

THE NEOTROPICAL ORB-WEAVER GENERA *EDRICUS* AND *WAGNERIANA* (ARANEAE: ARANEIDAE)

HERBERT W. LEVI¹

ABSTRACT. *Edricus* and *Wagneriana* species are Neotropical, nocturnal orb weavers. *Edricus* species are found from Mexico and Panama to Ecuador. Most *Wagneriana* species are found in the Amazon area and southeastern South America. Because of the similarity of the structure of male and female genitalia and the presence of a paramedian apophysis in the male palpus, they are related to *Alpaida*, *Eriophora*, *Parawixia*, and *Verrucosa*.

There are two species of *Edricus*, both previously known from only one sex, and 39 species of *Wagneriana*, 26 of them new. That is, only one-third of the species were previously known. *Anawixia* Chamberlin and *Paraverrucosa* Mello-Leitão are subjective synonyms of the name *Wagneriana*. Eight species names are synonymized.

INTRODUCTION

This is one of a series of papers authored by Levi through the period 1968–1990 intended to make it possible to identify Neotropical orb weavers. The araneid orb weavers are the third largest spider family with 2,600 named species world-wide (Platnick, personal communication, 1989). About one-third of the Neotropical orb-weaver species have now been revised. Despite the popularity of orb weavers as research subjects in studies of behavior, ecology, and silk production, identification has been severely hampered because the descriptions of species are scattered through old literature and were made (as is unfortunately still sometimes done) without reference to or comparison with previously described species. Some had been placed in wrong genera and frequently males and

females were described under different names. A future goal of these studies is the analysis of interrelationships among genera. This can be done only by examining and comparing all species of each genus and only after most of the genera are revised.

Revised here are the genera *Edricus* and *Wagneriana* which share a similar abdomen shape and similar genitalia, both synapomorphies. The species of the two genera have been confused despite their distinctive carapace and sternum shapes.

Only one common species of *Wagneriana* was previously readily recognized, *W. tauricornis*, common in Florida. Roewer (1942) and Bonnet (1959) list four other species. The collections available included 39 different species, some of which had been placed in other genera of the family.

METHODS AND MATERIALS

The methods were the same used in my previous papers: careful comparison of the structures of the genitalia of males and females made by illustrating them to separate species. The features that make the genus distinct are also illustrated, although a careful comparison of genera has to wait until the species of more of them are known. Species descriptions cite the distinguishing features and the localities where specimens have been found. Despite this, problems invariably remain. Some of them can be resolved by studying specimens, others by using more sophisticated methods. (But molecular studies

¹Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138.

would be inappropriate for this study, as they would not facilitate recognition or placement of specimens into the species or matching of names with specimens.) Remaining problems are that some species can be clearly recognized in one sex only (e.g., there are difficulties in separating females of *W. jelskii*, *W. maseta*, and *W. transitoria*, also females of *hassleri* and *silvae*). Another persistent problem is whether differences between specimens from different places represent species differences or geographical variation (e.g., *W. huanca*, Figs. 149, 150). In some cases the association of males with females may remain uncertain (e.g., *W. taim*).

Eye ratios. The diameters of the posterior median eyes and lateral eyes as seen in profile are measured by comparison with the diameter of the anterior median eye as seen in profile. The distances between the borders of the anterior median eyes and between the anterior median eyes and anterior lateral eyes are measured by comparison with the diameter of the anterior median eyes in profile. The distances between the posterior median eyes and between the posterior median eyes and posterior lateral eyes are measured by the comparison with the diameter of the posterior median eyes as seen in profile. The method was first suggested by H. Homann (personal communication) as an alternative to giving absolute measurements or reporting the fractions as read in a micrometer. However, the measurements here and those in my other araneid papers are only rough calculations as araneid specimens of the same species are quite variable in their eye diameter and placement, and commonly one or two eyes are deformed or missing (e.g., the anterior median eyes of the holotype of *W. janeiro* are absent).

Internal female genitalia. Illustrations were made by mounting the epigynum temporarily in Hoyer's medium on a microscope slide, the dorsal side facing up. Since *Wagneriana* epigyna are lightly sclerotized and relatively flat they are eas-

ier to examine than the epigyna of species of other genera.

Paratypes and holotypes. Other than the holotype and doubtful specimens, all specimens examined of a new species are marked and reported as paratypes. This permits wide distribution of paratypes to museums in Central and South America and will facilitate future identification of specimens. Holotypes are deposited in a museum with a professional arachnologist as curator or may have to be returned to the country where collected. Rarely is the specimen illustrated or described not the holotype, but if the holotype is in poor condition, a better specimen was used for description and illustration. If an adequate illustration was made earlier I did not make another even if better specimens of the same species were found later. The holotypes of previously named species have been examined and illustrated over a period of twenty years because many had been misplaced. (Misplaced specimens are a unique problem of revising a very large family.) Some specimens for which my information was incomplete could not be borrowed a second time (those of the Caracas and Rio de Janeiro museums).

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- AMNH American Museum of Natural History, New York, United States; N. Platnick, L. Sorkin
- BMNH British Museum (Natural History), London, England; P. Hillyard, F. Wanless
- CAS California Academy of Sciences, San Francisco, United States; W. J. Pulawski, D. Ubick
- CNC Canadian National Collections, Ottawa, Canada; C. Dondale

- CUC Cornell University Collection, kept in the AMNH; N. Platnick
- DU D. Ubick
- EMUCB Essig Museum, University of California Berkeley, California, United States; E. I. Schlinger, C. E. Griswold
- FSCA Florida State Collection of Arthropods, Gainesville, Florida, United States; G. B. Edwards
- IBNP Inventario Biológico Nacional, San Lorenzo, Paraguay; J. A. Kochalka
- IMPR I. M. P. Rinaldi, Rio Claro, Est. São Paulo, Brazil
- INPA Instituto Nacional de Pesquisas da Amazonia, Manaus, Est. Amazonas, Brazil; J. A. Raphael, H. Höfer
- IRSNB Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium; L. Baert
- JAK John A. Kochalka
- MACN Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina; E. A. Maury
- MCN Museu de Ciências Naturais, Porto Alegre, Rio Grande do Sul, Brazil; A. Lise, E. Buckup
- MCZ Museum of Comparative Zoology, Cambridge, Massachusetts, United States
- MECN Museo Ecuatoriano de Ciencias Naturales, Quito, Ecuador; L. Avilés
- MEG M. E. Galiano
- MHNC Museu de História Natural, Capão da Imbuia, Curitiba, Paraná, Brazil; L. Bittencourt, S. de Fátima Caron
- MHNM Museo de Historia Natural de Montevideo, Uruguay; R. M. Capocasale
- MHNMC Museo de Historia Natural, Medellín, Colombia; Marco A. Serna D.
- MHNSM Museo de Historia Natural, Universidad Nacional Mayor de San Marco's, Lima, Peru; D. Silva D.
- MIUP Museo de Invertebrados, Universidad de Panamá, Panama City, Panama; D. Quintero A.
- MLP Museo, Universidad Nacional de La Plata, La Plata, Argentina; R. F. Arrozpide
- MNRJ Museu Nacional, Rio de Janeiro, Brazil; A. Timotheo da Costa
- MNHN Muséum National d'Histoire Naturelle, Paris, France; J. Heurtault
- MNSD Museo Nacional de Historia Natural, Santo Domingo, Dominican Republic; B. C. Reynoso S.
- MPM Milwaukee Public Museum, Milwaukee, Wisconsin, United States; J. P. Jass
- MZSP Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil; P. Vanzolini, L. Neme, J. L. M. Leme
- MZUF Museo Zoologico, Università, Florence, Italy; S. Mascherini
- NHMW Naturhistorisches Museum, Wien, Austria; J. Grüber
- NMB Naturhistorisches Museum, Basel, Switzerland; E. Sutter
- NRMS Naturhistoriska Riksmuseet, Stockholm, Sweden; T. Kronestedt
- PAN Polska Akademia Nauk, Warszawa, Poland; A. Riedel, W. Starega, J. Proszynski, A. Słowjewska, E. Kierych
- REL R. E. Leech
- SJ Steve Johnson
- SMF Natur-Museum und Forschungs-Institut, Senckenberg, Frankfurt am Main, Germany; M. Grasshoff
- UCR University of California, Riverside, California, United States; S. I. Frommer
- USNM National Museum of Natural History, Smithsonian Institu-

tion, Washington, D.C., United States; J. Coddington

YDL Y. D. Lubin

ZMK Zoologisk Museum, Copenhagen, Denmark; H. Enghoff

ZSM Zoologische Staatssammlung, Munich, Germany

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Edricus O. P.-Cambridge

Edricus O. P.-Cambridge, 1890: 57. Type species *Edricus spinigerus* by monotypy. The generic name is masculine (Bonnet, 1956: 1647).

Note. The literature is confused because females of the common *Witica crassicauda* (Keyserling) were erroneously matched with *Edricus* males and placed in the genus *Edricus*. Also several *Alpaida* (see list below) species had been described in *Edricus*.

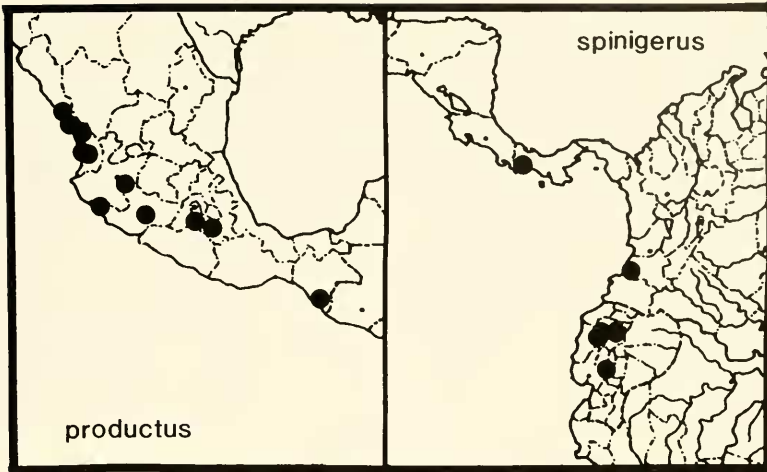
Diagnosis. Unlike those of related genera and most other araneids, the carapace and sternum of *Edricus* are modified. The carapace in both sexes is elongated and narrowed in the thoracic region (Figs. 3, 7, 11, 14) and the sternum is posteriorly narrowed and elongated (Figs. 4, 8, 12, 15). Unlike those of most other araneids, except *Pronous*, the posterior median eyes

of *Edricus* are almost 1.5 to 2 times the diameter of the anterior medians (Fig. 5). The height of the clypeus equals three to four diameters of the anterior median eyes (Fig. 5). The prosomal modifications, the high clypeus and the large posterior median eyes are synapomorphies for the two species of *Edricus*. Unlike that of *Wagneriana* the palpus has a paramedian apophysis in the shape of a toad-stool on its side (PM in Figs. 6, 13). The fourth leg is as long as or longer than the first, another synapomorphy for the two species. (The fourth leg is also longer than the first in the unrelated *Micrathena* species, Levi, 1985.)

Description. Carapace, chelicerae, endites, sternum orange-brown. Coxae orange to orange-brown. Legs orange-brown. Abdomen with some black and white pigment. Carapace without macrosetae. Abdomen with four pairs of lateral tubercles and three posterior median ones. In males the anterior lateral tubercles are prominent spines (Figs. 7, 14). The shape of the abdomen with pairs of tubercles and posterior median tubercles (Fig. 3, 11) resembles that of *Wagneriana*. The epigynum has a median lobe (Figs. 1, 9) also resembling that of *Wagneriana*. Both these similarities are regarded as synapomorphies.

Epigynum small with a posterior median plate that differs in shape in the two species (Figs. 2, 10). Male palpal patella with one macroseta. The male of *E. productus* has a tooth on the endite and a hook on the first coxa (Fig. 8), *E. spinigerus* has lost both. *Edricus productus* has a macroseta on the fourth trochanter, *E. spinigerus* does not. The second tibia has a small spur with one or two macrosetae in males of *E. productus* (Fig. 7), with one macroseta in *E. spinigerus* (Fig. 14). The palpus is similar in structure to that of *Wagneriana* species. The conductor is on the ventral face of the palpus as in *Wagneriana*, *Parawixia*, and *Alpaida* (not near the rim as in *Araneus*).

Distribution. There are only two species, one in Mexico, the other in Central America to Ecuador (Map 1).

Map 1. Distribution of *Edricus* species.

Misplaced Species

- Edricus atomarius* (Simon, 1895); Roewer, 1942: 761 is *Alpaida atomaria* (Simon). See Levi, 1988: 458.
E. cayana (Taczanowski, 1873); Roewer, 1942: 762 is *Witica cayana* (Taczanowski). See Levi, 1986: 44.
E. crassicauda (Keyserling, 1865); Roewer, 1942: 762 is *Witica crassicauda* (Keyserling). See Levi, 1986: 41.
E. ensifer di Caporiacco, 1947: 25 is *Alpaida truncata* (Keyserling). See Levi, 1988: 472.
E. eupalaestris Mello-Leitão, 1943: 177 is *Wagneriana eupalaestris* (Mello-Leitão).
E. tricuspis (Getaz, 1893); Roewer, 1942: 762 is *Witica crassicauda* (Keyserling). See Levi, 1986: 41.
E. truncatus (Keyserling, 1865); Roewer, 1942: 762 is *Alpaida truncata* (Keyserling). See Levi, 1988: 472.

