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The Solpugids (Arachnida, Solpugida) of Chile, with Descriptions of a New Family, New Genera, and New Species

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ABSTRACT

Amacataidae, new family, *Amacata*, new genus, *Sedna*, new genus, *Amacata penai*, new species, and *Sedna pirata*, new species are described. The two families, three subfamilies, nine genera, and 13 species now known to occur in Chile are identified by a key, diagnoses, and illustrations.

Two collections of solpugids from Chile were recently sent to me for identification. One was collected by L. E. Peña in the central and northern provinces and forwarded through Luciano Campos. The other was collected by E. I. Schlinger and M. E. Irwin in the southeastern provinces. The Peña-Campos material contained a new species representing a new genus and family, and two previously recorded species; the Schlinger-Irwin material contained numerous records of a previously unrecorded genus and species. This combined material so greatly increased our knowledge of Chilean solpugids that it prompted a review of the species recorded from that country. Additional study specimens were obtained from the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, and the American Museum of Natural History, New York, in which the types of the new forms are deposited.

In his classification of solpugids of the world Simon (1879) listed

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Cleobis morsicans and *Mummucia variegata*, which were described from Chile by Gervais (1849). Kraepelin (1901) repeated this listing but referred to the former species as *Pseudocleobis morsicans* (Gervais). Roewer (1934) in his world review of the order added *Mummuciella atacama*, *Ammotrechelis goetschi*, and *Pseudocleobis chilensis* to the known fauna. Mello-Leitão (1937) designated the first of these three species as *Gaucha atacama* (Roewer), and (1942) described *Ammotrecha araucana* from Chile. More recently Kraus (1966) described *Mummucina romero* and *Mummucina colinalis* from Chile, recorded *Pseudocleobis andinus* (Pocock) from the country for the first time, and cited additional Chilean records for *Ammotrechelis goetschi* Roewer. Cekalovic and Quezada (1969) also recorded *Mummucia patagonica* Roewer from Ricón Negra.

As the number of species now known to occur in Chile has increased to 13 and these represent two families, three subfamilies, and nine genera, an annotated list and key to the various forms are included here with the descriptions of the new taxa.

KEY TO FAMILIES, SUBFAMILIES, GENERA, AND SPECIES

1. Male fixed finger without dorsal process; male cheliceral flagellum membranous, ovate, fringed, and fixed in position; female tarsi IV with two or three segments Ammotrechidae 2
 Male fixed finger with dorsal process; male cheliceral flagellum membranous but complex, partially fringed and rotatable para-axially; female tarsi IV with four segments
 Amacataidae, new family, *Amacata penai*, new genus, new species
2. Tarsi IV with two segments Mummuciinae Roewer 3
 Tarsi IV with three segments Ammotrechinae Roewer 9
3. Tarsi II and III with five to seven lateroventral spinelike setae 4
 Tarsi II and III with nine lateroventral spinelike setae 7
4. Tibiae II and III with dorsoapical spinelike seta; tarsi IV with less than 10 ventral spinelike setae *Sedna pirata* new genus, new species
 Tibiae II and III without dorsoapical spinelike seta; tarsi IV with 10 or more ventral spinelike setae 5
5. Tarsi II and III with five lateroventral spinelike setae; tarsi IV with 10 lateroventral spinelike setae *Uspallata pulchra* Mello-Leitão
 Tarsi II and III with seven lateroventral spinelike setae; tarsi IV with 11 lateroventral spinelike setae *Mummucia* Simon 6
6. Anterior teeth of fixed cheliceral finger subequal in size; palpal metatarsus and tarsus brown; palpal metatarsus without ventral spinelike setae
 *M. variegata* (Gervais)
 Anterior teeth of fixed cheliceral finger unequal in size; palpus uniform yellowish in color; palpal metatarsus with four pairs of ventral spinelike setae *M. patagonica* Roewer
7. Fixed cheliceral finger with two anterior teeth
 *Gaucha atacama* (Roewer)

- Fixed cheliceral finger with three anterior teeth *Mummucina* Roewer8
8. Anterior teeth of fixed cheliceral finger subequal in size; propeltidium and
chelicerae clear yellowish-brown *M. romero* Kraus
Anterior teeth of fixed cheliceral finger unequal in size; propeltidium and
chelicerae cream-colored with dark stripes and spots *M. colinalis* Kraus
9. Fixed cheliceral finger with two anterior teeth; leg II and leg III tarsi with
three to six lateroventral spinelike setae 10
Fixed cheliceral finger with three anterior teeth; leg II and leg III tarsi
with nine lateroventral spinelike setae *Pseudocleobis* Pocock . . .11
10. Tarsi II and III with three lateroventral spinelike setae; fixed finger of
female chelicerae without dorsal carina *Ammotrechelis goetschi* Roewer
Tarsi II and III with six lateroventral spinelike setae; fixed finger of female
chelicerae with dorsal carina *Ammotrecha araucana* Mello-Leitão
11. Palpal femora with three pairs of strong, elongate spinelike setae latero-
ventrally *P. morsicans* (Gervais)¹
Palpal femora with four pairs of strong, elongate spinelike setae latero-
ventrally 12
12. Palpal metatarsi with three pairs of short spinelike setae; fixed cheliceral
finger with two intermediate teeth between principal and anterior teeth;
small species, body length 6 mm. *P. chilensis* Roewer
Palpal metatarsi with four pairs of short spinelike setae; fixed cheliceral
finger with one intermediate tooth between principal and anterior teeth;
large species, body length 12 to 18 mm. *P. andinus* (Pocock)

FAMILY AMMOTRECHIDAE ROEWER

Ammotrechidae ROEWER, 1934, p. 578. MUMA, 1951, p. 122.

CHARACTERS: Solpugida with anal segment flattened and terminal; leg I tarsi with no claw; leg I metatarsi without ventral spinelike setal armature; all legs long and slender, and not especially modified for digging; legs II and III tarsi without dorsal terminal spinelike setae; leg I tarsi with one segment; legs II and III tarsi with one or two segments; leg IV tarsi with one to three segments (only Mello-Leitão's Oltacolinae have four); palpal tarsus immovable. Male cheliceral flagellum immovable, translucent to transparent, elliptical membrane with dorsal and ventral margins finely fringed and bent or curled mesally. Flagellum attached to fixed finger by elliptical sclerotized ring at or about vertical level of fondal teeth. Anterior margin of propeltidium

¹ Characters used to distinguish these species of *Pseudocleobis* are from Roewer (1934). Please see discussion of this genus.

angularly or evenly arched forward.

TYPE GENUS: *Ammotrecha* Banks, 1900.

REMARKS: Male specimens of this family are readily distinguished from amacataids and daesiids by the immovable elliptical cheliceral flagellum, the lack of a dorsal process on the cheliceral fixed finger, and differences in tarsal segmentation and setation. Female specimens are difficult to distinguish except on the basis of tarsal segmentation and setation.

SUBFAMILY MUMMUCINAE ROEWER

Mummucinae ROEWER, 1934, p. 582.

CHARACTERS: Ammotrechidae with one segmented tarsi on legs I, II, and III and two segmented tarsi on leg IV.

