond to the branches defined by characters 10 and 14 plus 15, respectively, of Platnick and Shadab (1979, p. 5). Within the northern subgroup, *E. schlingeri* and *E. illapel* are clearly more closely related to each other than to *E. tofo* (see characters 11, 12, and 13 of Platnick and Shadab, 1979), but resolution of the relationships between *E. gayi* and these species must await the discovery of its male. Within the southern subgroup, males of *E. rossi* and *E. chilensis* are united by having the proximal lobe of the median apophysis greatly elongated (figs. 27, 37), and those of *E. cekalovici* and *E. malleco* share a distally invaginated retrolateral tibial apophysis (figs. 44, 54). This arrangement is also supported by the female genitalia, which in the first pair of species have the posterolateral epigynal ridges thickened and oblique-

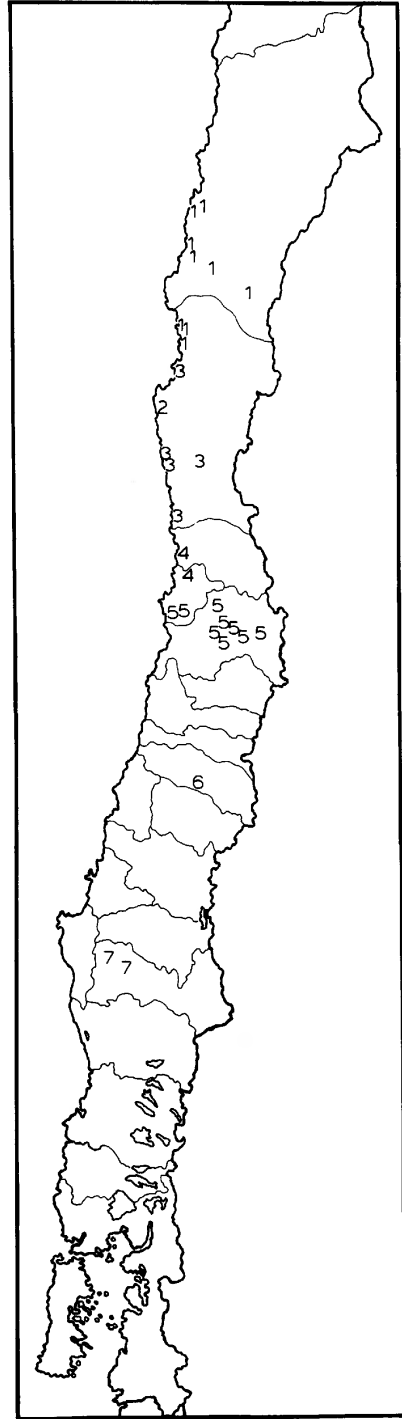
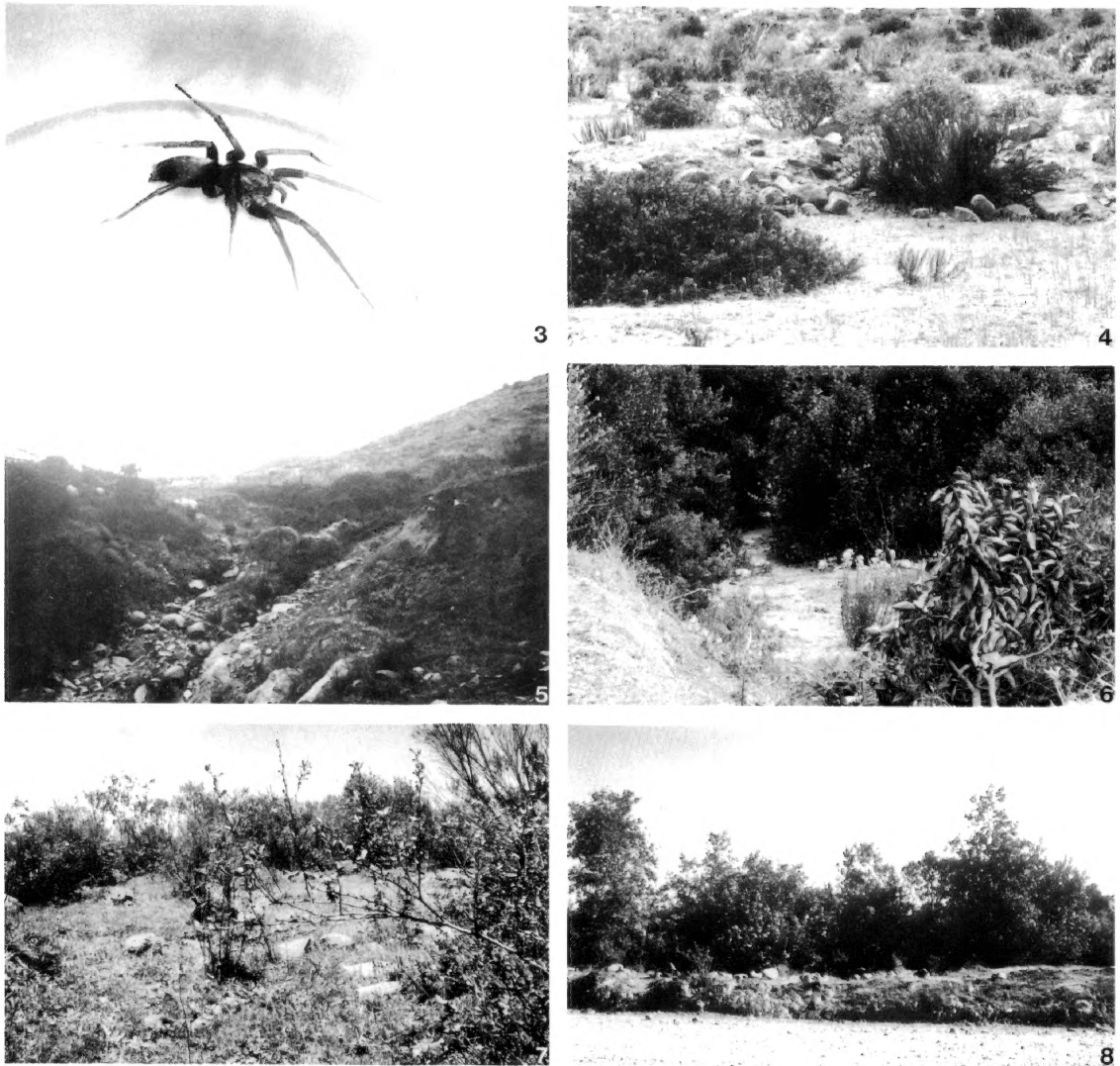


FIG. 2. Map of northern and central Chile (from Atacama province south to Chiloé province), showing known records of *Echemoides tofo* (1), *E. schlingeri* (2), *E. illapel* (3), *E. rossi* (4), *E. chilensis* (5), *E. cekalovici* (6), and *E. malleco* (7).



FIGS. 3–8. 3. *Echemoides chilensis*, new species, female from El Canelo, Santiago province. 4–8. Habitats of *Echemoides* species. 4. *E. tofo*, 19 km. north of La Serena, Coquimbo province. 5. *E. rossi*, 2 km. north of Zapallar, Aconcagua province. 6. *E. chilensis*, 15 km. east of Casablanca, Valparaíso province. 7. *E. cekalovici*, 47 km. east of Talca, Talca province. 8. *E. malleco*, 6 km. west of Angol, Malleco province.

ly oriented (figs. 29, 39) and in the second pair of species have those ridges elevated anterolaterally and flared posterolaterally (figs. 45, 55).

A comparison of the cladogram (fig. 1) with a map of the species ranges (fig. 2; *E. gayi* is omitted because of its uncertain type locality) indicates that the first vicariance event to affect the group separated the populations north

and south of Aconcagua province, that a subsequent event in the north separated the Atacama and north Coquimbo province populations from those of the remainder of Coquimbo, and that a subsequent event in the south separated the Aconcagua, Valparaíso, and Santiago province populations from those further south. Later events presumably led to the isolation of the four southern

species. It is difficult to identify what any of these events might have been, although they probably had some relation to various stages of the orogeny of the coastal mountain chain. Little in the way of obvious present-day barriers separate the species, especially those of the northern subgroup. *Echemoides schlingeri* is known only from the Fray Jorge National Park, which contains a relict forest (watered by fog) quite unlike the scrubby areas that typically house Chilean *Echemoides* (figs. 4–8). The only known specimens of *E. schlingeri* were taken at altitudes considerably below that of the relict forest, but of course the ecology of the entire area has probably varied considerably in the past. Present-day populations of these species seem confined to relatively dry areas. The spiders (fig. 3) are relatively large (up to 14 mm. long), extremely agile, and nocturnal, preferring large rocks as daytime shelters. Specimens were easily reared to maturity in captivity.