Unrecognizable species

- Edricus rubricornis* Mello-Leitão, 1940: 204. Female holotype from Colatina, Espírito Santo, Brazil (MNRJ), lost.

KEY TO *EDRICUS* SPECIES

- | | | |
|-------|---|-------------------|
| 1. | Females | 2 |
| - | Males | 3 |
| 2(1). | Posterior median plate of epigynum in posterior view almost as long as wide (Fig. 2); Mexico (Map 1) | <i>productus</i> |
| - | Posterior median plate of epigynum in posterior view about twice as wide as long (Fig. 10); Panama to Ecuador (Map 1) | <i>spinigerus</i> |
| 3(1). | Third coxa separated from fourth by about their diameter (Fig. 8); palpus with me- | |

dian apophysis rounded laterally (Fig. 6);

Mexico (Map 1)

- Third coxa adjacent to fourth (Fig. 15); palpus with median apophysis angular laterally (Fig. 13); Panama to Ecuador (Map 1)

Edricus productus O.P.-Cambridge Figures 1-8; Map 1

Edricus productus O. P.-Cambridge, 1896: 186, pl. 23, fig. 5, ♂. Male holotype from Cuernavaca, Morelos State, Mexico, in BMNH, examined. F. P.-Cambridge, 1904: 500, pl. 49, fig. 26, ♂. Roewer, 1942: 762. Bonnet, 1956: 1648.

Description. Female from Escuintla, Chiapas. Sternum orange with median white streak. Venter of abdomen with a pair of white blotches framed by black. Posterior median eyes 1.5 diameters of anterior medians, anterior laterals 0.9 diameter, posterior laterals 1 diameter. Anterior median eyes 1.2 diameters apart. Posterior median eyes 2.5 diameters apart. Abdomen as in Figure 3. Total length 15 mm. Carapace 6.3 mm long, 2.8 mm wide. First femur 3.5 mm; patella and tibia 4.1 mm; metatarsus 2.6 mm; tarsus 1.1 mm. Second patella and tibia 3.5 mm; third, 2.5mm. Fourth femur 4.5 mm; patella and tibia 4.4mm; metatarsus 3.1 mm, tarsus 1.0 mm.

Male from Tepic, Nayarit. Posterior me-

dian eyes 1.5 diameters of anterior medians, anterior laterals 0.8 diameter, posterior laterals 1 diameter. Anterior median eyes 1.8 diameters apart. Posterior median eyes 2 diameters apart. Endite with tooth, palpal femur with indistinct tooth. First coxa with hook (Fig. 8). Fourth trochanter with one macroseta. Second tibia thicker than first and with distal spur bearing one macroseta on right leg, two on left leg (Fig. 7). Abdomen like that of female but with anterior pair of spines slightly sclerotized (Fig. 7). Total length 9.6 mm. Carapace 5.4 mm long, 2.3 mm wide. First femur 3.5 mm; patella and tibia 4.0 mm; metatarsus 2.8 mm; tarsus 1.1 mm. Second patella and tibia 3.4 mm; third, 2.3 mm. Fourth femur 3.7 mm; patella and tibia 3.9 mm; metatarsus 2.9 mm; tarsus 1.8 mm.

Illustrations. The illustrations were made from a female from Escuintla, Chiapas, and from a male from Tepic, Nayarit.

Variation. The abdomen shape is quite variable in females, especially its width and the size of the spines. Total length of females 11.7 to 18.5 mm, of males 9.5 to 9.6. The male from Puebla had only one macroseta on the spur of the tibia.

Diagnosis. Females differ from *E. spinigerus* by the posterior median plate of the epigynum being as wide as long (Fig. 2) and the outline of the carapace (Fig. 3). The male differs by the folding of the distal end of the median apophysis (Fig. 6) and the shape of the sternum (Fig. 8). The fourth trochanter has a macroseta, lacking in *E. spinigerus*.

Records. MEXICO *Sinaloa*: Mazatlan, 6 Sept. 1956, ♀ (A. F. Archer, AMNH), 2 Sept. 1977, ♀ (C. E. Griswold, EMUCB); La Concordia, N Copala, 610 m, 10 Sept. 1979, ♀ (D. E., J. A. Breedlove, CAS); 32 km E Villa Union, 19 Sept. 1964, imm. (E. I. Schlinger, UCR). *Nayarit*: San Blas, 17–21 Sept. 1953, ♀ (B. Malkin, AMNH); Aca-

poneta, 29 Nov. 1939, imm. (H. Bogert, N. E. Vokes, AMNH); Tepic, ♂ (MCZ), 15 Sept. 1953, 2♂ (B. Malkin, AMNH), 2–7 Aug. 1963, imm. (C., M. Goodnight, B. Malkin, AMNH); 8 km NW Tepic, 13 May 1963, imm. (W. J. Gertsch, W. Ivie, AMNH). *Jalisco*: Lago de Chapala, 16 July 1976, ♀ (J. Harp, R. Mitchell, SJ). *Colima*: 19 km E Manzanillo, 11 May 1963, imm. (W. J. Gertsch, W. Ivie, AMNH). *Michoacán*: 16 km S Uruapan, 6 July 1985, ♂ (Woolley, Zolnerovich, MCZ). *Puebla*: 0.8 km E Tepexco, 1,250 m, 24 Aug. 1977, ♂ (E. I. Schlinger, EMUCB). *Chiapas*: Escuintla, ♀ (Crawford, MCZ).

Edricus spinigerus O. P.-Cambridge
Figures 9–15; Map 1

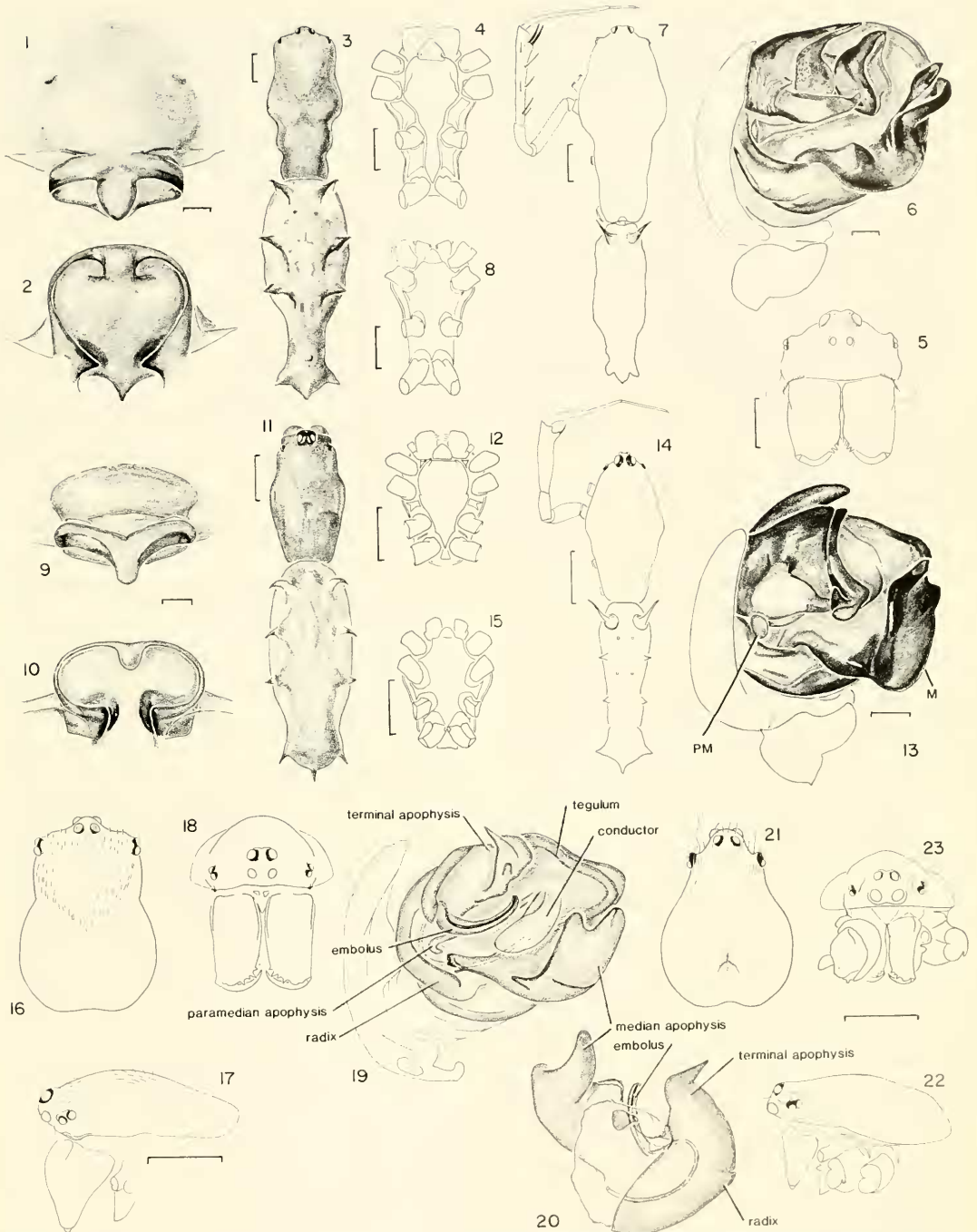
Edricus spinigerus O. P.-Cambridge, 1890: 58, pl. 4, fig. 1, ♂. Male holotype from Bugaba, Panama, in BMNH, examined. Keyserling, 1892: 33, pl. 2, fig. 30, ♂. F. P.-Cambridge, 1904: 500, pl. 49, fig. 25, ♂. Roewer, 1942: 762. Bonnet, 1956: 1648 [*spiniger*].

Description. Female from Ecuador. Legs orange-brown with indistinct, dusky longitudinal streaks. Venter of abdomen black between epigynum and spinnerets with a white line on each side, white bordered with black on each side behind spinnerets. Posterior median eyes 2.2 diameters of anterior medians, anterior laterals 0.9 diameter, posterior laterals 0.9 diameter. Anterior median eyes their diameter apart. Posterior median eyes 1.1 diameters apart. Abdomen as in Figure 11. Total length 8.0 mm. Carapace 3.0 mm long, 1.6 mm wide. First femur 2.5 mm; patella and tibia 2.7 mm; metatarsus 1.9 mm; tarsus 1.0 mm. Second patella and tibia 2.3 mm; third, 1.7 mm. Fourth femur 3.0 mm; patella and tibia 3.1 mm; metatarsus 2.1 mm; tarsus 0.9 mm.

Male from Depto. Cauca, Colombia. Coxae brown; legs dusky orange. Posterior median eyes 1.6 diameters of anterior me-

Figures 1–8. *Edricus productus* (O. P.-Cambridge). 1–5. Female. 1. Epigynum, ventral. 2. Epigynum, posterior. 3. Dorsal. 4. Sternum and coxae. 5. Eye area and chelicerae. 6–8. Male. 6. Left palpus. 7. Dorsal with second leg. 8. Sternum and coxae.

Figures 9–15. *E. spinigerus* (O. P.-Cambridge). 9–12. Female. 9. Epigynum, ventral. 10. Epigynum, posterior. 11. Dorsal. 12. Sternum and coxae. 13–15. Male. 13. Palpus. 14. Dorsal with second leg. 15. Sternum and coxae.



Figures 16–23. *Wagneriana* anatomy. 16–18. *W. tayos* n. sp., female. 16. Carapace, dorsal. 17. Carapace, chelicerae, lateral. 18. Eye area and chelicerae. 19–20. *W. transitoria*, left palp. 21–23. *W. tayos* n. sp., male. 21. Carapace, dorsal. 22. Carapace and chelicerae, lateral. 23. Eye area, chelicera, and right palp.

Scale lines. 1.0 mm, genitalia, 0.1 mm.

dians, anterior laterals 0.8 diameter, posterior laterals 0.8 diameter. Anterior median eyes 1.2 diameters apart. Posterior median eyes 1.4 diameters apart, 1.3 diameters from laterals. Endite without tooth. First coxa without hook. Fourth trochanter without macroseta. Second tibia thicker than first, with a distal spur and one macroseta (Fig. 14). Total length 6.5 mm. Carapace 3.0 mm long, 1.5 mm wide. First femur 2.4 mm; patella and tibia 2.7 mm; metatarsus 2.0 mm; tarsus 1.0 mm. Second patella and tibia 2.1 mm; third, 1.6 mm. Fourth femur 2.7 mm; patella and tibia 2.7 mm; metatarsus 2.1 mm; tarsus 0.8 mm.

Illustrations. The illustrations were made from specimens from Pichincha Province, Ecuador.

Variation. Total length of females 8.0 to 10.2 mm, of males 6.5 to 7.1.