TYPE GENUS: *Mummucia* Simon, 1879.

SEDNA, NEW GENUS

ETYMOLOGY: Anagram of Andes; refers to collection locality, Andes Mountains.

DIAGNOSIS: Mummucinae with dorsoapical spinelike seta on tibiae of legs II and III; six (1, 2, 2, 1) ventrolateral spinelike setae on tarsi of legs II and III; eight (2, 2, 2-2) ventrolateral spinelike setae on tarsi of leg IV, and three anterior teeth on fixed cheliceral finger.

Procleobis Kraepelin is the only other mummucine genus with a dorsoapical, spinelike tibial seta; it is distinguished from *Sedna* by its reduced cheliceral dentition and its increased number of lateroventral spinelike tarsal setae.

TYPE SPECIES: *Sedna pirata*, new species.

Sedna pirata, new species

Figures 1-6

ETYMOLOGY: Refers to collection locality, Playa Piratas.

DIAGNOSIS: Generic characters presently serve to distinguish this species. There is no distinguishable dorsal carina on the fixed cheliceral finger but this may be a generic character. Such specifically variable characters as number of intermediate cheliceral teeth, ventral spinelike setation of palpi, and coloration will probably prove to be diagnostic for species.

FEMALE HOLOTYPE: Total length 12.3 mm., chelicerae 1.1 mm. wide and 3.6 mm. long, propeltidium 2.5 mm. wide and 1.7 mm. long.

Coloration in alcohol pale yellowish white, somewhat darker on chelicerae, propeltidium, and legs, and marked with dusky purplish brown

as follows: chelicerae with four narrow longitudinal stripes that unite into irregular blotch just behind cheliceral fingers; propeltidium and arci dusky except for black eye tubercle, narrow pale median stripe, pale area on each side of eye tubercle, reticulate median ovate area, and irregular marginal areas; mesopeltidia and metapeltidia dusky laterally; abdominal tergites dusky laterally and in narrow median stripe; abdominal pleura and venter pale; palpi and legs with pale coxae and trochanters; palpi reticulate dusky on tarsi, metatarsi, tibiae, and most of femora with indistinct to distinct dorsal and ventral stripes; leg I pale except faintly dusky on tibiae; legs II, III, and IV marked like palpi except tarsi pale.

Dentition normal (figs. 1, 2); fixed finger without distinct carina, with three anterior teeth and two intermediate teeth; fond with four teeth on each margin; movable finger with one intermediate tooth and no mesal teeth. Chelicerae longer than wide by ratio of 3/1.

Propeltidium wider than long by ratio of 1.4/1; anterior margin produced to angulate point at eye tubercle.

Palpal armature as follows: metatarsi with five pairs of short, ventral, stout, spinelike setae; tibiae with five pairs of slightly longer ventral spinelike setae; femora with four distinguishable mesoventral spinelike setae but paired ectoventral setae not distinguished. This setal armature as in figure 3.

Opercula as in figure 4.

TYPE LOCALITY: Holotype female from Playa Piratas, Quintero, Valparaíso, Chile, May 14, 1961 (R. Donoso and A. F. Archer).

DISTRIBUTION: Valparaíso.

DISCUSSION: There is no posteriorly notched operculum as is typical for ammotrechids so the type specimen may be young. On the other hand, there are two distinguishable opercula as in eremobatids indicating that this genus may be divergent.

Although, as indicated above, the holotype of this species may well be immature, the striking coloration, unusual palpal armature, and lack of a dorsal cheliceral carina are distinctive. Tarsal setation of legs III and IV is shown in figures 5 and 6.

GENUS *USPALLATA* MELLO-LEITÃO

Uspallata MELLO-LEITÃO, 1938, p. 21.

CHARACTERS: Mummucinae without dorsoapical spinelike seta on the tibiae of legs II and III; with five (1, 2, 2) ventrolateral spinelike setae on tarsi of legs II and III; 10 (2, 2, 2-2, 2) on tarsi of leg IV; and with three anterior teeth on fixed cheliceral finger.

TYPE SPECIES: *Uspallata pulchra* Mello-Leitão, 1938 (by original designation).

Uspallata pulchra Mello-Leitão

Figures 7-11

Uspallata pulchra MELLO-LEITÃO, 1938, p. 21.

DIAGNOSIS: As the genus is monotypic, generic characters serve to distinguish this species. The extremely small size, males range from 5.0 to 9.0 mm. in length and females from 8.5 to 12.0 mm., and chalky white and dark brown to black markings, adequately described by Mello-Leitão (1938) are also diagnostic. Figures 7 to 11 are from specimens collected in Chile.

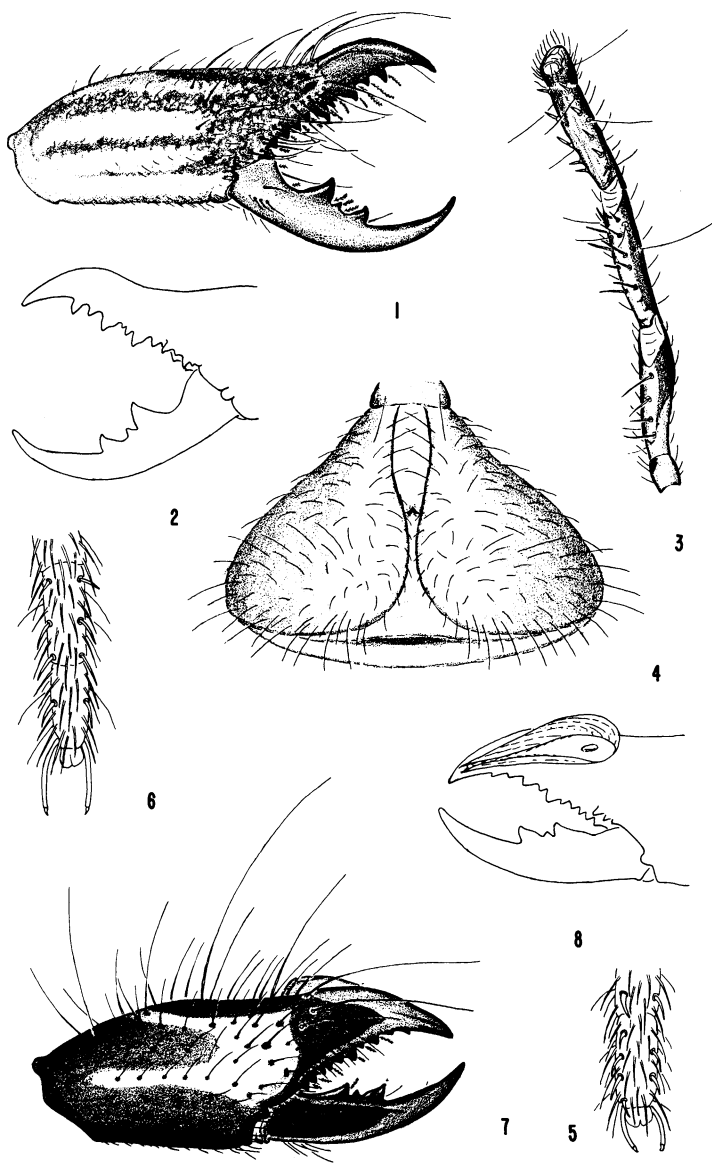
DISTRIBUTION: one female, 4.8 km. west of Chile Chico, Aysen Province, 400 meters, November 11, 1966 (E. I. Schlinger and M. E. Irwin); two immatures, Laguna de Huasco, Turapaca Province, 60.2 km. east of Pica, 3670 meters, May 26, 1966 (M. E. Irwin); two females, 4 km. west of Laguna, Amarga, Magallanes Province, December 8, 1966 (M. E. Irwin and E. I. Schlinger); one female, 1 km. west of Angol. Cord. de Najuelbuta, latitude 37° 48' S., longitude 72° 41' W., 610 km., Malleco Province, February 10, 1967 (E. I. Schlinger); one immature, Coquimbo Province, Hacienda Illapel, Rio Illapel, 600 to 900 meters, October 19, 1966 (E. I. Schlinger and M. E. Irwin); three males, Valparaiso Province, Rio Marga Marga Los Perales, latitude 33° 09' S., longitude 71° 19' W., 330 meters, October 13, 1966 (M. E. Irwin and E. I. Schlinger); one male, Coquimbo Province, Fray Jorge, Pachingo, 15 km., S. W., latitude 30° 27' S., longitude 71° 32' W., December 29, 1966 (M. E. Irwin); one male, Concepcion Province, Salta del Laja, 20 meters, November 8, 1966, (E. I. Schlinger and M. E. Irwin). These are the first records for Chile. Mello-Leitão (1938) recorded it from Argentina.