I am deeply indebted to the Eppley Foundation for Research for its generous support of field and laboratory work on *Echemoides*, to Dr. Randall T. Schuh of the American Museum of Natural History (AMNH) for his indefatigable enthusiasm and assistance during our six weeks in Chile, and to Drs. L. E. Peña G. and T. Cekalovic K. for much help with logistical problems and for their continued efforts to collect *Echemoides* and other interesting spiders. Dr. R. L. Fischer of Michigan State University, East Lansing (MSU), Mr. C. Griswold of the University of California, Berkeley (UCB), Dr. M. Hubert of the Muséum National d'Histoire Naturelle, Paris (MNHN), and Dr. W. Pulawski of the California Academy of Sciences, San Francisco (CAS) supplied relevant material. I also thank Dr. M. U. Shadab for help with the illustrations, Ms. J. Whelan and Ms. E. Polk for assistance with the scanning electron microscope, and Dr. C. D. Dondale for reviewing a draft of the manuscript. The format of the descriptions follows that used in the 1979 revision. The locality records and map use the old system of boundaries and names for Chilean provinces because the recently instituted system of numbered regional divisions is not yet reflected in available gazeteers and maps.

KEY TO SPECIES OF THE CHILENSIS GROUP

1. Males (those of *E. gayi* unknown) 2
Females 8
2. Proximal lobe of median apophysis relatively short (figs. 11, 17, 21); retrolateral tibial apophysis relatively narrow (figs. 12, 18, 22) 3
Proximal lobe of median apophysis relatively long (figs. 27, 37, 43, 53); retrolateral tibial apophysis relatively wide (figs. 28, 38, 44, 54) 5
3. Distal lobe of median apophysis relatively long (fig. 17); retrolateral tibial apophysis with dorsal projection below tip (fig. 18)
schlingeri
Distal lobe of median apophysis relatively short (figs. 11, 21); retrolateral tibial apophysis without dorsal projection below tip (figs. 12, 22) 4
4. Tip of embolus with a sharp hook (fig. 9) ..
tofo
Tip of embolus without a sharp hook (fig. 19)
illapel
5. Tip of retrolateral tibial apophysis with three prongs (fig. 28) *rossi*
Tip of retrolateral tibial apophysis with fewer than three prongs (figs. 38, 44, 54) 6
6. Tip of retrolateral tibial apophysis deeply invaginated (figs. 44, 54) 7
Tip of retrolateral tibial apophysis rounded (fig. 38) *chilensis*
7. Distal lobe of median apophysis relatively large (figs. 43, 47) *cekalovici*
Distal lobe of median apophysis relatively small (fig. 53) *malleco*
8. Epigynum with pair of anterolateral lobes projecting anteriorly (figs. 13, 23; Platnick and Shadab, 1979, figs. 30, 34, 38, 46) 9
Epigynum with pair of posterolateral ridges (figs. 29, 39, 45, 55) 12
9. Epigynal atrium expanded anteriorly (figs. 13, 23; Platnick and Shadab, 1979, figs. 30, 34, 38) 10
Epigynal atrium not expanded anteriorly (Platnick and Shadab, 1979, fig. 46) . *gayi*
10. Epigynal atrium squared laterally (Platnick and Shadab, 1979, fig. 34) *schlingeri*
Epigynal atrium rounded laterally (figs. 13, 23; Platnick and Shadab, 1979, figs. 30, 38) 11
11. Anterolateral epigynal lobes closely spaced, rounded anteriorly (fig. 13) *tofo*
Anterolateral epigynal lobes widely spaced, angular anteriorly (fig. 23) *illapel*
12. Posterolateral epigynal ridges thickened, obliquely oriented (figs. 29, 39) 13

- Posterolateral epigynal ridges elevated anterolaterally, flared posterolaterally (figs. 45, 55) 14
13. Posterolateral epigynal ridges angular anteriorly (figs. 29, 31) *rossi*
Posterolateral epigynal ridges not angular anteriorly (figs. 33, 39) *chilensis*
14. Posterolateral epigynal ridges relatively wide anteriorly, greatly flared posteriorly (fig. 45) *cekalovici*
Posterolateral epigynal ridges relatively narrow anteriorly, at most only slightly flared posteriorly (fig. 55) *malleco*

Echemoides tofo Platnick and Shadab

Figures 9–14

Echemoides tofo Platnick and Shadab, 1979, p. 13, figs. 28–31 (male holotype from El Tofo, Coquimbo, Chile, in AMNH, examined).

DIAGNOSIS: Males can be recognized by the hooked tip of the embolus (fig. 9), females by the anteriorly convergent, rounded anterolateral epigynal lobes (fig. 13).

MALE: Total length 8.30 ± 1.08. Carapace 3.73 ± 0.46 long, 2.86 ± 0.39 wide. Femur II 3.22 ± 0.46 long. 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. Embolus with hooked tip (fig. 9), conductor thickened dorsally (fig. 10), median apophysis with short distal lobe (fig. 11), retrolateral tibial apophysis short, triangular (fig. 12). 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 10.00 ± 1.70. Carapace 4.22 ± 0.43 long, 3.11 ± 0.25 wide. Femur II 3.30 ± 0.35 long. 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, anteriorly expanded atrium and anteriorly convergent, rounded anterolateral lobes (fig. 13); anterior spermathecal extensions narrow (fig. 14). Leg spination: femur III r1-1-1; tibia I v2-2-1p; metatarsi: II v2-1r-0; III r1-2-2; IV r2-2-2.

MATERIAL EXAMINED: CHILE: *Atacama*: between El Tránsito and Pinte, elevation

1100–1600 m., Oct. 25–27, 1980 (L. E. Peña, AMNH), 1f; Juntas, Río Huasco, elevation 1600 m., Oct. 3, 1980 (L. E. Peña, AMNH), 1f; E Puerto Viejo, Oct. 9–10, 1980 (L. E. Peña, AMNH), 1f; Quebrada Maitencillo, NW Vallenar, Oct. 11, 1980 (L. E. Peña, AMNH), 1m; between Totoral and Carrizal, Oct. 20–21, 1980 (L. E. Peña, AMNH), 1f; km. 630, highway 5, S Vallenar, Oct. 1, 1980 (L. E. Peña, AMNH), 1f; 117 km. N Vallenar, Dec. 21, 1963 (Buzeta, AMNH), 1m. *Coquimbo*: El Tofo, Sept. 1916 (AMNH), 3m, 1f (including types); 3 km. E El Tofo, elevation 680 m., under rocks, coastal mountain, Nov. 2 (females matured through Nov. 21), 1981 (N. I. Platnick, R. T. Schuh, AMNH), 2m, 3f; 19 km. N La Serena, elevation 150 m., under rocks, coastal scrub, Nov. 1–4, 1981 (N. I. Platnick, R. T. Schuh, AMNH), 5m, 5f; Llano de La Higuera, Sept. 29, 1980 (L. E. Peña, AMNH), 1m, 1f, elevation 400 m., under rock, arid plain, Nov. 2 (matured Jan. 7), 1981 (N. I. Platnick, R. T. Schuh, AMNH), 1f.

DISTRIBUTION: Known only from Atacama and northern Coquimbo provinces, Chile (fig. 2).