Diagnosis. The female can be separated from that of *E. productus* by the shape of the epigynum, wider than long in posterior view (Fig. 10), and by the different outline of the carapace (Fig. 11). The male is separated by the shape of the distal end of the median apophysis (Fig. 13), by the outline of the sternum (Fig. 15), and by the lack of a macroseta on the fourth trochanter.

Natural History. The specimens from Tinalandia were collected by beating vegetation. Lubin (personal communication, 1989) found an immature in a nearly vertical web, 10 cm in diameter, 5 cm above ground. The adult female was a meter away, an immature male in a similar-sized web 5 to 10 cm above ground and 10 cm in diameter. The web was symmetrical with an open hub, the female sat cephalic region down in the hub. Another male and female were collected sitting together under a leaf about 10 cm from the female's web.

Records. COLOMBIA *Cauca*: Pacific coastal plain NW Guapi, Jan. 1973, ♂ (W. Eberhard, MCZ). ECUADOR *Pichincha*: Río Palenque, km 47 on Santo Domingo-Quevedo Road, 150 m, 15 Mar. 1982, ♀, ♂, imm. (Y. Lubin YDL 383, MCZ); Río Pi-

latón, ♀ (G. W. Prescott, MCZ); Tinalandia, 12 km E Santo Domingo de los Colorados, 750 m, 11–17 May 1986, ♀, ♂ (G. B. Edwards, FSCA); 47 km S Santo Domingo, Río Palenque Sta., 18–30 May 1975, ♂ (S., J. Peck, CNC). *Bolívar*: Balzapampa, 700 m, 28 May 1938, ♀ (W. Clarke-Macintyre, AMNH).

Wagneriana F. P.-Cambridge

Wagneria McCook, 1894: 203. Type species by monotypy *Epetra tauricornis* O. P.-Cambridge. The name is preoccupied by *Wagneria* Robineau-Desvoidy, 1830, for a dipteran, and by Gistel, 1848, for a mollusk (Neave, 1940: 650).

Wagneriana F. P.-Cambridge, 1904: 497. New name for *Wagneriana* McCook, preoccupied. The name is of feminine gender.

Anawixia Chamberlin, 1916: 258. Type species by monotypy and original designation *A. atopa* Chamberlin, 1916: 258 [= *W. transitoria* (C. L. Koch)], NEW SYNONYMY.

Paraverrucosa Mello-Leitão, 1939a: 64. Type species by monotypy and designation *P. neglecta* Mello-Leitão, 1939a: 65. NEW SYNONYMY.

Diagnosis. The carapace is high, the cephalic region slightly swollen behind the eyes (Figs. 18, 23), and in the female the sides of the thoracic region are usually glabrous, often dark (Figs. 16, 27, 38, 63). The carapace of the female may have a pair of macrosetae or more in the thoracic groove (Figs. 32, 38; Levi, 1976, figs. 62, 63, 64, 67). The glabrous often dark sides of the carapace as well as the macrosetae in the thoracic groove are synapomorphies of the species of *Wagneriana*. The macrosetae may be absent, perhaps secondarily lost. The paramedian apophysis of the male palpus is an L-shaped rod (Fig. 19), lying on its side, rarely rounded (U-shaped) or with an acute angle (V-shaped), a synapomorphy shared by all species of *Wagneriana* but not so in *Edricus* species. The terminal apophysis and embolus are fused (Figs. 19, 20). Another synapomorphy of *Wagneriana* species is the modification of the base of the median apophysis above the radix; it may have a small depression (Fig. 28) or teeth (Fig. 19), but lacks the large concavity of the median

apophysis of males of *Eriophora* and *Parawixia*. In most genera of araneids the attachment of the median apophysis is not modified; it may be a sclerotized bar or may not be sclerotized.

Description. The coloration of all species is about the same: carapace, sternum, legs yellowish to orange-brown. Carapace often with dusky marks and sides of thoracic region usually, but not always, dark and shiny, and cephalic region with some white setae (Fig. 63). Sternum always darker than coxae. Legs usually with indistinct dusky rings. Abdomen spotted with shades of brown, usually without folium often with dark median band (Figs. 57, 86); no two specimens of a species are identical. Venter gray to black with indistinct white marks. All *Wagneriana* species have a narrow, soft abdomen, longer than wide with nine to 15 tubercles (Figs. 27, 70, 153), three pairs anterior and middle on sides, one pair posterior on sides, and two or three in a posterior, median line (the most posterior tubercle above the spinnerets, which may face posteriorly or ventrally, may be lacking). The most anterior pair of tubercles may be double in *W. uzaga*, *W. spicata*, *W. gavensis*, and *W. iguape* and this is consistent in all specimens of several species (Figs. 126, 128, 132). The tubercles of some specimens of several species may be sclerotized spines. There is no median anterior tubercle (except in *W. turrigera* [Figs. 203, 204], which may not belong here). The position of the tubercles of the abdomen is a synapomorphy shared with *Edricus* and *Parawixia* species. The abdomen may be truncate behind the spinnerets (Fig. 64) or may have a postanal tail (Fig. 66); both shapes may be found in different specimens of the same species. Posterior median eyes usually slightly smaller than anterior medians, laterals the smallest (Figs. 17, 18).

Another apomorphy of *Wagneriana* species shared with *Edricus* is the shape of the epigynum, a wide median lobe often with a minute, light scape at its tip (Figs. 24, 45). It is not rebordered and lacks a

median anterior notch (or pocket) as in *Alpaida* (a pocket is present in *W. yacuma*, Fig. 172, and the epigynum is rebordered in *W. gavensis*, Fig. 134). Posteriorly the epigynum has a median plate and two lateral plates, the lateral plates continue ventrally and form the wide median lobe in ventral view (Figs. 25, 30). The seminal receptacles of all females were illustrated, although it is not known whether this will be useful. They are easily examined unlike those of some other araneid genera. The receptacles of some species are consistently thin-walled (Fig. 125), others thick-walled (Fig. 118).

In males the carapace is much narrower in front than in females, high in the thoracic region, with few short setae and lateral eyes not on tubercles (Figs. 21–23). All males have one patellar macroseta on the palpus; endite has a large tooth (Figs. 22, 23) facing a tubercle on proximal end of palpal femur. First coxa with a distal, ventral hook (Figs. 22, 23) and in larger species with a dorsal tubercle that fits against the carapace rim. As in *Parawixia* and *Wixia* some species have one or more macrosetae on fourth trochanter. Second femur (sometimes also third and fourth, rarely first) with ventral row of macrosetae. In all species second tibia thicker than first, more or less swollen, with short, strong macrosetae. Abdomen similar to that of female but smaller (Fig. 128).

The terminal apophysis and embolus are fused (Figs. 19, 20). The terminal division, the terminal apophysis and embolus, is a triangular structure, fan-shaped, its outer edge modified in various species. The fan-shaped terminal division is a synapomorphy shared with *Edricus* and *Parawixia* species. Some female individuals have lost the macrosetae on the carapace and some males have lost the macrosetae on the fourth trochanter (in species that normally have them). In all species there is considerable individual variation in markings and in color, size, length, and prominence of tubercles, and the length of the postanal tail. Two species always have the tubercles



Plate 1. Web of *Wagneriana undecimtuberculata*, horizontal diameter of orb 26 cm (photo W. Eberhard).

drawn out: *W. grandicornis* (Figs. 65, 66) and *W. heteracantha* (Fig. 108). Only one species, *W. neglecta*, consistently has a long tail (Figs. 119, 122). Most species are surprisingly similar in appearance and can not be separated by color pattern or body shape; they have to be separated by the genitalia.

Natural History. All species make a complete orb web and hang cephalic region down in the middle. There is no retreat (Plate 1).

W. Eberhard (personal communication) found that *W. tauricornis* and *W. undecimtuberculata* take their web down when not in use (usually but not always in the daytime) and then sit at exposed sites like

the tips of thin branches with their legs pressed to their bodies. Their irregular outlines make them hard to recognize as a spider. When they have an orb they generally hang in the hub or sit on one of the frame or anchor lines facing away with a line to the hub held by leg IV.

Distribution. All species are Neotropical. Only *W. tauricornis* extends its range into more temperate North America, and *W. spicata* is found in Mexico. Most species are found in the Amazon drainage and southeastern South America (Maps 2-4).

Doubtful placement

One species, *W. turrigera*, has been placed in *Wagneriana* for convenience; it may have to be placed

in a new genus when males are found. *Wagneriana turrigera* differs from other *Wagneriana* by having a low carapace and a long anterior median projection from the abdomen (Figs. 200–204).

The separation and determination of specimens of *W. heteracantha*, *W. neglecta*, and *W. eupalaestris* remains uncertain, as is the separation of the females of *W. transitoria*, *W. jelskii*, *W. maseta*, and *hassleri* and *silvae*.

Misplaced species

Wagneriana minutissima Mello-Leitão, 1941: 250.
Male holotype from Rio Negro, total length 1.5 mm, MNRJ no. 58298, is a *Kaira*.

KEY TO FEMALE WAGNERIANA

- | | | |
|-------|---|-----------------|
| 1. | Anterior pair of tubercles of abdomen double (Figs. 132, 138, 143) | 2 |
| – | Anterior pair of tubercles single (Figs. 27, 32, 38) | 5 |
| 2(1). | Thoracic region with two macrosetae, (Fig. 132); Mexico to Costa Rica (Map 4) | <i>spicata</i> |
| – | Carapace without macrosetae (Figs. 138, 143); southeastern Brazil to Paraguay | 3 |
| 3(2). | Posterior median plate of epigynum round, wider than lateral plates in posterior view (Fig. 124) | <i>uzaga</i> |
| – | Posterior median plate narrow, lateral plates wide (Figs. 136, 141) | 4 |
| 4(3). | In ventral view, epigynum length 1 to 1.5 width, tip at the point of an acute angle (Figs. 134, 135) | <i>gavensis</i> |
| – | In ventral view, epigynum wider than long, tip at the point of a shallow angle (Fig. 140) | <i>iguape</i> |
| 5(1). | Thoracic region with at least a pair of macrosetae (Figs. 27, 32, 38) | 6 |
| – | Thoracic region without macrosetae (Figs. 63, 80, 86) | 17 |
| 6(5). | Epigynum longer than wide in posterior view (Figs. 55, 151, 197) | 7 |
| – | Epigynum wider than long to square in posterior view (Figs. 46, 50, 61) | 9 |
| 7(6). | In posterior view, median plate with a median constriction ventrally (top of Fig. 197); Amazon drainage, Peru (Map 4) | <i>pakitza</i> |
| – | Median plate entire (Figs. 151, 161) | 8 |
| 8(7). | In posterior view, dorsal swollen area of median plate triangular (bottom of Fig. 151); Peru (Map 4) | <i>huanca</i> |
| – | Dorsal, swollen area of median plate rectangular (Fig. 55); southern Venezuela (Map 4) | <i>neblina</i> |
| 9(6). | In ventral view, epigynum with anterior pocket (Fig. 172); Bolivia to Mato Grosso, Brazil (Map 4) | <i>yacuma</i> |
| – | Epigynum without notch | 10 |



Map 2. The number of species of *Wagneriana* in different areas.

- | | | |
|---------|---|---------------------------|
| 10(9). | In posterior view, median plate of epigynum with lateral, ventral constriction (top of Fig. 73); Espírito Santo State to Rio Grande do Sul, Brazil (Map 3) | <i>taim</i> |
| – | Posterior median plate without such constriction (Fig. 68) | 11 |
| 11(10). | Epigynum in ventral view framed on each side by lateral lobes (Fig. 67); in posterior view, median plate consisting of two round lobes (Fig. 68); Panama to Venezuela, Colombia (Map 3) | <i>taboga</i> |
| – | Epigynum in ventral view not framed; median plate without lobes | 12 |
| 12(11). | In posterior view, median plate narrow dorsally; posterior border to soft area less than half width of median plate (bottom of Figs. 25, 36, 46) | 13 |
| – | Median plate wide dorsally (bottom of Fig. 41) | 15 |
| 13(12). | Median plate heart-shaped (Fig. 36); Venezuela, Guianas, Amazon drainage (Map 3) | <i>jelskii</i> |
| – | Posterior median plate otherwise (Figs. 25, 46) | 14 |
| 14(13). | In posterior view, dorsal area of median plate swollen and set off (bottom of Fig. 25); Panama to Amazon drainage (Map 3) | <i>undecimtuberculata</i> |
| – | Dorsal area of posterior median plate flat (Fig. 46); Peru (Map 3) | <i>bamba</i> |
| 15(12). | In ventral view, base of epigynum forms acute angle (Fig. 40); in posterior view, posterior median plate ventral margin almost straight (top of Fig. 41); Guian- | |



Map 3. Distribution of *Wagneriana* species.