DISCUSSION: There is some variation in the extent and intensity of markings and coloration, and in cheliceral dentition among the specimens examined. This indicates possible intraspecific variation or a confusion of species. For the present, it seems preferable to maintain the single name.

GENUS *MUMMUCIA* SIMON, 1879

Mummucia SIMON, 1879, p. 150. KRAEPELIN, 1901. p. 115. ROEWER, 1934, p. 584. MELLO-LEITÃO, 1938, p. 18.

CHARACTERS: Mummucinae without dorsoapical spinelike seta on tibiae of legs II and III; with seven (1, 2, 4) ventrolateral setae on tarsi



FIGS. 1-6. *Sedna pirata*, new species. 1-4. Female. 1. Right chelicera, ectal view. 2. Right chelicera, mesal view. 3. Right palp, mesoventral view. 4. Opercula, ventral view. 5. Leg III tarsus, ventral view. 6. Leg IV tarsus, ventral view.

FIGS. 7, 8. *Uspallata pulchra* Mello-Leitão, male. 7. Right chelicera, ectal view. 8. Right chelicera, mesal view.

of legs II and III; 11 (1, 2, 2-2, 4) on tarsi of leg IV; and with three anterior teeth on fixed cheliceral finger.

TYPE SPECIES: *Mummucia variegata* (Gervais), 1849 (by indication).

Mummucia patagonica Roewer

Figures 12, 13

Mummucia patagonica ROEWER, 1934, p. 585. MELLO-LEITÃO, 1938, p. 19. CEKALOVIC AND QUEZADA, 1969, p. 176.

DIAGNOSIS: According to Roewer (1934), this species is distinguished from its congeners by having the middle anterior tooth of fixed cheliceral finger minute, palpi uniform yellowish in color, and elongate, ventral spinelike, palpal setae as follows: femur three pairs, tibia five pairs, and metatarsus four pairs. Figures 12 and 13 are from Roewer (1934).

DISTRIBUTION: Previously known only from the holotype female, Patagonia, Rio Santa Cruz, Argentina; was recorded from Chile by Cekalovic and Quezada (1969) on the basis of one female, Magallanes, Rincón Negra, January 22, 1966 (Quezada and Herrera).

DISCUSSION: Although the species is included herein on the basis of the above record, it should be noted that Cekalovic and Quezada's specimen was described as striped and with four pairs of elongate, ventral spinelike setae on the palpal tibia. These characters do not agree with those cited by Roewer for the holotype.

Mummucia variegata (Gervais)

Figure 14

Galeodes variegata GERVAIS, 1849, p. 15.

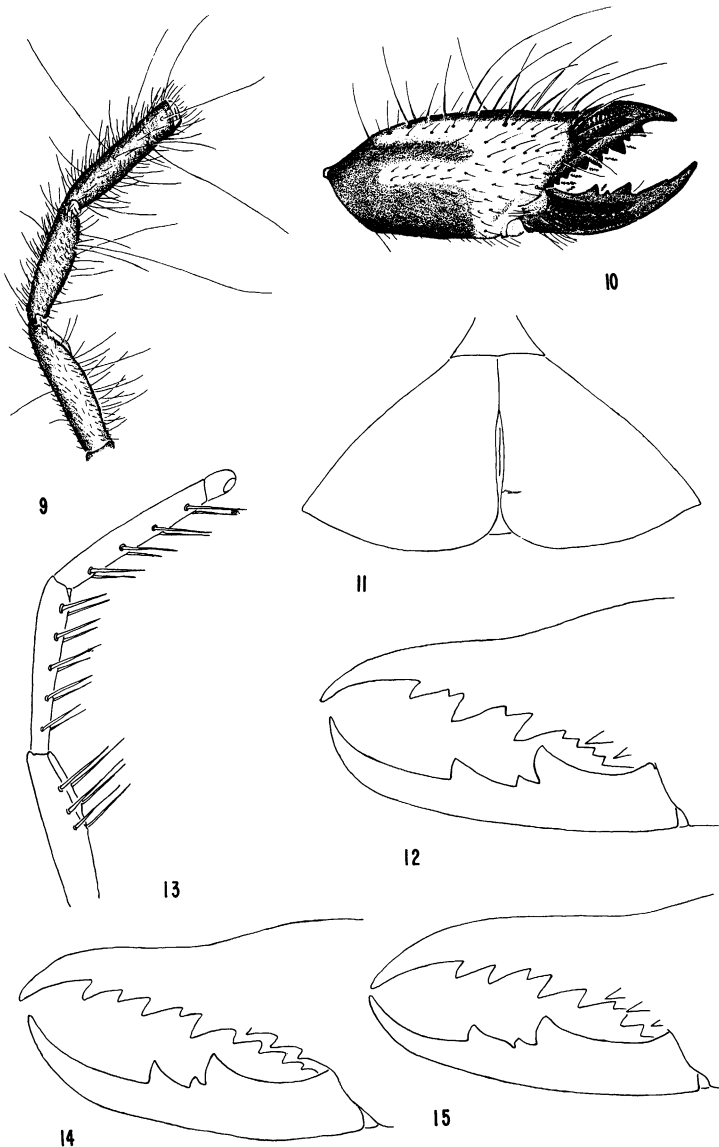
Mummucia variegata: SIMON, 1879, p. 150. KRAEPELIN, 1901, p. 115. ROEWER, 1934, p. 584. MELLO-LEITÃO, 1938, p. 18.