Echemoides schlingeri

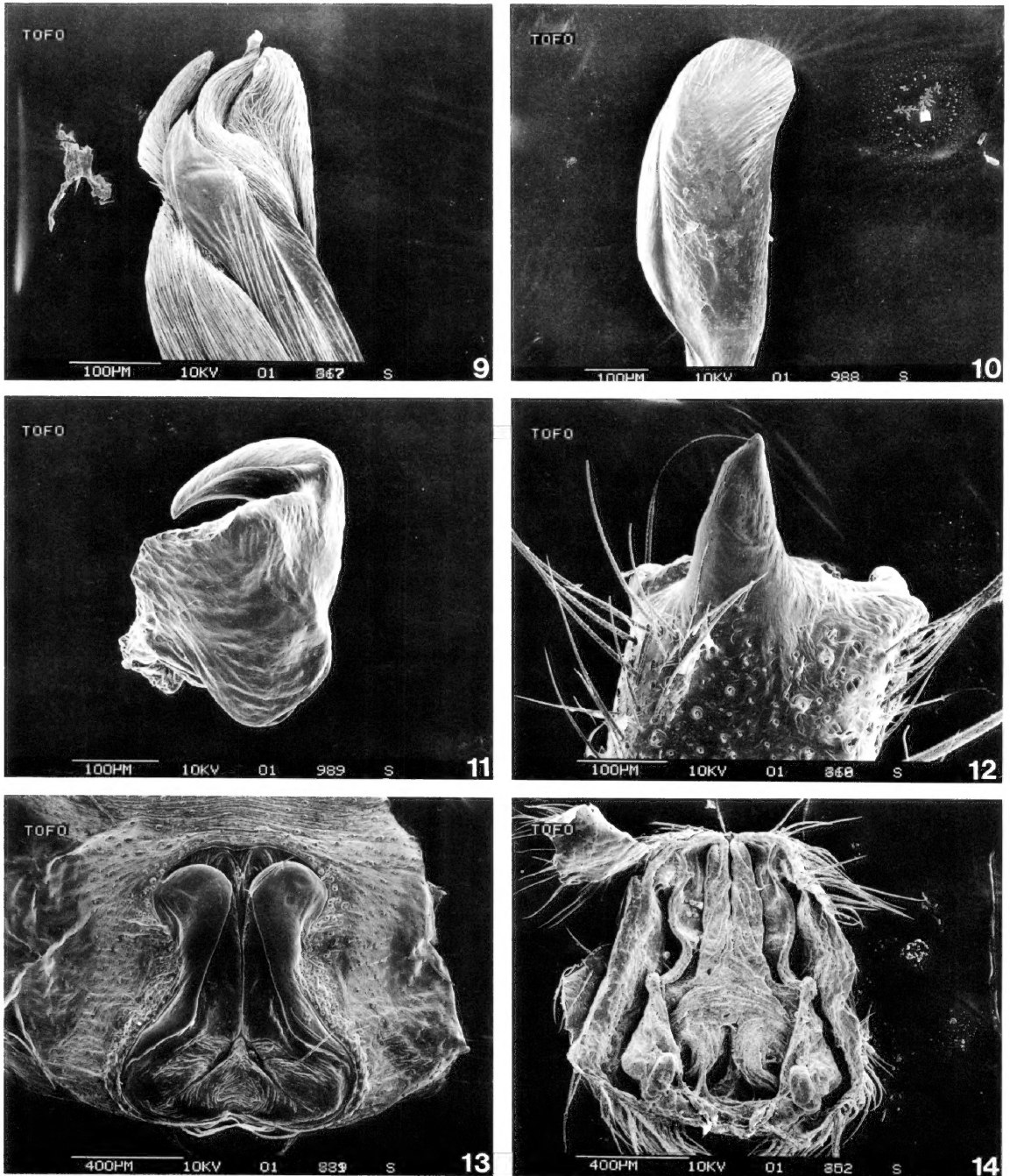
Platnick and Shadab

Figures 15–18

Echemoides schlingeri Platnick and Shadab, 1979, p. 14, figs. 32–35 (male holotype from Fray Jorge National Park, Coquimbo, Chile, in CAS, examined).

DIAGNOSIS: Males can be recognized by the dorsal projection below the tip of the retrolateral tibial apophysis (fig. 18), females by the laterally squared epigynal atrium (Platnick and Shadab, 1979, fig. 34).

MALE: Total length 6.84–10.30. Carapace 3.94–4.43 long, 3.08–3.47 wide. Femur II 3.28–3.68 long. 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. Embolus with protuberant distal lobe (fig. 15), conductor abruptly narrowed distally (fig. 16), distal lobe of median apophysis elongated (fig. 17), retrolateral tibial apophysis with dorsal projection below tip

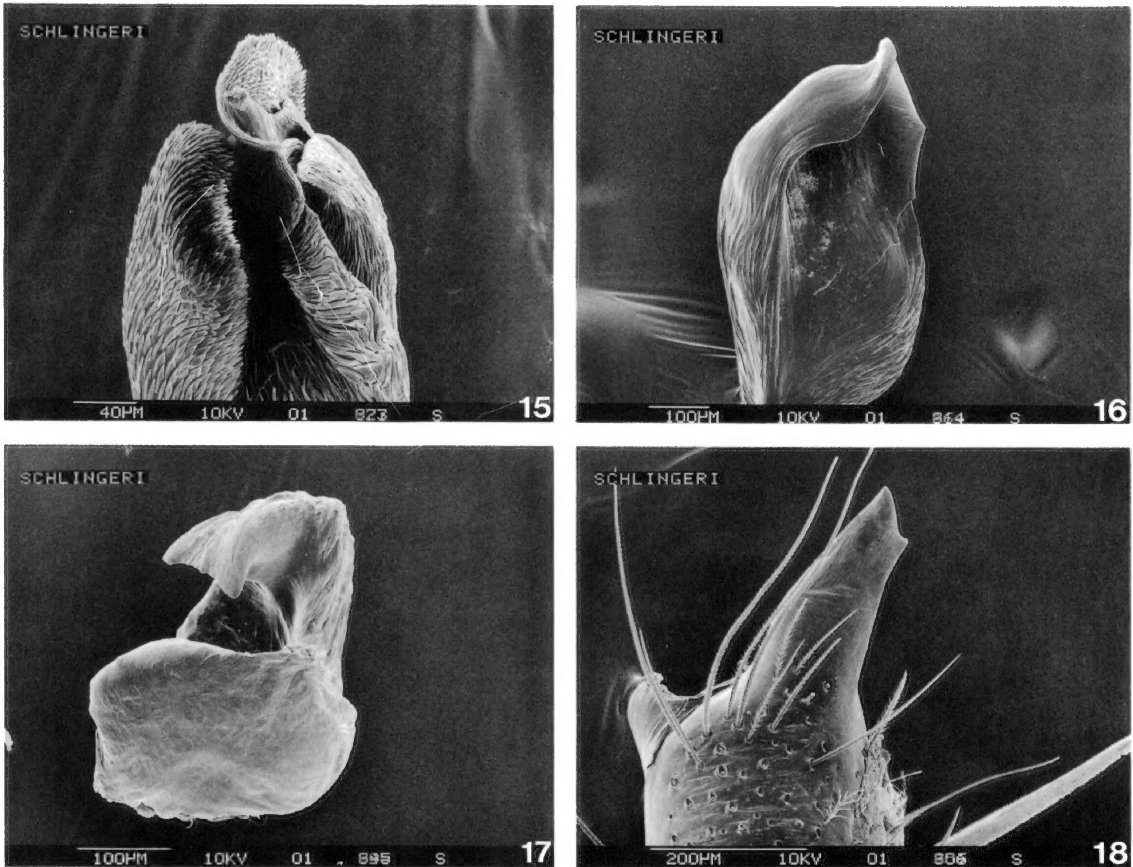


FIGS. 9–14. *Echemoides tofo* Platnick and Shadab. 9. Embolus, oblique distal view. 10. Conductor, oblique distal view. 11. Median apophysis, ventral view. 12. Retrolateral tibial apophysis, retrolateral view. 13. Epigynum, ventral view. 14. Epigynum, dorsal view.

(fig. 18). 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. Eye sizes and interdistances: AME 0.14, ALE 0.14, PME 0.17, PLE 0.15; AME–AME 0.14,



FIGS. 15–18. *Echemoides schlingeri* Platnick and Shadab. 15. Embolus, oblique distal view. 16. Conductor, oblique distal view. 17. Median apophysis, ventral view. 18. Retrolateral tibial apophysis, retrolateral view.