- as, Amazon drainage to central Argentina (Map 3) *transitoria*
- Base of epigynum rounded (Figs. 29, 49); median posterior plate dorsally swollen (Figs. 30, 50) 16
- 16(15). In posterior view, posterior median plate narrower dorsally than ventrally (Fig. 50); Amazon drainage (Map 3) *jacaza*
- Posterior median plate swollen dorsally on each side (Fig. 30); Venezuela, Guianas, Peru, Amazon drainage (Map 3) *maseta*

- 17(5). Abdomen with anterior median projection (Figs. 203, 204); Venezuela (Map 4) *turrigera*
- Abdomen anteriorly rounded (Fig. 63) 18
- 18(17). Abdomen with only one pair of lateral tubercles enlarged (Figs. 63-66); Costa Rica, Pernambuco State, Brazil (Map 4) *grandicornis*
- Abdomen with most tubercles short or all extended (Figs. 108, 158) 19
- 19(18). Abdomen with most tubercles forming

- long soft spines (Fig. 108); Minas Gerais State, Brazil, to central Argentina (Map 4) *heteracantha*
- Abdomen with most tubercles shorter (Figs. 158, 163) 20
- 20(19). Epigynum in posterior view longer than wide (Figs. 156, 161, 166) 21
- Epigynum in posterior view square to wider than long (Fig. 146) 24
- 21(20). In ventral view, base of epigynum with a neck (as in Figures 191, 192); ventral surface of head with a pair of dark marks (Fig. 191); southeastern U.S. to Venezuela and Ecuador (Map 4) *tauricornis*
- No such neck present (Figs. 156, 166) 22
- 22(21). In posterior view, median plate of epigynum round and containing median longitudinal groove (Fig. 156); Cuba, Hispaniola (Map 4) *vegas*
- Epigynum with median plate otherwise 23
- 23(22). In posterior view, median plate constricted in middle with a neck (Fig. 166); Colombia to Peru (Map 4) *tayos*
- Median plate with mid-ventral depression (Fig. 161); Guianas, Amazon drainage (Map 4) *acrosomoides*
- 24(21). In posterior view, median plate T-shaped (Fig. 146); Chaco, Paraguay (Map 4) *madrejon*
- Posterior median plate otherwise 25
- 25(24). In posterior view, median plate with a constriction (Figs. 178, 183, 188) 26
- Median plate without such constriction (Figs. 78, 111) 28
- 26(25). In ventral view, posterior margin of base of epigynum on each side of tip straight; no dark V-shaped mark (Fig. 187); Roraima Terr., Brazil (Map 4) *roraima*
- Posterior margin of epigynum in ventral view rounded; epigynum with V-shaped dark mark ventrally (Figs. 177, 182) 27
- 27(26). In posterior view, constriction of posterior median plate narrow (Fig. 178); Guianas, lower Amazon (Map 4) *hassleri*
- Constriction of posterior median plate wide (Fig. 183); upper Amazon (Map 4) *silvae*
- 28(25). In ventral view, epigynum base oval and set off in ventral view (Fig. 77); posterior view as in Figure 78; Rio de Janeiro, São Paulo States, Brazil (Map 3) *janeiro*
- Epigynum not set off anteriorly in ventral view (Figs. 110, 116) 29
- 29(28). In posterior view, lateral plates wider than median plate (Figs. 111, 117) 30
- Posterior median plate wider than lateral plates (Figs. 84, 94, 99) 31
- 30(29). Abdomen usually with narrow tail (Fig. 119); Trinidad to northern Argentina (Map 4) *neglecta*
- Abdomen usually short (Fig. 113); São Paulo State to Rio Grande do Sul, Brazil, Paraguay (Map 4) *eupalaestris*
- 31(29). In posterior view, median plate with wide transverse groove (Fig. 94); Costa Rica to southern Brazil (Map 3) *atuna*
- Posterior plate without such groove (Figs. 84, 99) 32
- 32(31). Posterior median plate with rounded ventral lateral lobes (Figs. 84, 85); northern Colombia, western Venezuela (Map 3) *cobella*
- Posterior plate without such lobes 33
- 33(32). In posterior view, median plate with dark septum above tip (top of Fig. 99) and posterior median plate round (Fig. 99); posterior margins in ventral view forming acute angle (Fig. 98); São Paulo State to central Argentina (Map 3) *juquia*
- No such dark septum; posterior plate rectangular (Fig. 89); posterior margin of base of epigynum almost straight (Fig. 88); Amazon area of Ecuador, Peru to Espírito Santo State, Brazil (Map 3) *lechuza*

KEY TO MALE WAGNERIANA

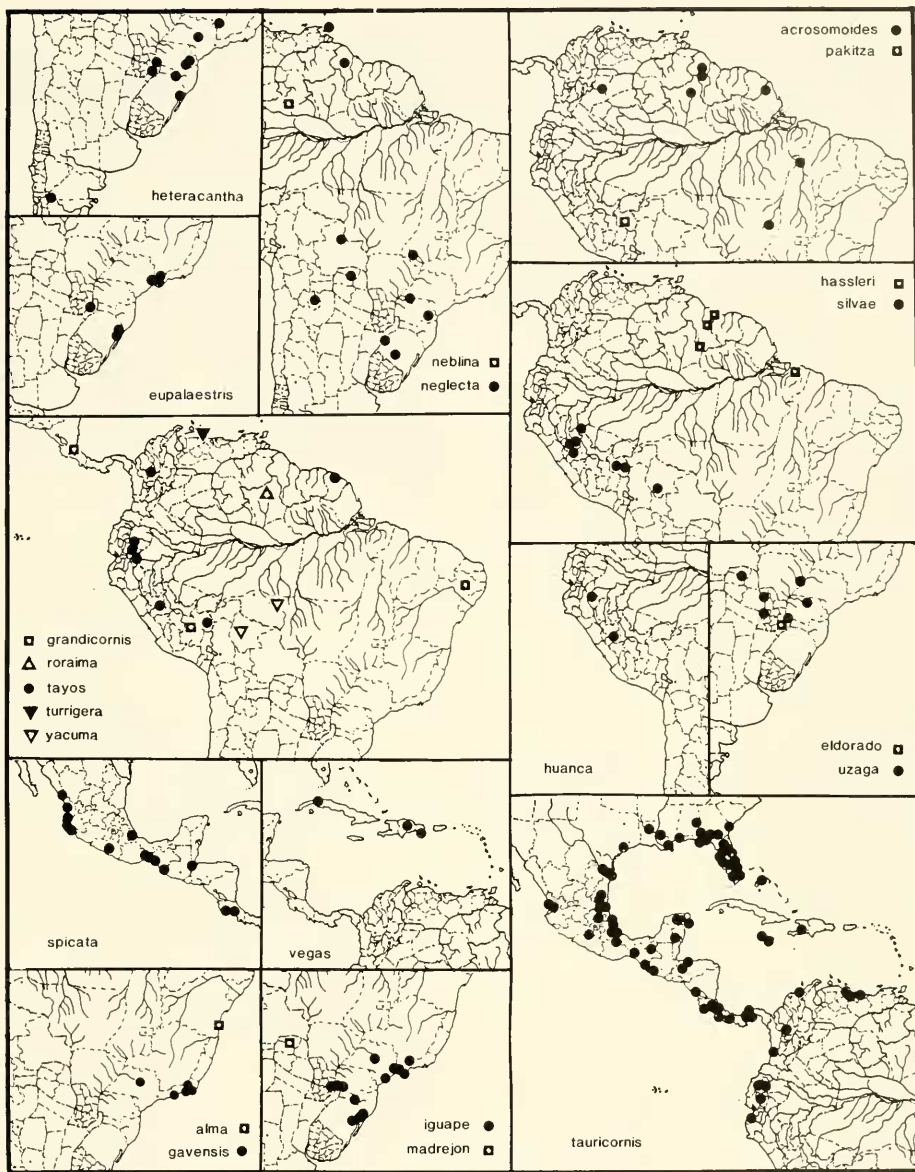
1. Anterior lateral tubercle of abdomen bifid (Fig. 128) 2
- Anterior lateral tubercle of abdomen simple or indistinct (Fig. 171) 5
- 2(1). Mexico to Costa Rica (Map 4) palpus as in Figure 133 *spicata*
- Southeastern Brazil to Paraguay 3
- 3(2). Median apophysis with thumb-shaped projection (Fig. 139) *gavensis*
- Median apophysis without such projection (Figs. 127, 144) 4
- 4(3). Terminal apophysis and conductor projecting above tegulum (Figs. 127, 144) *iguape*
- Terminal apophysis and conductor surrounded by tegulum (Fig. 127) *uzaga*
- 5(1). Embolus long and filiform (Figs. 170, 181) 6
- Embolus not filiform (Figs. 121, 127) 9
- 6(5). Embolus with loop (Figs. 170, 186) 7
- Embolus almost straight (Figs. 176, 181) 8
- 7(6). Median apophysis distally pointed as in Figure 186; upper Amazon (Map 4) *silvae*
- Median apophysis distally rounded as in Figure 170; Colombia to Peru (Map 4) *tayos*
- 8(6). Median apophysis with tooth and short

- keel (Fig. 176); Misiones Prov., Argentina (Map 4) *eldorado*
- Median apophysis with diagonal keel (Fig. 181); Guianas, lower Amazon (Map 4) *hassleri*
- 9(5). Embolus a gently curved prong, its length almost half the diameter of palpus bulb (Fig. 44); Guianas, Amazon drainage to central Argentina (Map 3) *transitoria*
- Embolus not a long, gently curved prong (Figs. 71, 164) 10
- 10(9). Conductor almost as large as median apophysis, visible diameters about equal (Fig. 164); Guianas, Amazon drainage (Map 4) *acrosomoides*
- Conductor otherwise (Figs. 71, 102, 195) 11
- 11(10). A sclerotized filament (a part of terminal apophysis) hanging over distal edge of tegulum (Fig. 71); Panama, Venezuela, Colombia (Map 3) *taboga*
- No such filament hanging over distal edge of tegulum (Figs. 102, 195) 12
- 12(11). Median apophysis with groove or split parallel to its long axis (Figs. 102, 195) 13
- Median apophysis without such split (Fig. 159) 14
- 13(12). Long axis of median apophysis parallel to that of cymbium (Fig. 195); southeastern U.S. to Venezuela and Ecuador *tauricornis*
- Long axis of median apophysis at right angle to that of cymbium (Fig. 102); upper Amazon drainage (Map 3) *carimagua*
- 14(12). Cuba, Hispaniola; palpus as in Figure 159 *vegas*
- Central and South America 15
- 15(14). Median apophysis distally truncate as in Figures 114, 121 16
- Median apophysis of different shape (Fig. 92) 17
- 16(15). Truncate end of median apophysis round (Fig. 121); Trinidad to northern Argentina (Map 4) *neglecta*
- Truncate end of median apophysis trapezoidal (Fig. 114); São Paulo to Rio Grande do Sul States, Brazil, Paraguay (Map 4) *eupalaestris*
- 17(15). Median apophysis distally rounded and with two large teeth, one in front of other (Fig. 92); Amazon drainage area of Ecuador, Peru to Espírito Santo State, Brazil (Map 3) *lechuza*
- Median apophysis otherwise (Fig. 154) 18
- 18(17). Conductor almost circular, covering embolus (Fig. 154); Bahia State, Brazil (Map 4) *alma*
- Conductor longer than wide or square 19
- 19(18). Terminal apophysis in shape of half a wheel (Fig. 97); Costa Rica to southern Brazil (Map 3) *atuna*
- Terminal apophysis otherwise 20
- 20(19). Base of embolus hidden by a flap from conductor and median apophysis with longitudinal and transverse keels (Fig. 28); Panama to Amazon drainage (Map 3) *undecimtuberculata*
- Embolus and median apophysis otherwise (Figs. 34, 76) 21
- 21(20). Median apophysis with a tooth in middle (Figs. 34, 76) 22
- Median apophysis otherwise 23
- 22(21). Median apophysis with tooth and several other points (Fig. 34); Venezuela, Guianas, Peru, Amazon drainage (Map 3) *maseta*
- Median apophysis with tooth and lobes (Fig. 76); Espírito Santo to Rio Grande do Sul States, Brazil (Map 3) *taim*
- 23(21). Median apophysis with distal end folded forming a right angle as in Figure 87 or Figure 103 24
- Median apophysis with distal end otherwise 25
- 24(23). Median apophysis short with tubercle on "lower" margin (Fig. 87); northern Colombia, western Venezuela (Map 3) *cobella*
- Median apophysis long, without tubercle (Fig. 103); Buenos Aires Prov., Argentina *uropygialis*
- 25(23). Median apophysis with "vertical" keel in middle as in Figure 109; Minas Gerais State, Brazil, to central Argentina (Map 4) *heteracantha*
- Median apophysis otherwise (Figs. 39, 53, 58, 81) 26
- 26(25). Median apophysis with rounded lobes as in Figure 39; Venezuela, Guianas, Amazon drainage (Map 3) *jelskii*
- Median apophysis otherwise 27
- 27(26). Tegulum with knob distally (Fig. 81); Rio de Janeiro, São Paulo States, Brazil (Map 3) *janeiro*
- Tegulum without such knob 28
- 28(27). Embolus truncate (Fig. 53); Guatemala *carinata*
- Embolus pointed (Fig. 58); southern Venezuela (Map 4) *neblina*

Wagneriana undecimtuberculata
(Keyserling)

Figures 24–28; Map 3

Epeira undecimtuberculata Keyserling, 1865: 805, pl. 18, figs. 1, 2, ♀, ♂. Female lectotype here designated from New Granada [historical name for

Map 4. Distribution of *Wagneriana* species.