DIAGNOSIS: According to Roewer (1934) and Mello-Leitão (1938), this species is distinguished from other species of the genus by having three fondal teeth in the mesal row and three pairs of ventral spinelike setae on the palpal femora and tibiae, and lacking spinelike ventral setae on palpal metatarsi. Only females are known. Figure 14 is from Roewer (1934).

DISTRIBUTION: Known from Chile, Peru, and Bolivia, recorded by Roewer (1934). Only the type is known from Chile.

GENUS *GAUCHA* MELLO-LEITÃO

Gaucha MELLO-LEITÃO, 1924, p. 140; ROEWER, 1934, p. 587; MELLO-LEITÃO, 1937, p. 84; ROEWER, 1941, p. 181.



FIGS. 9-11. *Uspallata pulchra* Mello-Leitão. 9. Male, left palpus, mesoventral view. 10, 11. Female. 10. Right chelicera, ectal view. 11. Opercula, ventral view.

FIGS. 12, 13. *Mummucia patagonica* Roewer, female. 12. Right chelicera, mesal view (from Roewer, 1934). 13. Left palpus, mesoventral view (from Roewer, 1934).

FIG. 14. *Mummucia variegata* (Gervais), female, right chelicera, mesal view (from Roewer, 1934).

FIG. 15. *Gaucha atacama* (Roewer), female, right chelicera, mesal view (from Roewer, 1934).

CHARACTERS: Mummucinae without dorsoapical spinelike seta on tibiae of legs II and III; with nine (1, 2, 2, 4) lateroventral spinelike setae on tarsi of legs II and III; 12 (2, 2, 2-2, 4) lateroventral spinelike setae on tarsi of leg IV; and with two anterior teeth on cheliceral fixed finger.

TYPE SPECIES: *Gaucha fasciata* Mello-Leitão, 1924 (by original designation).

Gaucha atacama (Roewer)

Figures 15, 16

Mummuicella atacama ROEWER, 1934, p. 587.

Gaucha atacama: MELLO-LEITÃO, 1937, p. 84. Roewer, 1941, p. 181.

DIAGNOSIS: According to Roewer (1934), this species is distinguished from the type-species (*G. fasciata*) by having five pairs of ventral spine-like setae on palpal metatarsi and tibiae and one mesoventral, strong spinelike seta on palpal femora. Roewer also recorded only four fondal teeth in ectal row, compared to six on generotype. Figures 15 and 16 are from Roewer (1934).

DISTRIBUTION: Known only from the female holotype and a female paratype from Atacama, Chile, recorded by Roewer (1934).

GENUS *MUMMUCINA* ROEWER

Mummucina ROEWER, 1934, p. 589. KRAUS, 1966, p. 182.

CHARACTERS: Mummucinae without dorsoapical spinelike seta on tibiae of legs II and III; with nine (1, 2, 2, 4) lateroventral spinelike setae on tarsi of legs II and III; 12 (2, 2, 2-2, 4) lateroventral spinelike setae on tarsi of leg IV; and with three anterior teeth on cheliceral fixed finger.

TYPE SPECIES: *Mummucina titschacki* Roewer, 1934 (by original designation).

Mummucina romero Kraus

Figures 17, 18

Mummucina romero KRAUS, 1966, p. 182.

DIAGNOSIS: According to Kraus (1966), this species is distinguished from *M. titschacki* by possession of only one intermediate tooth on the movable finger, and from *M. colinalis* Kraus by three fondal teeth in the ectal row. Its unmarked brown to yellowish-brown chelicerae and propeltidium, and dark purplish brown mesopeltidium, metapeltidium, and abdominal tergites were also cited as distinctive. Kraus's illustrations of the species also indicate fixed finger more massive and having more nearly equal-sized anterior teeth than generotype, but less massive and with less equal-sized anterior teeth than *M. colinalis*. Figures 17

and 18 are of the Coquimbo Province specimen.

DISTRIBUTION: Known from the female holotype and three female paratypes, Romero, Chile, March 27, 1963, recorded by Kraus (1966). One female from Coquimbo Province, Las Hedionditas, Road to Emb. Laguna, January, 1966 (L. Peña) is recorded here.

DISCUSSION: See discussion under *M. colinalis* below.

The specimen recorded here has the morphology and coloration reported by Kraus (1966), except that the chelicerae and propeltidium are dark purplish brown and the palpus is armed with four to five paired or unpaired distinguishable ventrolateral spinelike setae on the metatarsus, tibia, and femur.

Mummucina colinalis Kraus

Figures 19, 20

Mummucina colinalis KRAUS, 1966, p. 184.

DIAGNOSIS: Kraus (1966) distinguished this species from the genotype by the reduced number of intermediate teeth on the movable finger even though coloration and markings were similar. His description, figures, and measurements indicate that fixed finger of the chelicerae more massive with nearly equal-sized anterior, intermediate, and principal teeth; species somewhat larger than genotype. *M. colinalis* is, by Kraus (1966), readily distinguished from *M. romero* by different coloration and markings, different cheliceral dentition, and larger size. Figures 19 and 20 are from Kraus (1966).

DISTRIBUTION: Known only from the type series from Chile. Male holotype, Illapel, January 8, 1964; seven male paratypes, Colina, December 30, 1963; one female paratype, San Vicente, October 30, 1964; one female paratype, Quebrada de la Plata, June 19, 1961, all recorded by Kraus (1966).

DISCUSSION: Roewer (1934) and Kraus (1966) both cited leg metatarsal spinelike setal armature in diagnosing the three species included in this genus. The present author has been unable to demonstrate usefulness of this character within genera and within species of Ammotrechidae and therefore has excluded the character from consideration here.

SUBFAMILY AMMOTRECHINAE ROEWER

Ammotrechinae ROEWER, 1934, p. 590. MUMA, 1951, p. 123.

CHARACTERS: Ammotrechidae with one segmented tarsi on legs I, II, and III and three segmented tarsi on leg IV.

TYPE GENUS: *Ammotrecha* Banks, 1900.

GENUS *AMMOTRECHELIS* ROEWER

Ammotrechelis ROEWER, 1934, p. 592. MELLO-LEITÃO, 1938, p. 22.

CHARACTERS: Ammotrechinae with three (1, 1, 1) lateroventral spine-like setae on tarsi of legs II and III, eight (2, 2-2-2) lateroventral spine-like setae on tarsi of leg IV, two anterior teeth on fixed cheliceral finger, and no mesal tooth on movable cheliceral finger.

TYPE SPECIES: *Ammotrechelis goetschi* Roewer, 1934 (by original designation).

Ammotrechelis goetschi Roewer

Figures 21, 22

Ammotrechelis goetschi ROEWER, 1934, p. 592. KRAUS, 1966, p. 181.

DIAGNOSIS: As genus is monotypic, species can be distinguished by generic characters. However, the pale yellow to white coloration marked only by two broad, sublateral, purplish, propeltidial stripes, and two narrow, distinct lateral and one narrow, indistinct, medial dark abdominal stripes is distinctive for family. Also, two readily distinguishable pairs of short, apical, spinelike, palpal, metatarsal setae do not occur on any other species of ammotrechid. Figures 21 and 22 are of the Caldera-Atacama specimen.