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 (Platnick and Shadab, 1979, fig. 34), anterior spermathecal extensions wide (Platnick and Shadab, 1979, fig. 35). Leg spination: tibia I v2-2-1p; metatarsus II v2-1r-0.

MATERIAL EXAMINED: CHILE: *Coquimbo*: Fray Jorge National Park, elevation 100–500 m., Oct. 21, 1966 (E. I. Schlinger, M. Irwin, CAS, UCB, AMNH), 3m, 1f (including types), elevation 180–270 m., under rock, cactus-legume scrub, Nov. 5, 1981 (N. I. Platnick, R. T. Schuh, AMNH), 1m.

DISTRIBUTION: Known only from Fray

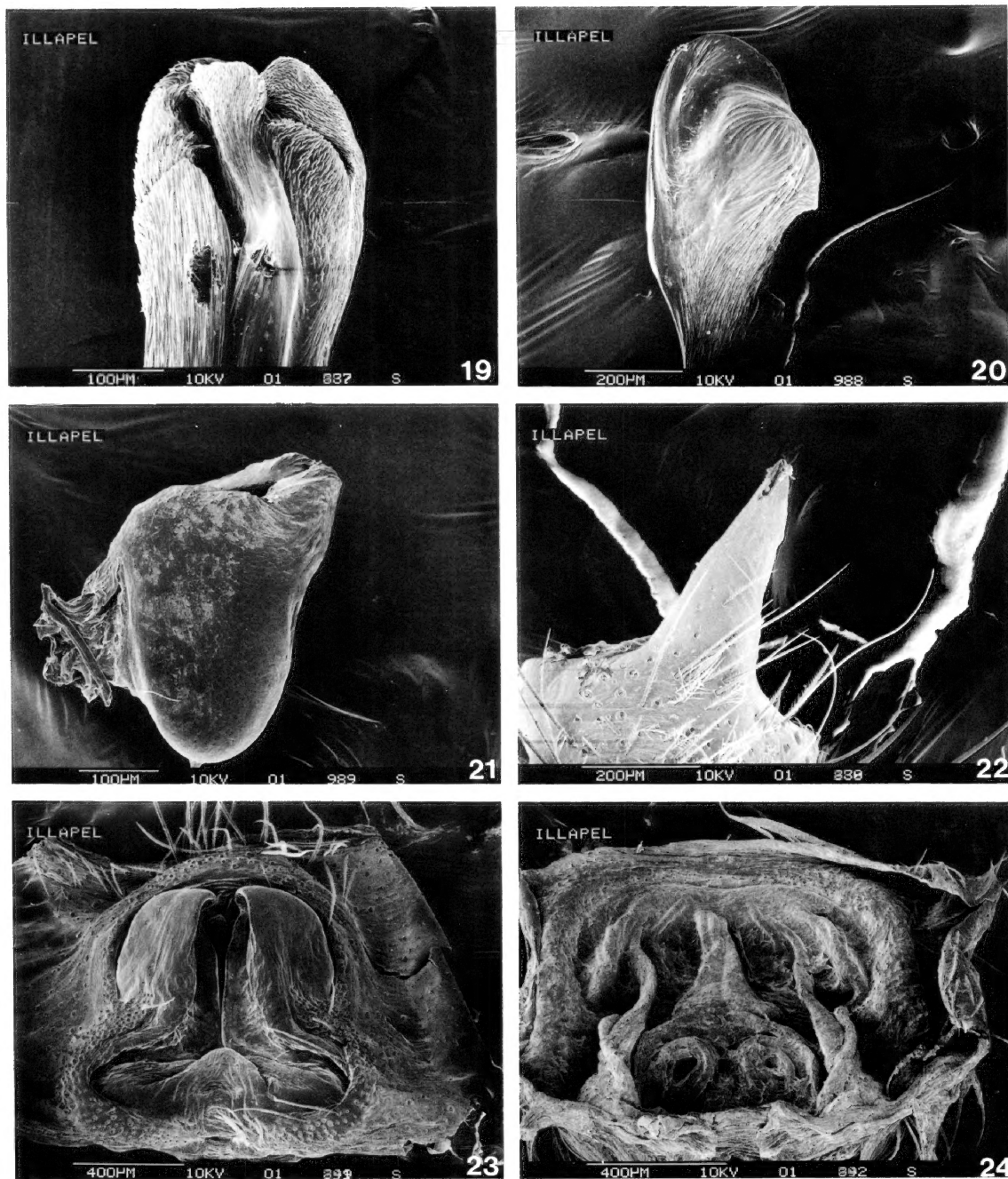
Jorge National Park in Coquimbo province, Chile (fig. 2).

Echemoides illapel Platnick and Shadab
Figures 19–24

Echemoides illapel Platnick and Shadab, 1979, p. 15, figs. 36–39 (male holotype from Hacienda Illapel, Coquimbo, Chile, in CAS, examined).

DIAGNOSIS: Males can be recognized by the long, acuminate retrolateral tibial apophysis (fig. 22), females by the hooked tips of the anterolateral epigynal lobes (fig. 23).

MALE: Total length 7.42–10.55. Carapace 3.85–5.04 long, 2.88–3.76 wide. Femur II 2.95–4.09 long. Eye sizes and interdistances: AME 0.16, ALE 0.15, PME 0.21, PLE 0.18;



FIGS. 19–24. *Echemoides illapel* Platnick and Shadab. 19. Embolus, oblique distal view. 20. Conductor, oblique distal view. 21. Median apophysis, ventral view. 22. Retrolateral tibial apophysis, retrolateral view. 23. Epigynum, ventral view. 24. Epigynum, dorsal view.

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. Tip of embolus not protuberant (fig. 19), conductor rounded distally (fig. 20), distal lobe of median apophysis short, sharp-

ly pointed (fig. 21), retrolateral tibial apophysis long, acuminate (fig. 22). 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 8.68–14.40. Carapace 4.02–5.46 long, 2.97–4.34 wide. Femur II 2.99–4.07 long. 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 anteriorly approximate, hooked anterolateral lobes (fig. 23), anterior spermathecal extensions wide (fig. 24). Leg spination: tibia I v2-2-1p; metatarsus II v2-1r-0.

MATERIAL EXAMINED: CHILE: *Coquimbo*: 5–8 km. S Coquimbo, elevation 150 m., under rock, coastal scrub, Nov. 4 (matured Nov. 22), 1981 (N. I. Platnick, R. T. Schuh, AMNH), 1m; Hacienda Illapel, elevation 600–900 m., Oct. 19, 1966 (E. I. Schlinger, M. Irwin, L. E. Peña, CAS, UCB, AMNH), 4m, 1f (including types); Huentelauquén, Nov. 27, 1980 (L. E. Peña, AMNH), 1m; 5 mi. N Illapel, Nov. 30, 1950 (E. S. Ross, Michelbacher, CAS), 1f; 51 km. W Illapel, elevation 335 m., under rocks, dry roadside with scrub, Nov. 6, 1981 (N. I. Platnick, R. T. Schuh, AMNH), 1m, 2f; 10 km. N Pichidangui, Dec. 23, 1963 (T. Cekalovic, AMNH), 1f; 5 km. S Rio Choapa, Dec. 16, 1963 (T. Cekalovic, AMNH), 1f.

DISTRIBUTION: Known only from southern Coquimbo province, Chile (fig. 2).

Echemoides gayi (Simon)

Megamyrmeleon gayi Simon, 1904, p. 89 (female holotype supposedly from Peñaflores, Santiago, Chile, in MNHN, examined).

Echemoides gayi: Platnick and Shadab, 1979, p. 17, figs. 46, 47 (female only).

DIAGNOSIS: Females can be recognized by the very narrow anterior extensions of the epigynal atrium (fig. 46).

MALE: Unknown.

FEMALE: Total length 13.10. Carapace 5.18 long, 3.82 wide. Femur II 3.89 long. Eye sizes and interdistances: AME 0.14, 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 greatly expanded anteriorly (Platnick and Shadab, 1979, fig. 46), anterior spermathecal extensions sclerotized medially (Platnick and Shadab, 1979, fig. 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: Only the holotype.

DISTRIBUTION: Uncertain; as detailed in the Introduction, the specimen is likely to have been collected to the north of the putative type locality.