Colombia and Panama], in BMNH, examined. Key-serling, 1892: 92, pl. 4, fig. 69, ♀, ♂.

Acrosoma tumida Taczanowski, 1879: 120, pl. 1, fig. 34, ♀. Female holotype from Amable María, [Dep-to. Junín], Peru, in PAN, examined. First synonymized by Levi, 1985.

Wagneriana undecimtuberculata:—F. P.-Cam-

bridge, 1904: 498, pl. 47, figs. 17, 18, ♀, ♂. Roewer, 1942: 880. Bonnet, 1959: 4803.

Aranea tumida:—Roewer, 1942: 854.

Araneus tumidus:—Bonnet, 1955: 620.

Description. Female from Panama. Carapace orange to dark brown. Legs

ringed orange and brown. Venter of abdomen with two light patches. Carapace with two macrosetae (Fig. 27). Posterior median eyes 0.8 diameter of anterior medians, laterals 0.8 diameter. Anterior median eyes their diameter apart. Posterior median eyes 1.5 diameters apart. Abdomen with 9 to 11 tubercles (Fig. 27). Total length 8.7 mm. Carapace 3.9 mm long, 2.9 mm wide. First femur 4.1 mm; patella and tibia 4.9 mm; metatarsus 2.4 mm; tarsus 1.1 mm. Second patella and tibia 4.2 mm; third, 2.3 mm; fourth, 3.5 mm.

Male from Panama. Color as in female. Posterior median eyes 0.7 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes 0.7 diameter apart. Posterior median eyes 1.1 diameters apart. Fourth trochanter with a thick, short macroseta. Total length 7.2 mm. Carapace 3.6 mm long, 2.7 mm wide. First femur 3.1 mm; patella and tibia 3.4 mm; metatarsus 2.1 mm; tarsus 0.8 mm. Second patella and tibia 3.2 mm; third, 2.0 mm; fourth, 2.9 mm.

Variation. The specimens illustrated came from Panama. Total length of females 7.2 to 11.7 mm, of males 6.2 to 7.4.

Diagnosis. In posterior view the epigynum differs from those of *W. spinosa* and *W. transitoria* by having the median dorsal area swollen and narrow (bottom of Fig. 25), while in *W. maseta* (Fig. 30) and *W. transitoria* (Fig. 41) it is wide, and in *W. jelskii* (Fig. 36) it is narrow and not swollen. The male differs in the sculpturing of the median apophysis, which has a proximal "vertical" keel and a median "horizontal" keel, together forming a T on its side (Fig. 28).

Natural History. Specimens have been found in a rain forest in Panama, on an

oil palm in central Colombia, around a house in a suburb of Cali, in a banana plantation in a vertical orb web, and in a disturbed area in Ecuador.

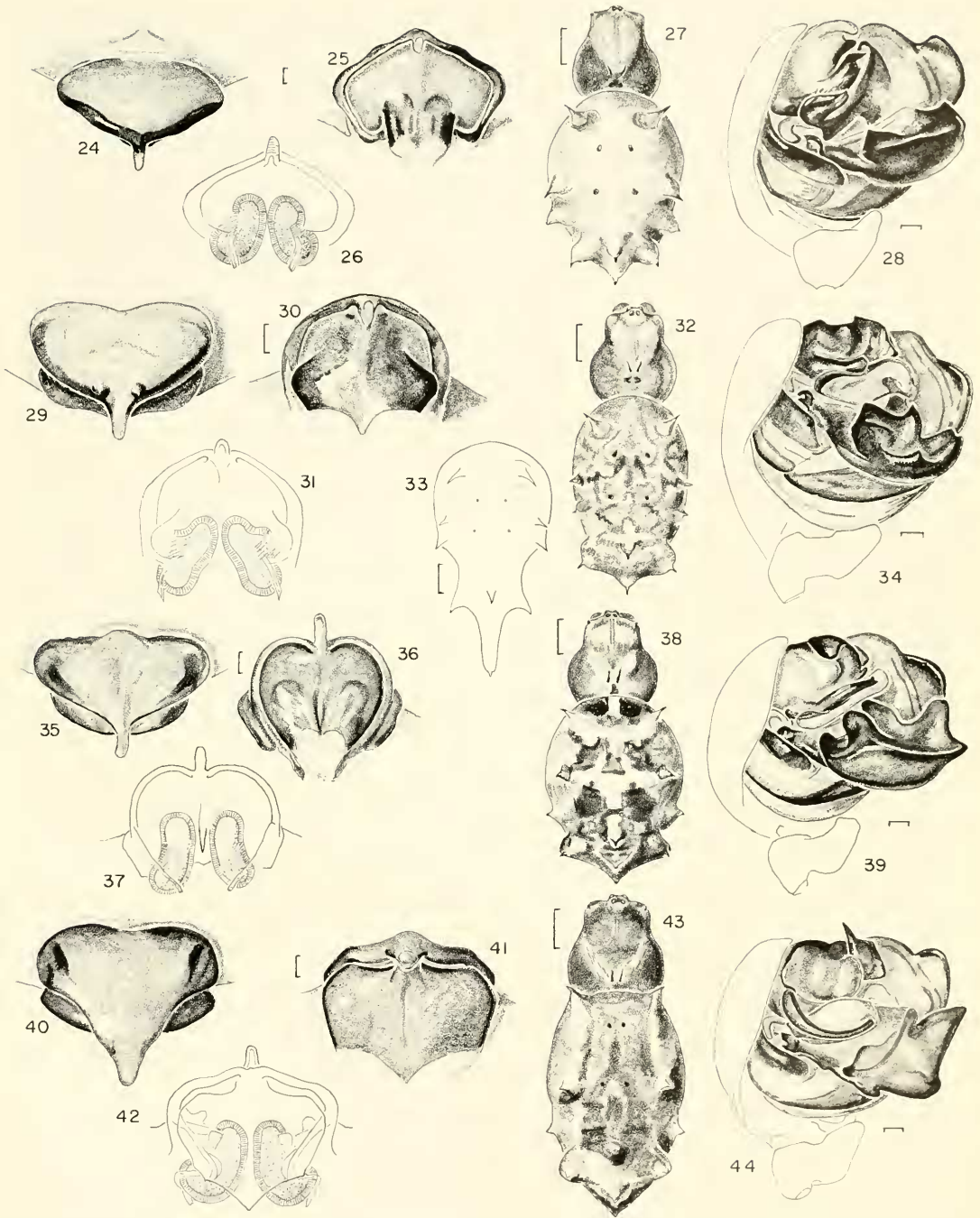
Distribution. Panama, Amazonas State of Brazil, to eastern Peru (Map 3).

Records. PANAMA *Chiriquí:* David, ♀ (AMNH, MCZ); Bugaba, ♀ (MIUP). *Panamá:* Canal area, ♀, ♂, very common (AMNH, MCZ). TRINIDAD Port of Spain, ♀, ♂ (AMNH, MCZ); Arima, ♀ (AMNH). VENEZUELA *Aragua:* Rancho Grande, ♀ (AMNH). *Tachira:* Res. Forestal, ♀ (MCZ). COLOMBIA *Bolívar:* Cartagena, ♀ (MCZ). *Santander:* Río Opón, 1,000 m, ♀ (AMNH); Río Suárez, 800–1,000 m, ♀ (AMNH). *Cundinamarca:* nr. Sasaima, ♀ (DU). *Antioquia:* Turbo, ♀ (MCZ); Mutatá, ♀, ♂ (MCZ). *Chocó:* 20 km N Palestina, Río San Juan, ♀ (AMNH). *Meta:* 5 km W Villavicencio, 820 m, ♀, ♂ (CAS); Villavicencio, ♀ (AMNH); Restrepo, ♀ (MCZ). *Valle:* 5 km W Delfina, 400 m, ♂ (AMNH); Cali, 1,000 m, ♀, ♂ (MCZ); Río Tuluá, 1,100 m, ♀ (MCZ); Guapi, 100 m, ♀ (MCZ). *Putumayo:* nr. Pto. Asis, Río Putumayo, ♀ (MCZ); *Caquetá:* Río Ortegaza, ♀ (AMNH). ECUADOR *Esmeraldas:* 11 km SE San Lorenzo La Chiquita, 5 m, ♀ (MCZ). *Napo:* Coca, Río Napo, ♀ (MCZ); Cuyabeno, Tarapoa, ♀ (MCZ). *Morona-Santiago:* Los Tayos, 05°70'S, 57°50'W, ♀ (MCZ). PERU *Huánuco:* Monsón Valley, Tingo María, 2♀ (CAS); Cucharas, 2♀ (CAS). Cueva de las Lechuza, Tingo María, ♀, ♂ (AMNH); Tingo María, ♀, ♂ (AMNH, CAS, MHNSM); Dantas-La Molina, SW Puerto Inca, 09°38'S, 75°00'W, ♀ (MHNSM). *Madre de Dios:* Estiron, Río Carbón, ♀ (MHNSM); Atacaya, Río Carbón, ♀ (MHNSM). BRAZIL *Amazonas:* Tefé, ♀ (MCZ); Igarape Belém nr. confluence Río Solimões, ♀

Figures 24–28. *Wagneriana undecimtuberculata* (Keyserling). 24–27. Female. 24. Epigynum, ventral. 25. Epigynum, posterior. 26. Epigynum, cleared. 27. Dorsal. 28. Male left palpus.

Figures 29–34. *W. maseta* n. sp. 29–33. Female. 29. Epigynum, ventral. 30. Epigynum, posterior. 31. Epigynum, cleared. 32. Dorsal. 33. Abdomen, dorsal. 34. Male palpus.

Figures 35–39. *W. jelskii* n. sp. 35–38. Female. 35. Epigynum, ventral. 36. Epigynum, posterior. 37. Epigynum, cleared. 38. Dorsal. 39. Male palpus.



Figures 40–44. *W. transitoria* (C. L. Koch). 40–43. Female. 40. Epigynum, ventral. 41. Epigynum, posterior. 42. Epigynum, cleared. 43. Dorsal. 44. Male palpus.

Scale lines. 1.0 mm, genitalia, 0.1 mm.

(AMNH); Hyutanahã, Rio Purus, ♀ (NRMS). Rôndonia: Porto Velho, ♀ (AMNH).

Wagneriana maseta new species

Figures 29–34; Map 3

Holotype. Male holotype with one female paratype from near Hacienda Mozambique, about 15 km N of Puerto Lopez, Depto. Meta, Colombia, 500 m, Aug. 1978 (W. Eberhard), in MCZ.

Description. Female paratype from Puerto Lopez, Colombia. Carapace orange to brown-black. Legs yellow ringed brown-black. Venter of abdomen blackish. Carapace with two macrosetae (Fig. 32). Posterior median eyes 0.8 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes 0.9 diameter apart. Posterior median eyes 1.1 diameters apart. Abdomen with 11 tubercles (Figs. 32, 33). Total length 9.4 mm. Carapace 3.2 mm long, 2.5 mm wide. First femur 3.5 mm; patella and tibia 4.2 mm; metatarsus 2.1 mm; tarsus 0.9 mm. Second patella and tibia 3.5 mm; third, 2.0 mm; fourth, 3.0 mm.

Male holotype. Color as in female. Posterior median eyes 0.7 diameter of anterior medians, anterior laterals 0.6 diameter, posterior laterals 0.5 diameter. Anterior median eyes 0.6 diameter apart. Posterior median eyes 1.1 diameters apart. Fourth trochanter with two short macrosetae. Abdomen as in female. Total length 8.3 mm. Carapace 3.6 mm long, 2.7 mm wide. First femur 4.0 mm; patella and tibia 4.7 mm; metatarsus 2.4 mm; tarsus 0.9 mm. Second patella and tibia 3.4 mm; third, 2.2 mm; fourth, 3.1 mm.

Illustrations. The illustrations were made from the male holotype and female paratypes from Puerto Lopez.

Variation. Total length of females 8.2 to 11 mm, of males 7.1 to 8.3.

Diagnosis. In ventral view, the epigynum is more rounded behind (Fig. 29) than that of *W. transitoria* (Fig. 40) and, in posterior view, the median plate has bulges dorsally on the sides (bottom of Fig. 30) with a low area ventrally. The palpus dif-

fers from *W. jelskii* and *W. transitoria* by the shape of the short embolus, the large conductor, supporting the embolus, and the many-pointed median apophysis (Fig. 34).

Natural History. Specimens were collected in a savanna by tree fogging, in Guarico, Venezuela, and from wasp nests near Manaus, Brazil.

Distribution. Venezuela, Guianas, Colombia, Amazon area south to Ecuador (Map 3).