DISTRIBUTION: Female holotype and female paratype from Coquimbo La Serena, recorded by Roewer (1934); two females, Paposo, August 25, 1963; one female, Travesia, August 26, 1963, recorded by Kraus (1966); one female, Caldera-Atacama, June 24, 1968 (L. Peña) recorded here.

DISCUSSION: The collection records for this species indicate that it is restricted to the coastal regions of north central Chile.

GENUS *AMMOTRECHA* BANKS

Ammotrecha BANKS, 1900, p. 426. ROEWER, 1934, p. 596. MUMA, 1951, p. 123.

CHARACTERS: Ammotrechinae with six (1, 2, 2, 1) lateroventral spinelike setae on tarsi of legs II and III, 9 (2, 2-2-2, 1) lateroventral spinelike setae on tarsi of leg IV, mesal tooth on movable cheliceral finger, and two anterior teeth on fixed cheliceral finger.

TYPE SPECIES: *Ammotrecha limbata* (Lucas), 1835 (by subsequent designation).

Ammotrecha araucana Mello-Leitão

Figure 23

Ammotrecha araucana MELLO-LEITÃO, 1942, p. 310.

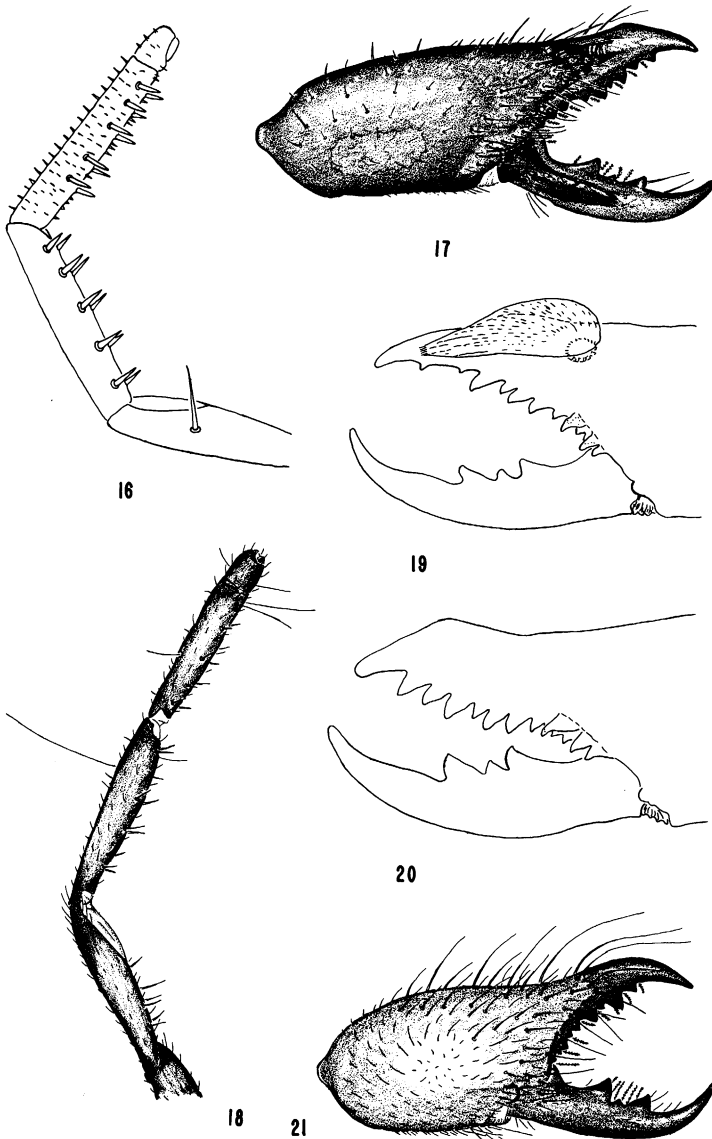


FIG. 16. *Gaucha atacama* (Roewer), female, left palp, mesoventral view (from Roewer, 1934).

FIGS. 17, 18. *Mummucina romero* Kraus, female. 17. Right chelicera, ectal view. 18. Left palp, mesoventral view.

FIGS. 19, 20. *Mummucina colinalis* Kraus. 19. Male, right chelicera, mesal view (from Kraus, 1966). 20. Female, right chelicera, mesal view (from Kraus, 1966).

FIG. 21. *Ammotrechelis goetschi* Roewer, female, right chelicera, ectal view.

DIAGNOSIS: Uniformly chestnut-colored propeltidium, pale abdomen, gradually darkened palpi, and legs from pale yellow on femora to chestnut-colored on metatarsi and tarsi reported by Mello-Leitão (1942) comprises unique color pattern for the genus. Mello-Leitão (1942) also stated that palpus not armed with cylinder bristles and dorsal carina small. Figure 23 is from Mello-Leitão (1942).

DISTRIBUTION: Known only from female holotype, Casablanca (F. Gajardo Tobar), recorded by Mello-Leitão (1942).

DISCUSSION: It is unfortunate that Mello-Leitão did not enumerate or otherwise evaluate the spinelike setae on the lateroventral surface of the palpal metatarsi, tibia, and femora.

GENUS *PSEUDOCLEOBIS* POCKOCK

Pseudocleobis POCKOCK, 1900, p. 304. KRAEPELIN, 1901, p. 108. ROEWER, 1934, p. 602. MELLO-LEITÃO, 1938, p. 23.

CHARACTERS: Ammotrechinae with nine (1, 2, 2, 4) lateroventral spine-like setae on tarsi of legs II and III, 12 (2, 2-2-2, 4) lateroventral spine-like setae on tarsi of leg IV, three anterior teeth on fixed cheliceral finger, and no mesal tooth on movable cheliceral finger.

TYPE SPECIES: *Pseudocleobis andinus* (Pocock), 1899 (by subsequent designation).

REMARKS: Four species have been described in this genus. They have been distinguished by the number of fondal teeth and intermediate teeth on the chelicerae and the number of ventral spinelike setae on the palpi; see Roewer (1934).

During this study, six males and nine females of the genus have been available. On the basis of the presently accepted diagnostic characters, one female from Chile, two females from Argentina, and one female from Peru have palpi similar to those of *P. alticola* Pocock and *P. chilensis* Roewer but the cheliceral dentition of *P. andinus* (Pocock). Similarly, a male from Argentina has the palpal armature of *P. morsicans* (Gervais) but the dentition of *P. andinus*. The other five males and five females, which are from Chile, have the palpal armature similar to that of *P. alticola* but variable dentition which approaches that of *P. andinus*. All of the specimens are similarly colored and approximate the size range of *P. andinus*, except that the male from Argentina and three males from Chile are small, about the size of *P. morsicans*.