Echemoides rossi Platnick and Shadab
Figures 25–32

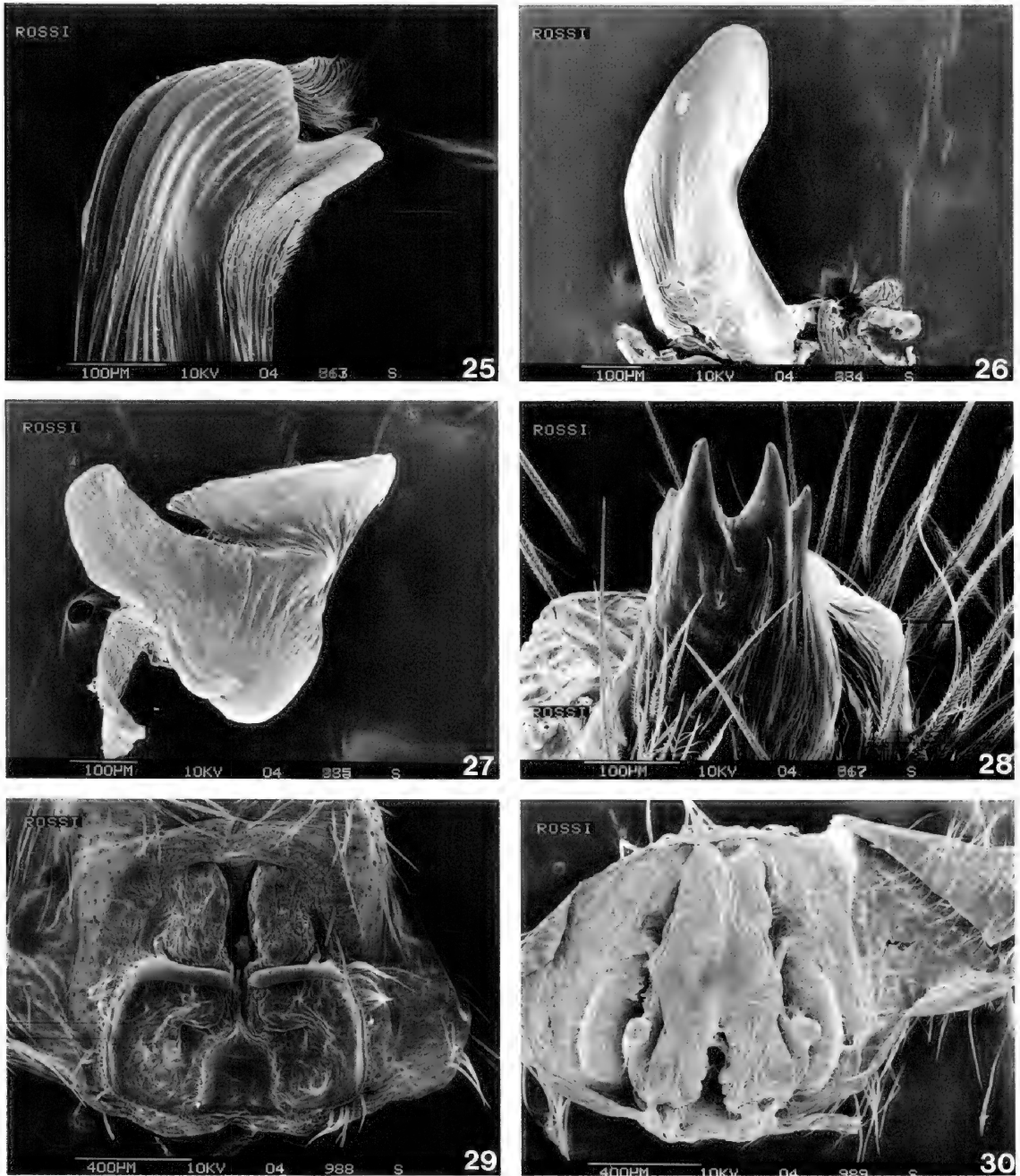
Echemoides rossi Platnick and Shadab, 1979, p. 18, figs. 48, 49 (male holotype from Zapallar, Aconcagua, Chile, in CAS, examined).

DIAGNOSIS: Males can be recognized by the triple-pointed tip of the retrolateral tibial apophysis (fig. 28), females by the anteriorly angular posterolateral epigynal ridges (fig. 29).

MALE: Total length 7.27–9.27. Carapace 3.26–4.03 long, 2.59–3.11 wide. Femur II 2.79–3.42 long. 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. Tip of embolus relatively broad (fig. 25), conductor expanded at half its length (fig. 26), proximal lobe of median apophysis greatly elongated (fig. 27), tip of retrolateral tibial apophysis with three prongs (fig. 28). Leg spination: femora: I, II r0-1-1; IV r1-1-1; tibia III d1-0-1; metatarsi I, II v2-1p-0.

FEMALE: Total length 9.16 ± 0.48 . Carapace 4.15 ± 0.26 long, 3.16 ± 0.24 wide. Femur II 3.20 ± 0.19 long. Eye sizes and interdistances: AME 0.14, ALE 0.15, PME 0.19, PLE 0.18; AME–AME 0.18, AME–ALE 0.07, PME–PME 0.08, PME–PLE 0.17, ALE–PLE 0.12. MOQ length 0.54, front width 0.42, back width 0.46. Posterolateral epigynal ridges angular anteriorly (figs. 29, 31), anterior spermathecal extensions widened at half their length (figs. 30, 32). Leg spination: tibia I v2-2-1p.

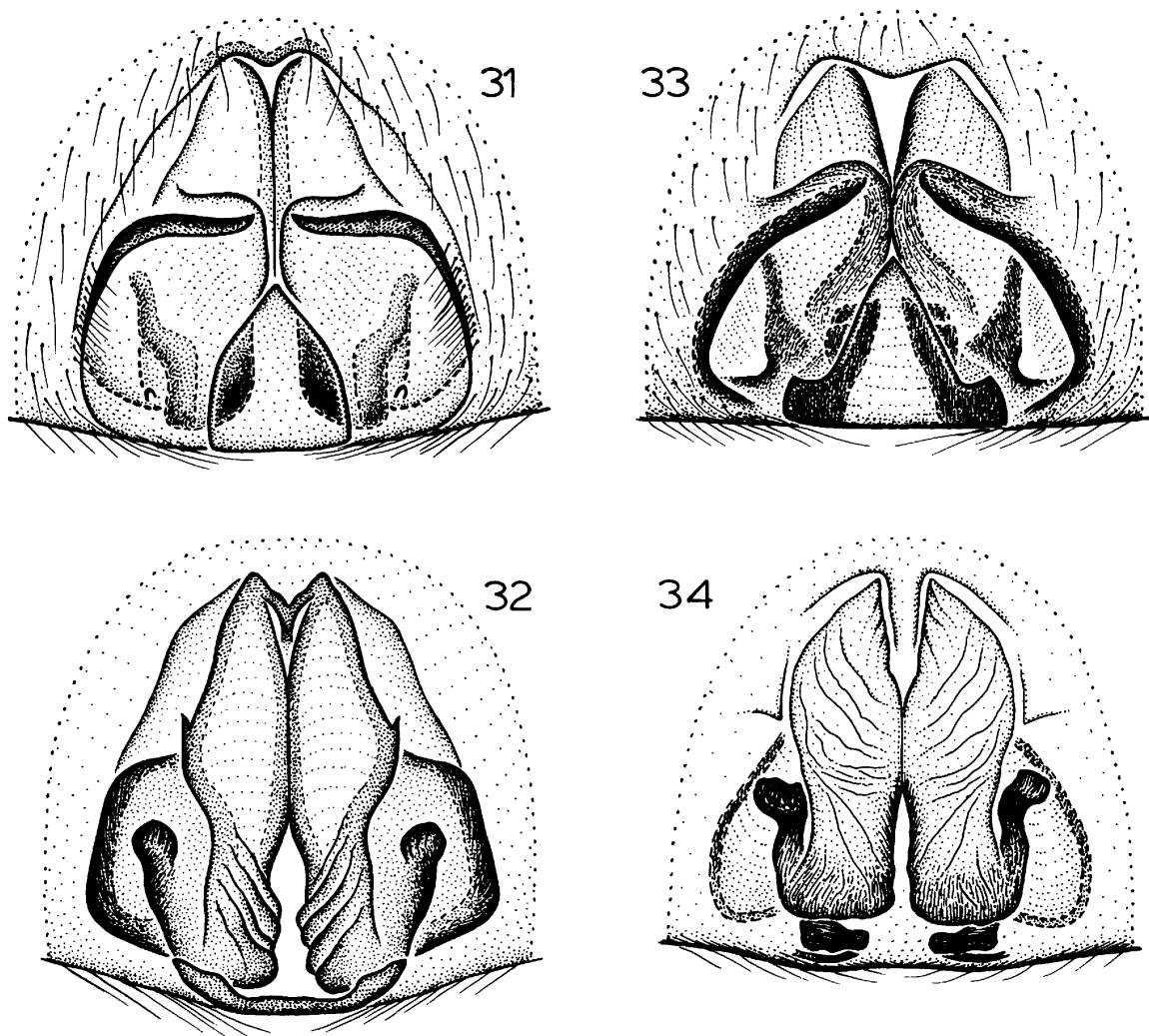
MATERIAL EXAMINED: CHILE: *Aconcagua*: Zapallar, Nov. 27, 1950 (E. S. Ross, Michelbacher, CAS), 2m (including type); 2 km.