Paratypes. VENEZUELA *Terr. Delta Amacuro:* Río Orinoco delta, Jan., Feb. 1935, ♂ (N. Weber, MCZ). *Guarico:* Hato Masaquaral, 45 km S Calabozo, 17 Nov. 1980, ♂ (K. Rabenoid, MCZ). GUYANA *Bartica:* Kartabo, 1924, 2♀ (AMNH). SURINAM *Saramacca:* Voltzberg-Raleighvallen Nature Reserve, Feb. 1982, ♀ (D. Smith, MCZ). COLOMBIA *Meta:* Puerto Lleras, 14 July 1985, ♀ (B. Carroll, MCZ); Hacienda Mozambique, ca. 15 km SW Puerto Lopez, 200 m, July, Aug. 1978, 9♀, 2♂ (W. Eberhard, 1666, 1682, 1698, 1715, 1716, 1781, 1809, WS44, MOZ 1, MCZ). *Caquetá:* Río Ortegaza, Aug.–Sept. 1947, ♀ (L. Richter, AMNH). ECUADOR *Pichincha:* Río Palenque, km 47 on Santo Domingo-Quevedo Road, 150 m, 15 Mar. 1982, ♀, ♂ (Y. Lubin, YDL 383, MCZ). BRAZIL *Roraima:* Ilha de Maracá, 25 July 1987, ♀ (A. A. Lise, MCN 19656). *Amazonas:* Manaus, 2♀ (M.V. Bastos Garcia, INPA). *Pará:* Belém, Aug. 1971, ♀ (M. E. Galiano, MEG); Ligação Pará-Belém, km 305, ♀ (E. Dente, MZSP 7711).

Wagneriana jelskii (Taczanowski), new combination

Figures 35–39; Map 3

Epeira jelskii Taczanowski, 1873: 139. Male lectotype here designated from Cayenne, French Guiana, in PAN, examined (not female paralectotype).

Note. The female paralectotype of *W. jelskii* is *W. transitorium*. Simon (1895: 818), though he probably did not examine specimens, synonymized the name *W. jelskii* with *W. transitorium*. The male par-

alectotype (here designated) of *Epeira velutina* Taczanowski (1878: 159) from Amable María, Depto. Junín, Peru, is also *W. jelskii*. The lectotype and other paralectotypes of *E. velutina* belong to *Parawixia*. The type series of both *Epeira jelskii* and *Epeira velutina* were collected by wasps who did not distinguish between the species. They were harvested from wasp nests by the collector K. Jelski.

Description. Female from Browns Berg, Surinam. Carapace orange and dark brown with white setae. Legs yellowish with brown rings. Venter gray with two white patches. Carapace with two macrosetae (Fig. 38). Posterior median eyes 0.8 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. Abdomen with 11 tubercles (Fig. 38). Total length 8.7 mm. Carapace 3.1 mm long, 2.7 mm wide. First femur 3.9 mm; patella and tibia 4.5 mm; metatarsus 2.3 mm; tarsus 1.1 mm. Second patella and tibia 3.7 mm; third 2.1 mm; fourth, 3.4 mm.

Male from Ikurua River, Guyana. Color as in female. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.6 diameter. Anterior median eyes 0.6 diameter apart. Posterior median eyes their diameter apart. Fourth trochanter with one short macroseta. Total length 8.3 mm. Carapace 3.5 mm long, 2.5 mm wide. First femur 3.8 mm; patella and tibia 4.5 mm; metatarsus 2.5 mm; tarsus 0.9 mm. Second patella and tibia 3.1 mm; third, 2.1 mm; fourth, 2.8 mm.

Illustration. The illustrations were made from a female from Browns Berg, Surinam, and a male from Ikurua River, Guyana.

Note. The match of male with female is uncertain although male and female were collected at the same locality in Bolivia.

Variation. Total length of females 8.2 to 10.7 mm, of males 7.6 to 8.3.

Diagnosis. The female differs from *W. undecimtuberculata* by the heart-shaped posterior median plate of the epigynum,

with its dorsal margin (bottom of Fig. 36) not raised. The male differs by lacking the proximal sclerotized lobe of the conductor of the palpus present in related species, and by having a distal lobe on the median apophysis (Fig. 39).

Natural History. The male from Guyana was collected in a forest savanna, the male from Bolivia in a high forest. Both the females from Bolivia were collected at night. The specimens from Manaus, Brazil, came from a wasp nest.

Distribution. Trinidad, northern Venezuela, Amazon drainage (Map 3).

Records. LESSER ANTILLES *Trinidad*: Piarco, 27 Nov. 1954, ♂ (A. M. Nadler, AMNH). VENEZUELA *Tachira*: Reserva Forestal, 9 Sept. 1977, ♀ (Y. Lubin, MCZ). *Monagas*: Caripito, 16–30 Apr. 1942, ♀ (W. Beebe, AMNH). *Carabobo*: San Esteban, Dec. 1891, ♀ (Meinert, ZMK). *Dto. Federal*: Caracas, Sept. 1891, ♀ (Meinert, ZMK). GUYANA Canje, Ikurua Rivers, 5°70'N, 57°50'W, Aug.–Dec. 1961, ♂ (G. Bentley, AMNH). SURINAM *Brokopondo Prov.*: Browns Berg, 20 Feb. 1982, ♀ (D. Smith Trail, MCZ). ECUADOR *Napo*: Reserva Forestal Cuyabeno, 27 July 1985, ♀ (L. Avilés, MECN). PERU *Madre de Dios*: Zona Reservada Tambopata, 23–26 May 1987, 22 July 1987, 9 June 1988, 3♀ (D. Silva D., MHNSM). BRAZIL *Roraima*: Ilha de Maracá, 20 July 1987, ♀ (A. A. Lise, MCN). *Amapá*: Vila Amazonas [?], 21 Mar. 1964, ♀ (C. E., E. S. Ross, CAS). *Amazonas*: Reserva Ducke, Manaus, 24 Mar. 1964, ♀ (C. E., E. S. Ross, CAS); Manaus, 2♀, ♂ (M.V. Bastos Garcia, INPA). BOLIVIA *Cochabamba*: Zischka's Camp, nr. San Antonio, Río Chipiriri, Oct., Nov. 1953, ♀ (W. Forster, O. Schindler, ZSM). *Beni*: Estac. Biol. Beni, 9 Sept. 1987, 2♀, 8–14 Sept. 1987, ♂ (J. Coddington, S. Larcher, USNM).

Wagneriana transitoria (C. L. Koch)
Figures 40–44; Map 3

Acrosoma transitorium C. L. Koch, 1839: 119, pl. 208, fig. 518, ♀. Female holotype from Brazil, in ZSM, destroyed during World War II.
Epeira spinosa Taczanowski, 1873: 141, pl. 5, fig. 18,

♀. Female lectotype from St. Laurent du Maroni, French Guiana, in PAN, here designated. First synonymized by Simon, 1895.

Araneus transitorius:—Simon, 1895: 818.

Edricus transitorius:—Petrunkevitch, 1911: 338. Bonnet, 1956: 1648.

Anawixia atopa Chamberlin, 1916: 258, pl. 20, figs. 1–3, ♂. Male holotype from San Miguel, 6,000 ft [1,800 m], Depto. Ayacucho, Peru, in MCZ, examined. Roewer, 1942: 778. Bonnet, 1955: 315. NEW SYNONYMY.

Aranea transitoria:—Roewer, 1942: 854.

[?] *Wagneriana vermiculosa* Mello-Leitão, 1949: 10, imm. Penultimate instar female holotype from Rio Holuene (Rio Coluene) confluence with Rio Xingu, Mato Grosso, Brazil, in MNRJ. DOUBTFUL NEW SYNONYMY.

Note. Although Koeh's illustration is not diagnostic for species recognition, it seems reasonable to use his name, the oldest name for a Brazilian *Wagneriana* species having two macrosetae on the carapace, for the most common, widespread species. Taczanowski's lectotype of *E. spinosa* is in a vial with three immatures. Another female marked *spinosa* by Taczanowski from Cayenne may be *W. maseta*, but this is not certain.

Simon (1895) synonymized *Epeira jelskii* Taczanowski and *Epeira spinosa* Taczanowski with *transitoria*. A vial labeled *W. transitoria* was found in the Simon collection containing two females from "Muloui Portal" [?]; one was *W. jelskii* and the other *W. maseta*.

Description. Female from Dpto. Huánuco, Peru. Carapace dark brown to orange with white setae. Legs yellowish with irregular black rings. Venter of abdomen black with some white pigment under transparent integument, black on sides and posterior of center. Carapace with two macrosetae (Fig. 43). Posterior median eyes same diameter as anterior medians, laterals 0.9 diameter. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen with 11 tubercles (Fig. 43). Total length 8.8 mm. Carapace 3.8 mm long, 2.7 mm wide. First femur 3.9 mm; patella and tibia 4.6 mm; metatarsus 2.4 mm; tarsus 0.9 mm. Second patella and tibia 3.8 mm; third, 2.1 mm; fourth, 3.4 mm.

Male holotype of *A. atopa*. Cephalic region orange, thoracic region brown. Legs orange with brown rings. Abdomen dusky. Posterior median eyes same diameter as anterior medians, laterals 0.8 diameter. Anterior median eyes slightly less than their diameter apart. Posterior median eyes 1.2 diameters apart. Fourth trochanter with one short macroseta. Total length 7.0 mm. Carapace 3.4 mm long, 2.5 mm wide. First femur 4.1 mm; patella and tibia 4.3 mm; metatarsus 2.4 mm; tarsus 1.0 mm. Second patella and tibia 3.1 mm; third, 2.1 mm; fourth, 2.9 mm.

Illustrations. The female illustrated came from Depto. Huánuco, Peru; the male is the holotype of *A. atopa*.

Variation. Total length of females 5.6 to 9.6 mm, of males 4.8 to 8.1. One female from Bolivia lacked the characteristic macrosetae on the carapace. Many females have more than two setae on the carapace. The outline of the characteristic acute tip of the epigynum in ventral view is variable.

Diagnosis. The epigynum can be separated from those of *W. maseta* and *W. jelskii* (Figs. 29, 35) by the acute angle formed by the tip in ventral view (Fig. 40) and by the shape of the posterior median plate in ventral view and narrow lateral plates in posterior view (top of Fig. 41). The male can be separated from related species by the gently curved embolus positioned at a right angle close to the edge of the cymbium and the shape of the median apophysis, which has a longitudinal curved keel ending in a small basal knob (Fig. 44).

Natural History. Some specimens have been taken from wasp nests. Females came from a cerrado shrub from Mato Grosso State, Brazil.

Distribution. Venezuela, Amazon drainage, to southern Argentina (Map 3).

Records. VENEZUELA *Bolívar*: Río Caura, Campamento Cecilia Magdalena (CAS). GUYANA Kartabo (CUC, AMNH); Tumatumari (AMNH). SURINAM *Saramacca*: Voltzberg (MCZ). *Marouwijne*: Lawa River, Anapaike Village (AMNH).

FRENCH GUIANA nr. Cayenne (MCZ). COLOMBIA *Caquetá*: Río Ortegua, 200 m (AMNH). *Cundinamarca*: "Cosomoco, 800 m" [Susumuco], (NHMW). *Amazonas*: 8–16 km W Leticia (MPM). ECUADOR *Napo*: Bridge over Río Cuyabeno (MCZ). *Pastaza*: Montalvo (MECN). PERU *Loreto*: Indiana (MHNSM). *Pasco*: Río Iscozacin (MHNSM); Pan de Azúcar [?], (AMNH). *San Martín*: Río Huallaga, Saposoa, 424 m, (CAS). *Ucayali*: Pucallpa (AMNH). *Huánuco*: Divisoria, 1,700 m (AMNH); Boquerón del Padre Abad (MHNSM); Cuevas de las Lechuza, Tingo María (AMNH). *Junín*: Utcuyacu, 1,600–2,200 m (AMNH). BRAZIL *Amapá*: Serra do Navio (MEG). *Roraima*: Ouro Prêto do Oeste (MNRJ). *Pará*: Aldeia, Aracu, Gurupi-Uma, 50 km E Canindé (AMNH); Rio Gurupi (AMNH, MZSP 3299, 3368); 30 km S Belém (CAS); Belém (MCZ, MEG); Jacará-Acanga (AMNH). *Amazonas*: Tefé (MCZ); Reserva Ducke, Manaus (CAS, MCN); Manaus, (MEG, INPA, MZSP 1899, 3010, NRMS); km 62 Manaus to Caracará (MCN 9484); Chicago, Rio Japurá (NRMS); Rio Negro, Umarituba (NRMS). *Alagoas*: Mangabeiras (MZSP 8291). *Bahia*: Fazenda Escalvada, Mucuri (MCN 11105). *Mato Grosso*: 260 km N Xavantina, 400 m (MCZ); Xingu Culuene (MNRJ); Utiariti (K. Lenko, MZSP 5626); Barra dos Bugres (MNRJ); Barra do Tapirapé (AMNH, MZSP 3383, 3401); Chapada dos Guimarães (MCN 12329). *Mato Grosso do Sul*: Três Lagoas (MZSP 3669). *Minas Gerais*: Pedra Azul (AMNH). *São Paulo*: Botucatu (IMPR); Mata do Procopua, Porto Ferreira (MZSP 6446). *Paraná*: Rôlandia (AMNH); Alto Paraná, Iaguararapa (AMNH). *Rio Grande do Sul*: Porto Garcia, Tenente Portela (MCN 4613); Garruchos, São Borja (MCN 8722, 8770); Salto do Yucuma, (MCN 12856, 12857). PARAGUAY *Alto Paraná*: km 12 de Stroessner, Centro Forestal de Alto Paraná (IBNP). BOLIVIA *La Paz*: Yungas de Palmas (ZSM). *Beni*: Estac. Beni, 5 km N El Porvenir (USNM); Cavinias (USNM). ARGENTINA *Misiones*: Eldorado (AMNH); Parque Nac. Iguazu (MEG); Montecarlo (MEG); Depto. San

Antonio (MEG). *Río Negro*: El Bolsón (AMNH).