Because none of the specimens studied, including those from Chile, can be satisfactorily placed, they are all referred to *P. andinus*, the species to which most specimens seem to show more similarity. It is unlikely that most of the study specimens represent new species as indicated by the

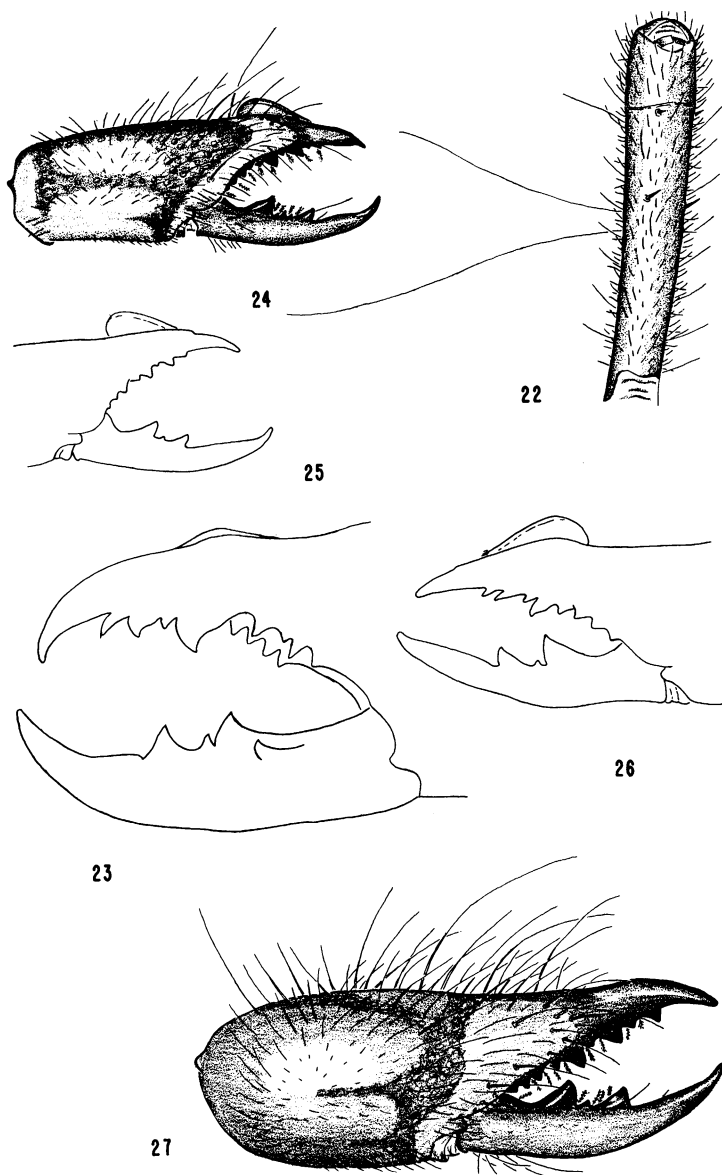


FIG. 22. *Ammotrechelis goetschi* Roewer, female, left palpus, mesoventral view.

FIG. 23. *Ammotrecha araucana* Mello-Leitão, female, right chelicera, mesal view (from Mello-Leitão, 1942).

FIGS. 24-27. *Pseudocleobis andinus* (Pocock). 24-26. Variations of male chelicerae, ectal views. 27. Female, right chelicera, ectal view.

diagnostic characters; the variation found does, however, indicate the need for a generic review of infraspecific variation.

Pseudocleobis andinus (Pocock)

Figures 24-28

Cleobis andinus POCKOCK, 1899, p. 359.

Pseudocleobis andinus: POCKOCK, 1900, p. 304. KRAEPELIN, 1901, p. 108. ROEWER, 1934, p. 603. MELLO-LEITÃO, 1938, p. 24.

DIAGNOSIS: Diagnostic characters of previous authors include four fonal teeth in both ectal and mesal series, one intermediate tooth on both fixed and movable cheliceral fingers and paired, ventral spinelike setae of the palpi as follows: male with four pairs on femora, tibiae, and metatarsi; female with four pairs on femora and six pairs on tibiae and metatarsi. Figures 24 to 28 are of specimens from Chile.

DISTRIBUTION: Recorded from Argentina and Bolivia by Roewer (1934). Kraus (1966) recorded the first specimens from Chile: one male, one female, El Tofo, August 27, 1963; one male, one juvenile, Dulcinea, August 17, 1963; one male, one female, one juvenile, Quebrada Turipita, August 20, 1963; one female, Quebrada Peralillo, August 17, 1963; one juvenile, Guatín, August 21, 1963; four females, one juvenile, Conchi, August 22, 1963; one juvenile, Polapi a Ascotán, August 23, 1963; one male, four females, one juvenile, Travesía, August 26, 1963; one juvenile, Cerro el Pajonal, 4400 meters, August 20, 1963. Two males, Laguna, Lejía, Antojunta, 4200 meters, November, 1968; five females, La Valdes, 2000 meters, Cordilleras near Santiago, Guil. Mann; two males, one female, Coquimbo Province, Las Hedionditas, Road to Emb. Laguna, January 1966 (L. Peña); one female, Taconao, February 10, 1955 (L. Peña); one female, Farellones above 8500 to 10,000 feet, Santiago, November 28, 1962 (P. J. Darlington) are recorded here.

DISCUSSION: A montane species which may be highly variable in size, coloration, dentition, and palpal armature. See generic remarks above.

Pseudocleobis morsicans (Gervais)

Figures 29, 30

Galeodes morsicans GERVAIS, 1849, p. 16.

Cleobis morsicans: SIMON, 1879, p. 150.

Pseudocleobis morsicans: KRAEPELINE, 1901, p. 109. ROEWER, 1934, p. 603. MELLO-LEITÃO, 1938, p. 25.

DIAGNOSIS: Diagnostic characters of previous authors include four fonal teeth in ectal series and three in mesal series, one intermediate tooth on both fixed and movable cheliceral fingers, and both sexes with similar palpal armature of paired ventral spinelike setae: three pairs on femora,

four pairs on tibiae, three pairs on metatarsi. Figures 29 and 30 are from Roewer (1934).

DISTRIBUTION: Roewer (1934) recorded the species from the central provinces of Chile.

DISCUSSION: See remarks under genus above.

Pseudocleobis chilensis Roewer

Figures 31, 32

Pseudocleobis chilensis ROEWER, 1934, p. 604. MELLO-LEITÃO, 1938, p. 23.

DIAGNOSIS: Roewer (1934) distinguished this species by five fonal teeth in ectal series and four in mesal series, one intermediate tooth on movable cheliceral finger, but two on fixed cheliceral finger, and females, only known sex, with four pairs of ventral spinelike setae on palpal femora, four on tibiae and three on metatarsi. Figures 31 and 32 are from Roewer (1934).

DISTRIBUTION: Known only from the female holotype from Cuesta de Chacabuco, Chile (Roewer, 1934).

DISCUSSION: See remarks under genus above.