FIGS. 25–30. *Echemoides rossi* Platnick and Shadab. 25. Embolus, oblique distal view. 26. Conductor, oblique distal view. 27. Median apophysis, ventral view. 28. Retrolateral tibial apophysis, retrolateral view. 29. Epigynum, ventral view. 30. Epigynum, dorsal view.

N Zapallar, elevation 20 m., under rocks, coastal scrub, Nov. 7 (females matured through Nov. 16), 1981 (N. I. Platnick, R. T. Schuh, AMNH), 5m, 6f. *Valparaíso*: 6 km. W

Nogales Artificio, elevation 275 m., under rocks, scrubby pasture, Nov. 7 (male matured Nov. 8, females through Nov. 17), 1981 (N. I. Platnick, R. T. Schuh, AMNH), 1m, 4f.



FIGS. 31–34. Epigyna. 31, 32. *Echemoides rossi* Platnick and Shadab. 33, 34. *E. chilensis*, new species. 31, 33. Ventral view. 32, 34. Dorsal view.

DISTRIBUTION: Known only from Aconcagua and northern Valparaíso provinces, Chile (fig. 2).

***Echemoides chilensis*, new species**

Figures 33–40

Echemoides gayi (misidentification): Platnick and Shadab, 1979, p. 17, figs. 44, 45 (male only), 1981, p. 196 (male only).

Echemoides malleco (misidentification): Platnick and Shadab, 1981, p. 196 (female only).

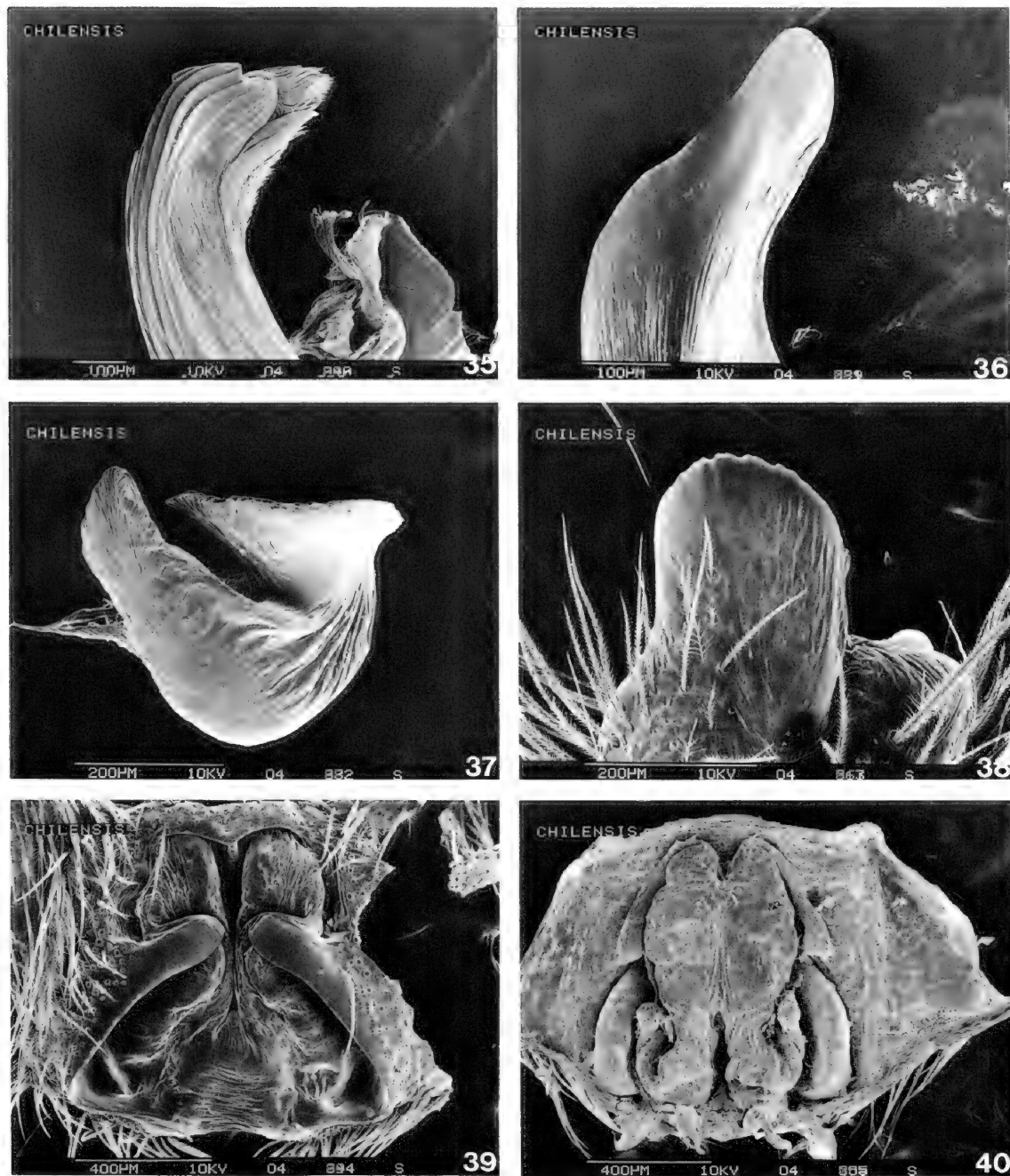
TYPES: Male holotype and female paratype taken from under rocks at an elevation of 260

m. in an *Acacia* woodland 4 km. west of Casablanca, Valparaíso, Chile (November 8, matured through December 9, 1981; N. I. Platnick and R. T. Schuh), deposited in AMNH.

ETYMOLOGY: The specific name refers to the type locality.

DIAGNOSIS: Males can be recognized by the rounded tip of the retrolateral tibial apophysis (fig. 38), females by the obliquely oriented posterolateral epigynal ridges (fig. 39).

MALE: Total length 8.75 ± 1.29 . Carapace 4.03 ± 0.39 long, 3.09 ± 0.39 wide. Femur



FIGS. 35–40. *Echemoides chilensis*, new species. 35. Embolus, oblique distal view. 36. Conductor, oblique distal view. 37. Median apophysis, ventral view. 38. Retrolateral tibial apophysis, retrolateral view. 39. Epigynum, ventral view. 40. Epigynum, dorsal view.

II 3.24 ± 0.37 long. 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. Tip of embolus indented (fig. 35), conductor bent at half its length (fig. 36), proximal lobe of median apophysis

greatly elongated (fig. 37), tip of retrolateral tibial apophysis rounded (fig. 38). 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 7.92–11.70. Carapace 3.58–5.47 long, 2.87–4.07 wide. Femur II 2.80–4.07 long. Eye sizes and interdistances: AME 0.11, ALE 0.13, PME 0.15, PLE 0.16; AME–AME 0.17, AME–ALE 0.05, PME–PME 0.08, PME–PLE 0.14, ALE–PLE 0.15. MOQ length 0.56, front width 0.39, back width 0.38. Posterolateral epigynal ridges obliquely oriented (figs. 33, 39), anterior spermathecal extensions bulbous (figs. 34, 40). Leg spination: tibia I v2-2-1p; metatarsi: II v2-1r-0; III r1-2-2.