Wagneriana bamba new species
Figures 45–48; Map 3

Holotype. Female holotype from Huancabamba, Quebrada Castillo, NW of Iscozacin, 345 m, 10°10'S, 75°15'W, Pasco, Peru, 13 Sept. 1987 (D. Silva D.), in MHNSM. The specific name is an arbitrary combination of letters.

Description. Female holotype. Carapace orange, sides of thoracic region dark brown. Legs orange to brown, indistinctly ringed. [Abdomen damaged.] Carapace with two macrosetae (Fig. 48). Posterior median eyes 0.9 diameter of anterior medians, laterals 0.8 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. Abdomen with four pairs of lateral tubercles and three median posterior (Fig. 48). Total length 10 mm. Carapace 3.7 mm long, 2.7 mm wide. First femur 4.1 mm; patella and tibia 4.8 mm; metatarsus 2.5 mm; tarsus 1.1 mm. Second patella and tibia 4.0 mm; third, 2.3 mm; fourth, 3.5 mm.

Diagnosis. The shape of the posterior median plate of the epigynum, which is oval (Fig. 46), differs from that of *W. transitoria*. (Fig. 41).

Wagneriana jacaza new species
Figures 49–52; Map 3

Holotype. Female holotype from Jacareacanga, Pará State, Brazil, Oct. 1959 (M. Alvarenga), in AMNH. The specific name is an arbitrary combination of letters.

Description. Female holotype. Carapace orange to dark brown with white setae. Legs orange with brown rings. Venter of abdomen with white V-shaped mark on light brown. Carapace with two macrosetae (Fig. 52). Posterior median eyes 0.8 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen with 11 tubercles (Fig. 52). Total length 11.3 mm. Carapace 4.0 mm long, 2.9 mm wide. First femur 4.4 mm; patella and tibia 4.8 mm;

metatarsus 2.7 mm; tarsus 1.1 mm. Second patella and tibia 4.2 mm; third, 2.4 mm; fourth, 3.7 mm.

Illustration. The holotype was illustrated.

Note. *W. carimagua* might be the male of this species.

Diagnosis. In ventral view, the posterior margin of the epigynum is round (Fig. 49), and, in posterior view, the median plate is narrower dorsally than ventrally (Fig. 50).

Paratypes. BRAZIL *Amazonas*: Manaus, Canal de Januári, 16–17 June 1987, ♀ (H. Höfer, INPA); Manaus, Ilha de Marchantaria, 15 Dec. 1987, ♀ (H. Höfer, INPA). *Mato Grosso*: Chavantina, Nov. 1946, ♀ (H. Sick, MZSP 1224); Barra do Tapirape, 1–5 Jan. 1961, ♀ (B. Malkin, AMNH).

Wagneriana carinata F. P.-Cambridge
Figure 53; Map 3

Wagneriana carinata F. P.-Cambridge, 1904: 498, pl. 47, fig. 16, ♂. Male holotype from Cobán, Guatemala, in BMNH, examined. Roewer, 1942: 880. Bonnet, 1959: 4803.

Araneus cacozelus Petrunkevitch, 1911: 283. New name for *W. carinata*, erroneously thought to be preoccupied by *Epeira carinata* Nicolet, 1849.

Description. Male holotype. Carapace brownish black, cephalic region yellowish. Legs yellowish. Venter of abdomen dusky underlain by white pigment spots, black on each side of petiole. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes their diameter apart. Posterior median eyes slightly more than their diameter apart. Fourth trochanter with one short macroseta. Abdomen with 11 tubercles. Total

length 6.0 mm. Carapace 2.7 mm long, 1.8 mm wide. First femur 3.1 mm; patella and tibia 3.5 mm; metatarsus 1.9 mm; tarsus 0.8 mm. Second patella and tibia 2.4 mm; third, 1.8 mm; fourth, 2.2 mm.

Note. A female in the vial with the male holotype is *W. tauricornis*. The female is not mentioned in the original description. No other specimens of *W. carinata* have been found.

Diagnosis. The median apophysis has a distinctive shape, its “lower” edge appears rolled up (Fig. 53).

Wagneriana neblina new species
Figures 54–59; Map 4

Holotype. Female holotype from Cerro de Neblina, base camp, 140 m, on low foliage, 0°50'N, 66°10'W, Territ. Fed. Amazonas, Venezuela, 21–28 Feb. 1985 (W. E. Steiner), in USNM. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace dusky orange-brown with some short white hair on cephalic region. Legs yellow with dark brown rings. Venter of abdomen with two white patches side by side. Carapace with three macrosetae (Fig. 57). Posterior median eyes 0.8 diameter of anterior medians, laterals 0.6 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. Abdomen with 11 tubercles (Fig. 57). Total length 9.8 mm. Carapace 3.6 mm long, 2.9 mm wide. First femur 4.2 mm; patella and tibia 5.0 mm; metatarsus 2.5 mm; tarsus 1.0 mm. Second patella and tibia 4.5 mm; third, 2.3 mm; fourth, 3.6 mm.

Male from type locality. Color as in female, but no rings on first two pairs of legs.

Figures 45–48. *Wagneriana bamba* n. sp., female. 45. Epigynum, ventral. 46. Epigynum, posterior. 47. Epigynum, cleared. 48. Dorsal.

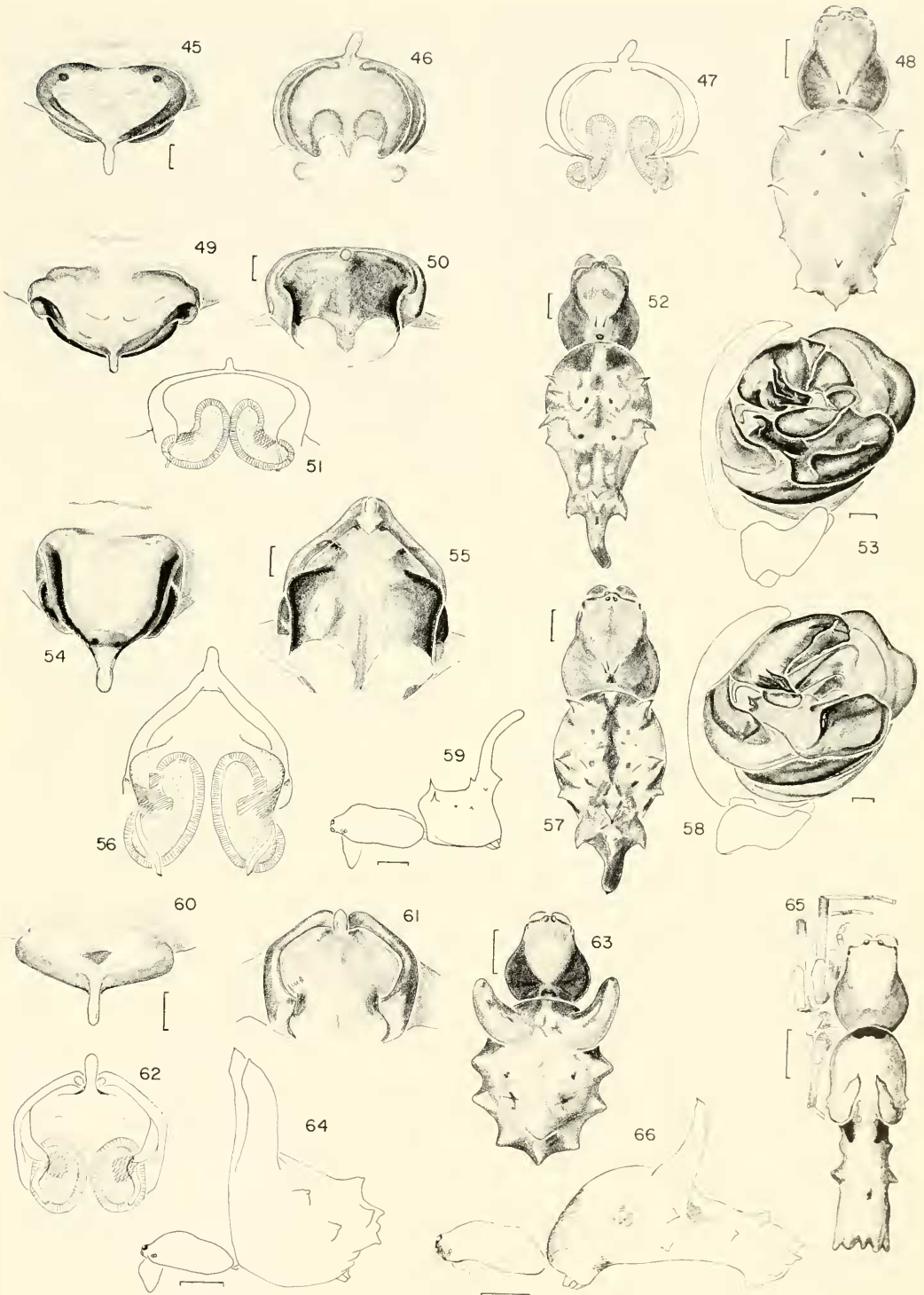
Figures 49–52. *W. jacaza* n. sp., female. 49. Epigynum, ventral. 50. Epigynum, posterior. 51. Epigynum, cleared. 52. Dorsal.

Figure 53. *W. carinata*. F. P.-Cambridge, male left palpus.

Figures 54–59. *W. neblina* n. sp. 54–57. Female. 54. Epigynum, ventral. 55. Epigynum, posterior. 56. Epigynum, cleared. 57. Dorsal. 58, 59. Male. 58. Palpus. 59. Lateral.

Figures 60–66. *W. grandicornis* (Mello-Leitão). 60–64. Female. 60. Epigynum, ventral. 61. Epigynum, posterior. 62. Epigynum, cleared. 63. Dorsal. 64. Lateral. 65, 66. Immature holotype. 65. Dorsal. 66. Lateral.

Scale lines. 1.0 mm, genitalia, 0.1 mm.



Posterior median eyes 0.6 diameter of anterior medians, laterals 0.4 diameter. Anterior median eyes 0.6 diameter apart. Posterior median eyes slightly less than their diameter apart. Fourth trochanter with one short thick macroseta. Abdomen with ten tubercles and a long tubular tail (Fig. 59). Total length 7.5 mm. Carapace 3.0 mm long, 2.3 mm wide. First femur 3.4 mm; patella and tibia 3.4 mm; metatarsus 1.8 mm; tarsus 0.9 mm. Second patella and tibia 2.8 mm; third, 1.7 mm; fourth, 2.3 mm.

Diagnosis. The female differs from *W. maseta* by the longer than wide outline of the epigynum (Fig. 54). The male differs from others by the shape of the median apophysis (Fig. 58).

Natural History. Specimens were collected with a Malaise trap over a small stream.

Paratype. VENEZUELA Amazonas: type locality, 20–24 Mar. 1984, ♂ (O. Flint, J. Louton, USNM).

Wagneriana grandicornis Mello-Leitão
Figures 60–66; Map 4

Wagneriana grandicornis Mello-Leitão, 1935: 96, pl. 6, imm. Immature holotype from Pesqueira, Pernambuco, Brazil, in MNRJ, examined. Roewer, 1942: 880. Bonnet, 1959: 4803.

Description. Immature female holotype. Carapace brown, cephalic region yellowish. Clypeus with a brown band lying between lateral eyes on each side and touching posterior median eyes. Legs ringed brown. Venter with a black patch. Eyes facing forward. Posterior median eyes 1.2 diameters of anterior medians, laterals 0.8 diameter. Anterior median eyes 1.5 diameters apart. Posterior median eyes 1.3 diameters apart. Abdomen with a pair of large, lateral projections and small tubercles (Figs. 65, 66). Total length 7.5 mm. Carapace 2.0 mm long, 1.5 mm wide. First

femur 2.1 mm; patella and tibia 2.2 mm; metatarsus 1.0 mm; tarsus 0.5 mm. Second patella and tibia 2.0 mm; third, 1.2; fourth, 1.4 mm.

Note. The only adult that might belong to this species is a female found in Costa Rica (Figs. 60–64). Its abdomen is short (Figs. 63, 64), but probably within the variation of the species. Its measurements are total length 5.8 mm. Carapace 2.3 mm long, 1.8 mm wide. First femur 2.6 mm; patella and tibia 2.9 mm; metatarsus 1.4 mm; tarsus 0.7 mm. Second patella and tibia 2.5 mm; third, 1.3 mm; fourth, 2.1 mm. Figures 65, 66 were made from the holotype.

Diagnosis. This species differs from all others by having the most anterior lateral tubercles of the abdomen projecting dorsally (Figs. 63–66).