AMACATAIDAE, NEW FAMILY

DIAGNOSIS: Solpugids of this family are distinguished from those recognized in Roewer (1934) by having anal segment flattened and terminal; no claw on leg I tarsi or ventral spinelike setal armature on leg I metatarsi; all legs long and slender, and not especially modified for digging; legs II and III tarsi without dorsal terminal spinelike setae; leg I tarsi with one segment; legs II and III tarsi with two segments; leg IV tarsi with four segments; legs II to IV tarsal claws without hairs; palpal tarsus immovable; male cheliceral flagellum a movable translucent parchment-like two-part structure, composed of a small, basal, circular, fringed cup, and a large elongate U-shaped crest that rotates longitudinally along mesal face of chelicera. Anterior margin of propeltidium evenly arched forward.

Male specimens of this family run through the keys in Roewer (1934) to the couplet just before that separating the families Ammotrechidae and Daesiidae. They are readily distinguished from ammotrechids by the complex movable male cheliceral flagellum. The distinctive flagellum, the unusual tarsal segmentation, and the spinelike setal armature of the tarsi also distinguishes them from daesiids. Female specimens of the three families are difficult to distinguish except by tarsal segmentation and setation.

The cheliceral profiles of the available males bear a distinct resem-

blance to those of males of the genera *Eusimonia* Kraepelin and *Rhinippus* Werner in the family Karschiidae. The karschiids, however, have tarsal claws on leg I and only one segment to the tarsi of leg IV.

TYPE GENUS: *Amacata*, new genus.

AMACATA, NEW GENUS

ETYMOLOGY: Anagram of Atacama; refers to collection locality, Atacama Desert.

DIAGNOSIS: Amacataids of this genus are distinguished by tarsal spine-like setal armature: tarsi of legs II and III armed with 1, 1, 1-0 spinelike setae lateroventrally on anterior face; tarsi of legs IV armed with 2, 2-2-2-0 spinelike setae lateroventrally. Figures 42 and 43 show tarsal setation of legs III and IV. Anterior margin of propeltidium convex, with eyes separated by slightly more than one diameter. Chelicerae without mesal tooth and with only one intermediate tooth on movable finger; fixed finger with two anterior teeth distal of principal tooth; female fixed finger without dorsal carina; male fixed finger with flattened, anteriorly projecting dorsal process that arises dorsally from base of finger.

One male of the five males and two females available for study lacks one seta of basal pair of spinelike setae on tarsi of legs IV. This indicates variability of this character which has been indicated for other families by Panouse (1950), Muma (1951), Lawrence (1953), and Turk (1960).

These are medium-sized solpugids; adults range from 16.5 to 22.0 mm. in size. All specimens examined have mouth parts, body, and legs off-white to pale yellow and are heavily spotted or maculate on the dorsa and pleura with brown or purplish brown.

TYPE SPECIES: *Amacata penai*, new species.

Amacata penai, new species

Figures 33-43

ETYMOLOGY: Named for the collector, L. E. Peña.

DIAGNOSIS: Distinguished by the generic characters. Variability of characters is expressed by blunt to acutely pointed dorsal cheliceral process and abrupt to attenuate terminal spur on flagellar crest of male. Some available specimens less densely maculate than others.

MALES: Total length 16.5 to 22.0 mm.

	LENGTH	WIDTH
Chelicerae	3.7-5.4 mm	1.1-1.6 mm.
Propeltidium	2.1-2.9	2.7-3.2
Palpi	15.0-19.0	—
Leg I	12.0-15.5	—
Leg IV	22.5-27.0	—

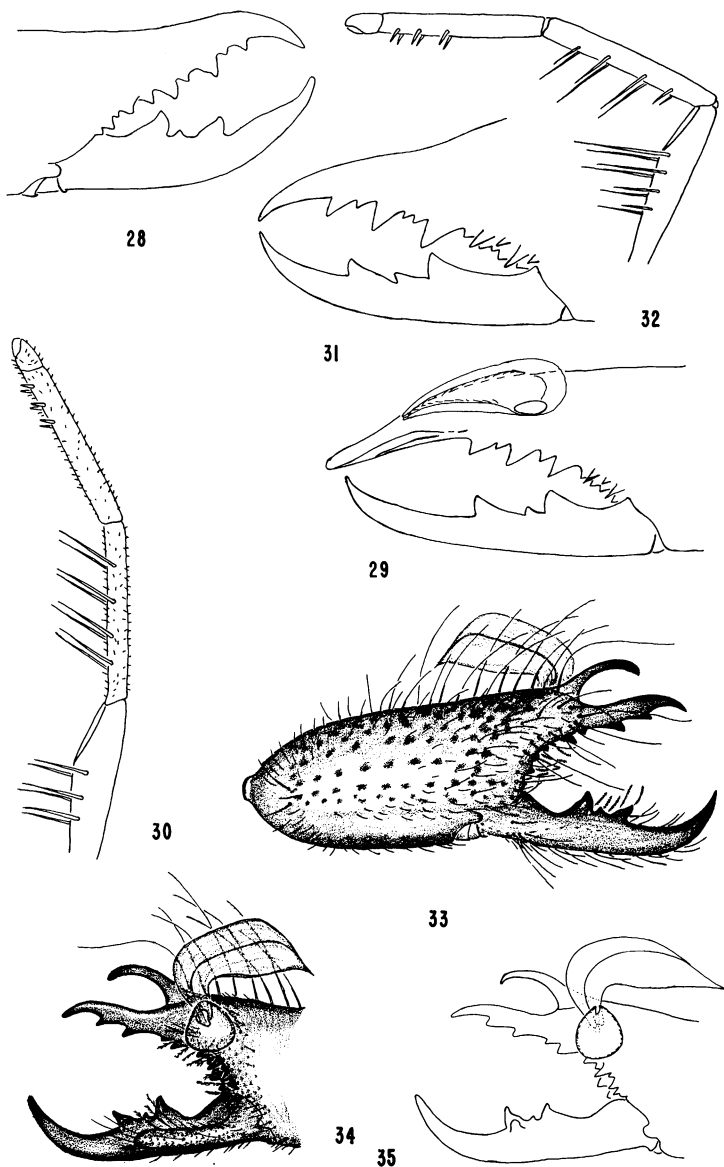


FIG. 28. *Pseudocleobis andinus* (Pocock), female, variation right chelicera, ectal view.

FIGS. 29, 30. *Pseudocleobis morsicans* (Gervais), male. 29. Right chelicera, mesal view (from Roewer, 1934). 30. Right palpus, mesoventral view (from Roewer, 1934).

FIGS. 31, 32. *Pseudocleobis chilensis* Roewer. 31. Male, right chelicera, mesal view (from Roewer, 1934). 32. Female, right palpus, mesoventral view (from Roewer, 1934).

FIGS. 33-35. *Amacata penai*, new species, male. 33. Right chelicera, ectal view. 34. Right chelicera, mesal view. 35. Variation right chelicera, mesal view.

Larger measurements represent the measurements of the holotype.

Color in alcohol off-white to pale yellow with brown to purplish brown markings as follows: chelicerae maculate laterally and dorsally with dorsal spots coalescing to form two longitudinal stripes; maculations on propeltidium dense except around dark eye tubercle, in pale longitudinal strip, and marginally; mesopeltidium, metapeltidium, and abdominal tergites marmorate except for two pale submedian stripes; palpi and legs maculate to marmorate dorsally and laterally but pale ventrally on all segments except tarsi of legs II, III, and IV; tarsi of legs II, III, and IV and venter pale. Malleoli pale. Spinellike setae, dentition, and tips of leg tarsal claws reddish brown to black.