MATERIAL EXAMINED: CHILE: *Santiago*: El Canelo, elevation 825 m., under rock, wooded mountainside, Nov. 11, 1981 (N. I. Platnick, R. T. Schuh, AMNH), 1f; El Yeso, Cajón del Maipo, elevation 740 m., Oct. 27, 1981 (L. E. Peña, AMNH), 1m; La Rinconada, Sept. 1966 (UCB), 1m; 9 km. W La Rinconada, elevation 500 m., under rock, dry wooded valley, Nov. 10, 1981 (N. I. Platnick, R. T. Schuh, AMNH), 1m; Las Condes, Jan. 1, 1967 (E. I. Schlinger, UCB), 1m; Lo Valdés, cordilleras near Santiago, elevation 2000 m. (G. Mann, AMNH), 2f; Peñaflores (?) (C. Porter, MNHN), 2m (in vial with type of *E. gayi*); Polcura [vial labeled as Ñuble province], Jan.–Mar. 1955 (E. Reed, AMNH), 1m; Quebrada de La Plata, elevation 700 m., Oct. 3, 1966 (E. I. Schlinger, UCB), 1m; Quilicura, May–Nov. 1979 (L. E. Peña, AMNH), 5m; Santiago, Mar. 1961 (R. Donoso, A. F. Archer, AMNH), 1m. *Valparaíso*: 4 km. W Casablanca, elevation 260 m., under rocks, *Acacia* woodland, Nov. 8 (matured through Dec. 9), 1981 (N. I. Platnick, R. T. Schuh, AMNH), 2m, 2f (including types); Cuesta Zapata, 15 km. E Casablanca, elevation 520 m., under rock, montane woodland, Nov. 8, 1981 (N. I. Platnick, R. T. Schuh, AMNH), 1m.

DISTRIBUTION: Known only from southern Valparaíso and Santiago provinces, Chile (fig. 2).

***Echemoides cekalovici*, new species**

Figures 41–50

TYPES: Male holotype and female paratype taken under rocks on a hillside at an elevation

of 420 m. 47 km. east of Talca, Talca, Chile (November 13, matured through December 30, 1981; N. I. Platnick and R. T. Schuh), deposited in AMNH.

ETYMOLOGY: The specific name is a patronym in honor of Dr. Tomás Cekalovic K. of the Universidad de Concepcion, Chilean arachnologist and naturalist, in recognition of his assistance and contributions to this and other studies.

DIAGNOSIS: Males can be recognized by the combined presence of a distally invaginated retrolateral tibial apophysis (figs. 44, 48) and an enlarged distal lobe of the median apophysis (figs. 43, 47), females by having the posterolateral epigynal ridges greatly flared out posteriorly (figs. 45, 49).

MALE: Total length 8.75–10.73. Carapace 3.96–4.70 long, 2.88–3.60 wide. Femur II 3.23–3.74 long. Eye sizes and interdistances: AME 0.15, ALE 0.15, PME 0.18, PLE 0.18; AME–AME 0.11, AME–ALE 0.05, PME–PME 0.10, PME–PLE 0.17, ALE–PLE 0.11. MOQ length 0.57, front width 0.41, back width 0.46. Tip of embolus sinuous (fig. 41), conductor deeply excavated distally (fig. 42), distal lobe of median apophysis enlarged (figs. 43, 47), tip of retrolateral tibial apophysis invaginated (figs. 44, 48). Leg spination: tibia I v2-2-1p; metatarsus II v2-1r-0.

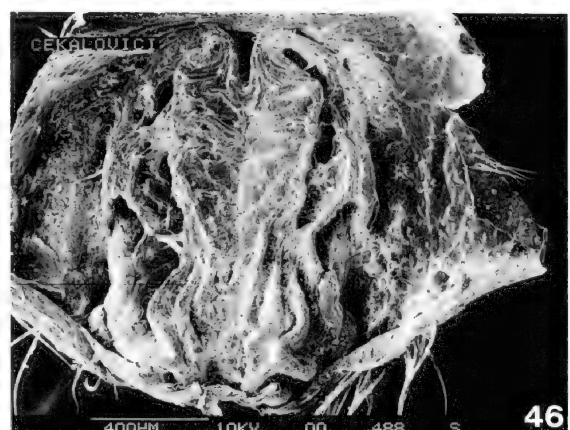
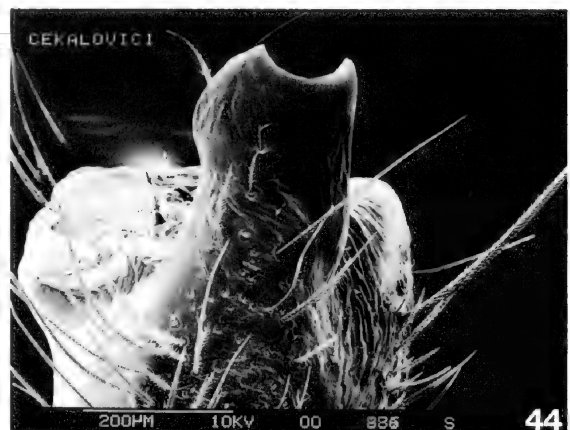
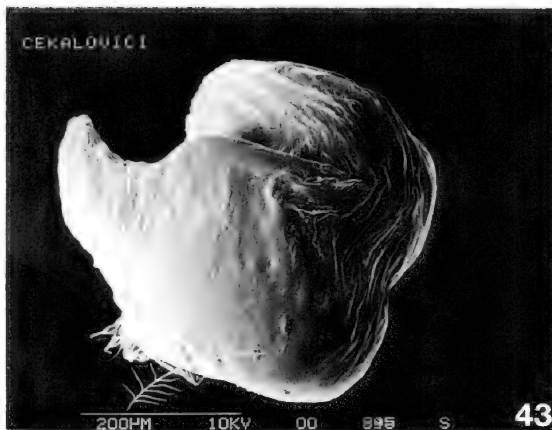
FEMALE: Total length 8.77–10.60. Carapace 3.92–4.69 long, 2.99–3.62 wide. Femur II 2.94–3.56 long. Eye sizes and interdistances: AME 0.10, ALE 0.13, PME 0.16, PLE 0.16; AME–AME 0.17, AME–ALE 0.05, PME–PME 0.07, PME–PLE 0.14, ALE–PLE 0.07. MOQ length 0.53, front width 0.37, back width 0.34. Posterolateral epigynal ridges relatively wide anteriorly, greatly flared posteriorly (figs. 45, 49), anterior spermathecal extensions greatly elongated (figs. 46, 50). Leg spination: tibia I v2-2-1p.

MATERIAL EXAMINED: Five males and seven females taken with the types (AMNH).

DISTRIBUTION: Known only from Talca province, Chile (fig. 2).

Echemoides malleco Platnick and Shadab
Figures 51–56

Echemoides malleco Platnick and Shadab, 1979, p. 16, figs. 40–43 (male holotype from 10 km. west of Collipulli, Malleco, Chile, in AMNH, examined).