Dentition of movable finger normal with only one intermediate tooth between principal tooth and anterior tooth, no mesal tooth, and rounded toothlike process mesad of anterior tooth. Fixed finger slender and sinuate with slightly modified principal tooth, intermediate tooth, and two anterior teeth. Large, well-sclerotized, process dorsally at base of fixed finger; process in lateral view arched over fixed finger, nearly parallel-sided with blunt to attenuate tip; process in dorsal view process gradually enlarged apically with angularly truncate tip. U-shaped portion of flagellum terminates abruptly or gradually in acutely pointed ventral spine. FONDAL TEETH graded III, I, IV, II in ectal row, I, III, IV, II in mesal row. Figures 33 and 34 of the holotype; figures 35 and 36 variations.

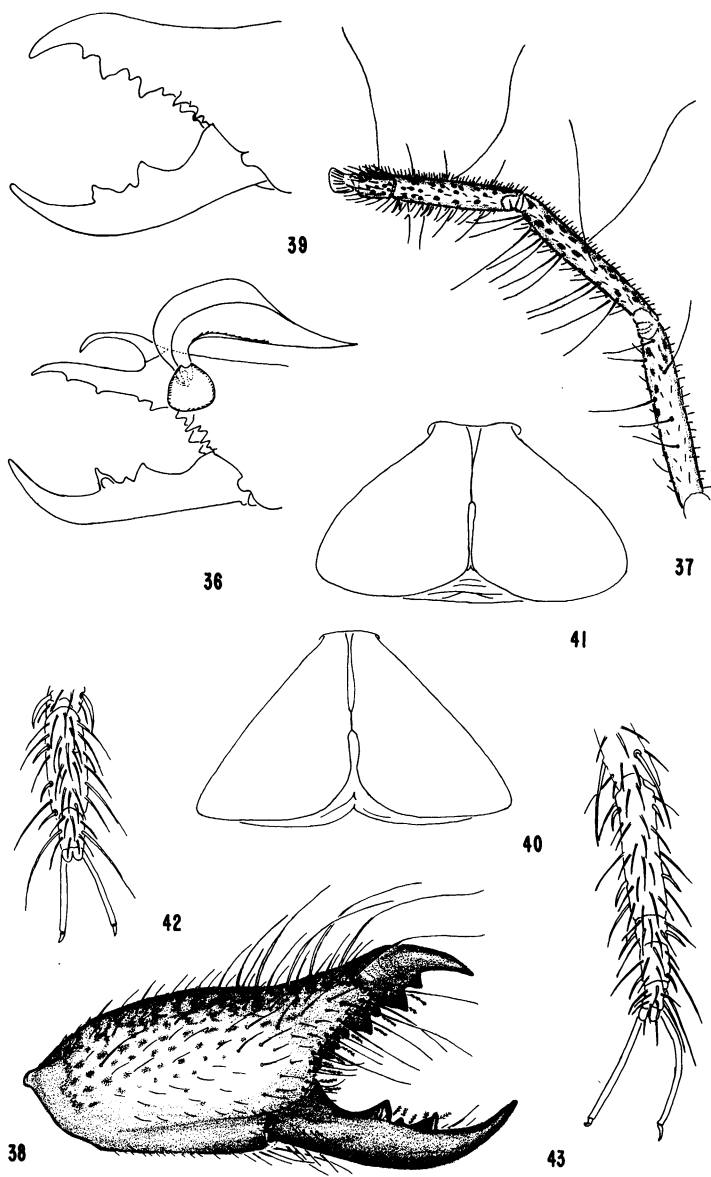
Palpal armature not especially distinctive; usual long and short setae present; cylinder bristles present but not numerous; two pairs of strong spinellike setae present lateroventrally on metatarsus and several ventral indistinctly paired or unpaired elongate spinellike setae present on tibia and femur. Figure 37 of holotype.

Chelicerae longer than wide by ratio of about 3.0 to 1.0. Propeltidium wider than long by ratio of 1.2 to 1.0. Eyes separated by slightly more than one eye diameter.

Abdominal sternites with no true ctenidia but individual and groups of unusually strong, elongate, bifurcate setae present mesoventrally on sternites of segments 5, 6, 7, and 8.

FEMALES: Total length 21.0 to 22.5 mm.

	LENGTH	WIDTH
Chelicerae	5.3-6.8 mm.	1.7-2.5 mm.
Propeltidium	2.6-3.2	3.5-5.1
Palpi	13.0-17.0	—
Leg I	10.5-12.5	—
Leg IV	20.0-23.0	—



FIGS. 36-43. *Amacata penai*, new species. 36, 37. Male. 36. Variation right chelicera, mesal view. 37. Right palpus, mesoventral view. 38-41. Female. 38. Right chelicera, ectal view. 39. Right chelicera, mesal view. 40-41. Variations of opercula, ventral view. 42. Leg III tarsus, ventral view. 43. Leg IV tarsus, ventral view.

Coloration and markings in alcohol similar to males. Femur and tibia of palpus with dark dorsal stripe only faintly indicated on male palpus.

Dentition of chelicerae as shown in figures 38 and 39. Movable finger with only one intermediate tooth between principal tooth and slightly smaller anterior tooth; no mesal tooth and no process mesad of anterior tooth. Fixed finger with only one intermediate tooth between principal tooth and two anterior teeth; penultimate anterior tooth slightly larger than ultimate, both larger than principal tooth; no dorsal carina. Fondal teeth as in male. Palpal armature as in male. Chelicerae longer than wide by a ratio of 3.1 to 1.0. Propeltidium wider than long by a ratio of 1.3 to 1.0. No elongate bifurcate setae on abdominal sternites. Opercula wider than long by ratio of 1.7 to 1, figures 40 and 41. Opercular setal clothing strong and dense near median furrow and along posterior margin.

TYPE LOCALITY: Holotype male, Boca Río Copiapo, Atacama, Chile, June 13, 1968 (L. E. Peña); paratype male, Caldera, Atacama, Chile, June 12, 1968 (L. E. Peña); allotype female, in sand dunes, Choros Bajos, north of Coquimbo Province, Chile, June 15, 1968 (L. E. Peña).

DISTRIBUTION: To date, this species has been found only in the coastal Atacama Desert in northern Chile. Paratype male, one immature, one juvenile, S. Caleta, Chañaral de Aceituno, Chile, June 14, 1968 (L. E. Peña); two paratype females, Tofo Coquimbo, Chile, September 1916; two paratype males, one paratype female, Manquehua, Combarbala, Coquimbo Province, Chile, September, 1965 (L. E. Peña).

DISCUSSION: Male flagellar and cheliceral variations and female opercular variations may represent specific differences, but as the seven collections are comprised of only five males and four females, they are considered conspecific for the present. It should also be noted here that the configuration and setation of the female opercula approach those of some species of the Eremobatidae.

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