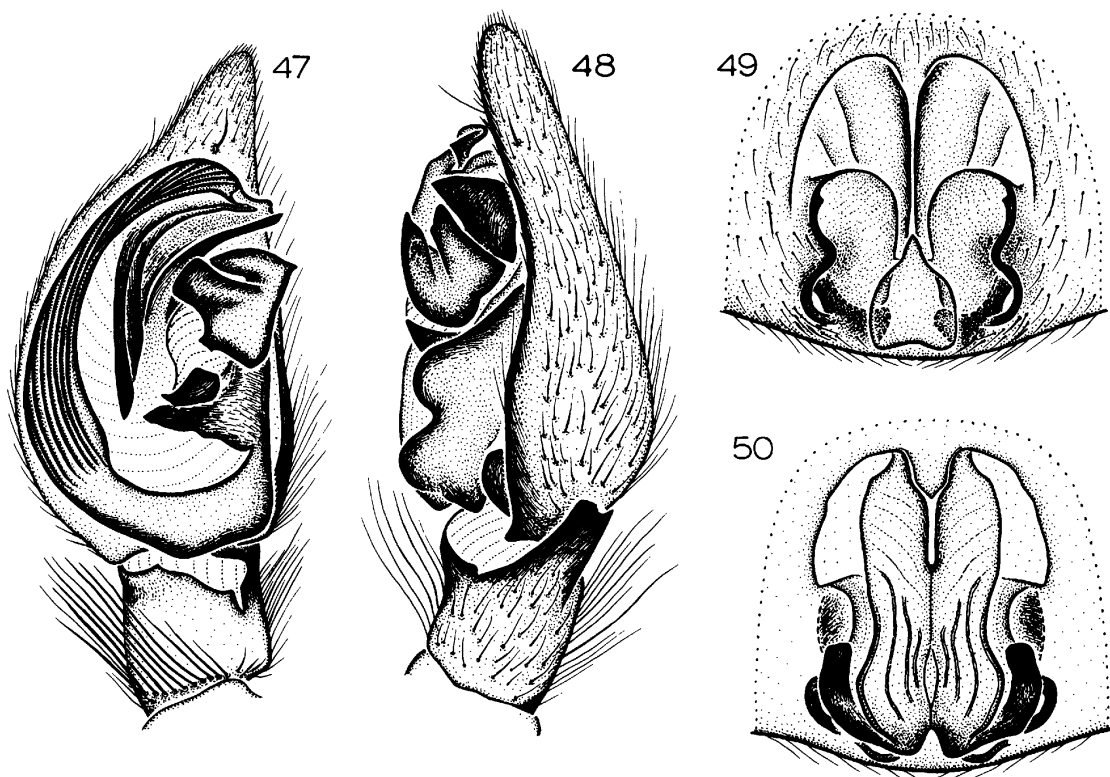


FIGS. 41–46. *Echemoides cekalovici*, new species. 41. Embolus, oblique distal view. 42. Conductor, oblique distal view. 43. Median apophysis, ventral view. 44. Retrolateral tibial apophysis, retrolateral view. 45. Epigynum, ventral view. 46. Epigynum, dorsal view.

DIAGNOSIS: Males can be recognized by the combined presence of a distally invaginated retrolateral tibial apophysis (fig. 54) and a small distal lobe of the median apophysis (fig.

53), females by having the posterolateral epigynal ridges only slightly or not at all flared out posteriorly (fig. 55).

MALE: Total length 5.82–8.50. Carapace



FIGS. 47–50. *Echemoides cekalovici*, new species. 47. Palp, ventral view. 48. Palp, retrolateral view. 49. Epigynum, ventral view. 50. Epigynum, dorsal view.

2.56–3.62 long, 2.03–2.92 wide. Femur II 1.91–2.77 long. 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. Tip of embolus narrowed (fig. 51), conductor deeply excavated distally (fig. 52), distal lobe of median apophysis relatively small (fig. 53), tip of retrolateral tibial apophysis invaginated (fig. 54). Leg spination: tibiae: II v1r-2-0; III p0-1-1.

FEMALE: Total length 7.90 ± 1.21 . Carapace 3.41 ± 0.16 long, 2.69 ± 0.16 wide. Femur II 2.61 ± 0.17 long. 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. Posterolateral epigynal

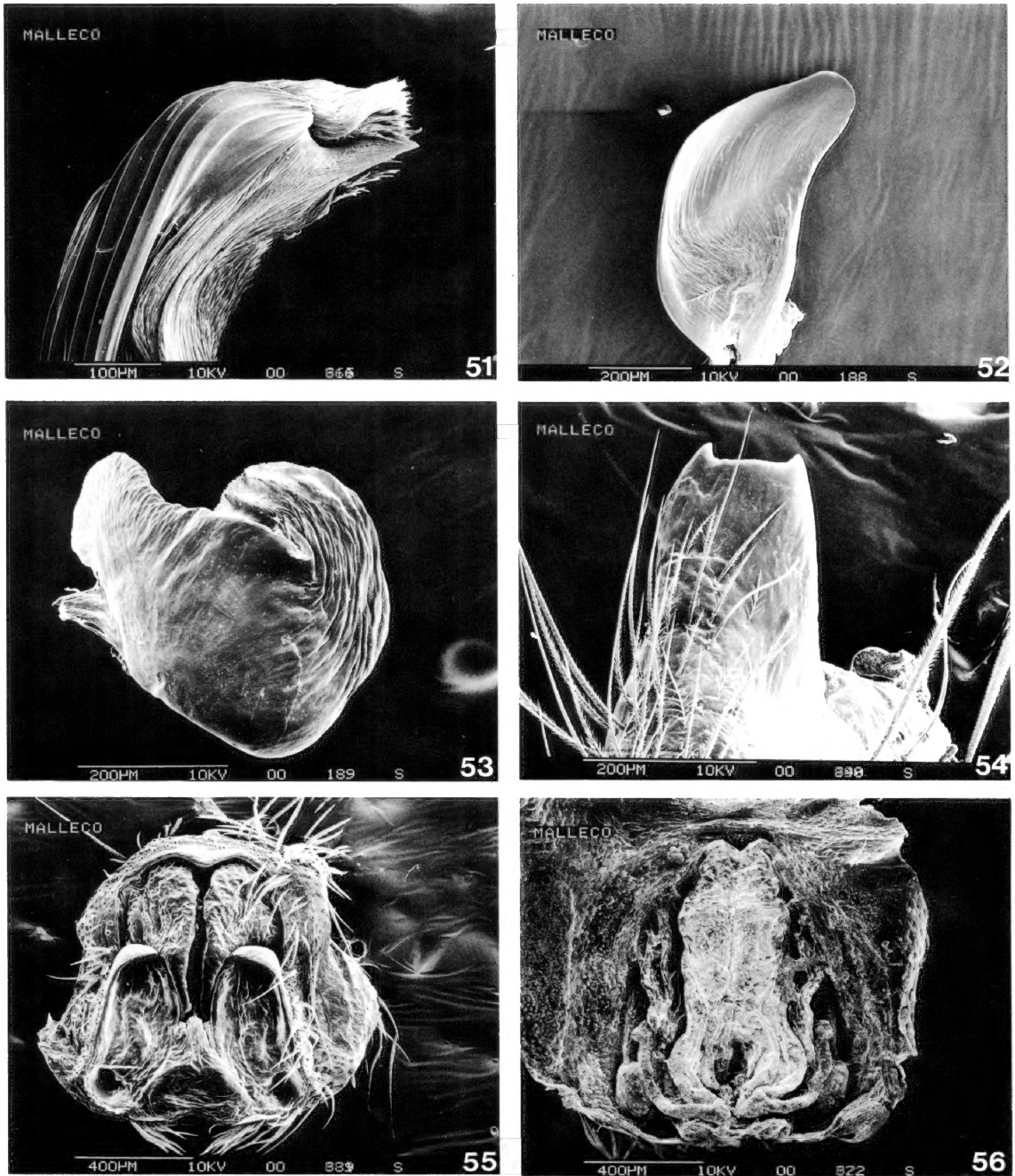
ridges relatively narrow anteriorly, at most only slightly flared posteriorly (fig. 55), anterior spermathecal extensions sinuous posteriorly (fig. 56). Leg spination: femur I r0-0-1; tibiae: I v1p-2-1p; II v1r-2-1p.

MATERIAL EXAMINED: CHILE: *Malleco*: 6 km. W Angol, elevation 610 m., under rocks, dry mountainside, Nov. 19 (matured through Dec. 30), 1981 (N. I. Platnick, R. T. Schuh, T. Cekalovic, AMNH), 3m, 8f; 10 km. W Collipulli, Jan. 4, 1961 (J. K. Greer, AMNH, MSU), 2m, 2f (including types).

DISTRIBUTION: Known only from Malleco province, Chile (fig. 2).

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FIGS. 51-56. *Echemoides malleco* Platnick and Shadab. 51. Embolus, oblique distal view. 52. Conductor, oblique distal view. 53. Median apophysis, ventral view. 54. Retrolateral tibial apophysis, retrolateral view. 55. Epigynum, ventral view. 56. Epigynum, dorsal view.

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