Records. COSTA RICA *Heredia*: La Selva, 4 km SE Puerto Viejo, from trap nest collection, prey of wasp *Trypoxylon lactitarse*, 29 July 1980, ♀ [uncertain if *W. grandicornis*], (R. E. Coville AR Ø9, MCZ).

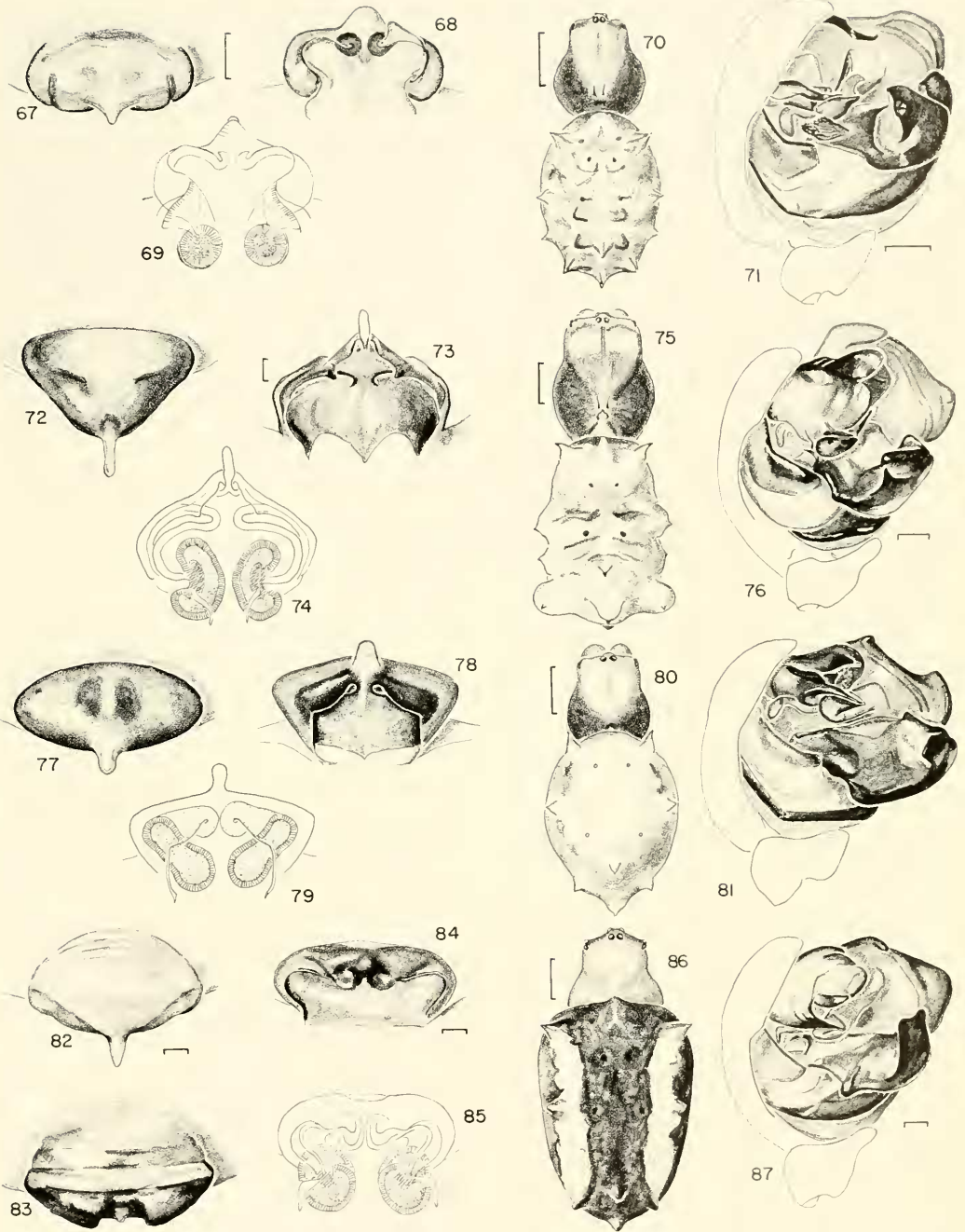
Wagneriana taboga new species
Figures 67–71; Map 3

Holotype. Female holotype from Summit, Panamá Prov., Panamá, July 1950 (A. M. Chickering), in MCZ. The specific name is a noun in apposition after a locality where the species is abundant.

Description. Female from Taboga Island. Carapace orange to brownish black. Legs orange with black patches. Venter of abdomen with a black square between epigynum and spinnerets. Carapace with two macrosetae (Fig. 70). Posterior median eyes 0.8 diameter of anterior medians, laterals 0.6 diameter. Anterior median eyes their diameter apart. Posterior median eyes 1.2 diameters apart. Abdomen with 11 tubercles (Fig. 70). Total length 4.8 mm. Carapace 2.1 mm long, 1.5 mm wide. First femur 1.8 mm; patella and tibia 2.1 mm;

Figures 67–71 *Wagneriana taboga* n. sp. 67–70. Female. 67. Epigynum, ventral. 68. Epigynum, posterior. 69. Epigynum, cleared. 70. Dorsal. 71. Male left palpus.

Figures 72–76 *W. taim* n. sp. 72–75. Female. 72. Epigynum, ventral. 73. Epigynum, posterior. 74. Epigynum, cleared. 75. Dorsal. 76. Male palpus.



Figures 77-81. *W. janeiro* n. sp. 77-80. Female. 77. Epigynum, ventral. 78. Epigynum, posterior. 79. Epigynum, cleared. 80. Dorsal. 81. Male palpus.

Figures 82-87. *W. cobella* n. sp. 82-86. Female. 82, 83. Epigynum, ventral. 83. Scape torn off. 84. Epigynum, posterior. 85. Epigynum, cleared. 86. Dorsal. 87. Male palpus.

Scale lines. 1.0 mm, genitalia, 0.1 mm.

metatarsus 1.3 mm; tarsus 0.5 mm. Second patella and tibia 1.8 mm; third, 1.1 mm; fourth, 1.8 mm.

Male from Taboga Island. Color as in female. Posterior median eyes 0.6 diameter of anterior medians, laterals 0.5 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. Fourth trochanter with one short macroseta. Abdomen tubercles less distinct than those of female. Total length 3.9 mm. Carapace 2.1 mm long, 1.5 mm wide. First femur 2.1 mm; patella and tibia 2.3 mm; metatarsus 1.2 mm; tarsus 0.5 mm. Second patella and tibia 1.7 mm; third, 1.1 mm; fourth, 1.7 mm.

Illustration. The illustrations were made from specimens from Taboga Island.

Variation. The tip of the epigynum may be transparent (Fig. 67) or dark brown and sclerotized. Total length of females 4.7 to 6.5 mm, of males 3.6 to 4.2.

Diagnosis. The epigynum is relatively flat unlike that of other species (Fig. 67) and the posterior median plate has two lobes (Fig. 68). The male palpus differs from that of similar species by having a black sclerotized prong, part of the terminal apophysis, protruding from the distal edge of the tegulum (Fig. 71).

Natural History. Specimens have been collected in woods at night in Panama and from vegetation in the Depto. Magdalena, Colombia.

Distribution. Panama, western Venezuela, and Colombia (Map 3).

Paratypes. PANAMA *Colón*: Portobelo, Aug. 1939, 2♀, ♂ (A. M. Chickering, MCZ); Fuerte Davis, July 1936, ♂ (A. M. Chickering, MCZ); Fort Sherman, 3 July, ♀ (N. Banks, MCZ). PANAMÁ: Forest Reserve, Aug. 1936, 2♂, 24 Dec. 1957, ♀ (A. M. Chickering, MCZ); Experimental Gardens, July, Aug. 1954, 2♀, 2♂ (A. M. Chickering, MCZ); Balboa, 17 Aug. 1936, ♀ (A. M. Chickering, MCZ); nr. Balboa, 28 Aug. 1946, ♀ (N. L. H. Krauss, AMNH); Fort Kobbe, 3 Aug. 1983, 4♀, ♂ (H. W. Levi, H. Stockwell, MCZ); Cocoli, Mar.–May 1954, ♀ (W. E. Lundy, AMNH); Taboga Isl., 29

June, ♂ (N. Banks, MCZ), Dec. 1953, ♀, 22 Aug. 1946, 2♀, ♂ (N. L. H. Krauss, AMNH); Barro Colorado Isl. June, July 1934, ♀, ♂ (A. M. Chickering, MIUP); Madden Dam, July 1950, ♀, ♂, 27 July 1954, ♂ (A. M. Chickering, MCZ, MIUP); Reserva Forestal, Madden, 15, 16 May 1977, 2♀, ♂ (D. Quintero, MIUP); Cerro Galera, July 1981, ♂, July 1985, 2♀, ♂ (W. Eberhard, MCZ); Pipeline Road, ♀ (FSCA). *Chiriquí*: David, 26 Nov. 1975, ♀ (D. Quintero, MIUP). VENEZUELA *Carabobo*: San Esteban, 21 Jan. 1940, ♀ (P. Andruze, CUC), 26 Jan. 1940, ♀ (P. Andruze, AMNH). COLOMBIA *Magdalena*: Bahía de Guairaca, Tayrona Park, 20 km E Santa Marta, 29 May 1985, ♂ (H.-G. Müller, SMF). *Bolívar*: Cartagena, 16 Feb. 1974, ♂ (A. B. Schneble, MCZ). *Cundinamarca*: Villetta, 800 m, 18 Sept. 1973, ♂ (A. B. Schneble, MCZ).

Wagneriana taim new species Figures 72–76; Map 3

Holotype. Female holotype from Novo Hamburgo, Rio Grande do Sul State, Brazil, 4 Nov. 1985 (A. A. Lise), in MCN no. 14352. The specific name is a noun in apposition after the locality of the male paratype.

Description. Female holotype. Cephalic region yellowish, with a transverse dark line behind eyes, line curved on each side (Fig. 75), thoracic region brown. Legs yellowish with brown rings. Venter brown with white spots under integument. Carapace with two macrosetae (Fig. 74). Posterior median eyes 0.7 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes slightly more than their diameter apart. Abdomen with 11 tubercles (Fig. 75). Total length 8.2 mm. Carapace 3.5 mm long, 2.5 mm wide. First femur 3.8 mm; patella and tibia 4.6 mm; metatarsus 2.3 mm; tarsus 0.9 mm. Second patella and tibia 3.8 mm; third, 2.2 mm; fourth, 3.4 mm.

Male from Taim, Rio Grande do Sul, Brazil. Cephalic region yellowish, sides of carapace black, both covered with sparse, short, white setae. Legs yellowish with brown to black rings. Venter of abdomen

spotted dusky. Posterior median eyes same diameter as anterior medians, anterior laterals same diameter, posterior laterals 0.8 diameter. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Fourth trochanter with one short macroseta. Abdomen with one small anterior pair of tubercles and four posterior pairs, and a median posterior tubercle. Total length 5.5 mm. Carapace 2.1 mm long, 1.7 mm wide. First femur 2.6 mm; patella and tibia 2.7 mm; metatarsus 1.4 mm; tarsus 0.7 mm. Second patella and tibia 2.0 mm; third, 1.3 mm; fourth, 1.8 mm.

Illustration. The female holotype is illustrated.

Note. It is uncertain that the male is conspecific.

Variation. Total length of females 9.2 to 12.0 mm. Some females lack carapace setae.

Diagnosis. The female is separated from others by the shape of the ventrally constricted posterior median plate in posterior view (top of Fig. 73); the male is separated by the presence of a long distal lobe of the tegulum, the drop-shaped embolus, and the shape of the median apophysis (Fig. 76).

Paratypes. BRAZIL *Bahia:* Itamaraju, Feb. 1985, ♀ (MNRJ). *Espírito Santo:* 12–27 Oct. 1962, ♀ (P. Pereira, MZSP 7678); Conceição da Barra, ♀ (Ruschi, MNRJ); S. Francisco Xavier, Serra Mantigueira, Dec. 1944, ♀ (E. Denta, MZSP 7600). *Minas Gerais:* ♀ (NHMW); Rio Matipó, Aug. 3, ♀ (MZSP 5777). *Rio de Janeiro:* Teresópolis, 27 Sept. 1944, ♀ (P. Wygodzinsky, MZSP 9618); Itatiaia, 20 Feb. 1943, ♀ (P. Wygodzinsky, MZSP 5735). *São Paulo:* Boraceia, 12 Jan. 1961, ♀ (P. Biasi, MZSP 7725); Engenheiro Marcilac St. Amaro, 16–17 Dec. 1966, ♀ (P. Biasi, MZSP 5400); Caraguatatuba, May 1962, ♀ (MZSP 7944); Ilha de São Sebastião, 15–21 Jan. 1948, ♀; 24 Aug. 1967, ♀ (H. Urban, MZSP 7169, 7419). *Rio Grande do Sul:* Taim, 2 Sept. 1986, ♂ (C. J. Beener, MCN 15657); Irai, 20 Nov. 1975, ♀ (A. Lise, MCN 3132).

Wagneriana janeiro new species Figures 77–81; Map 3

Holotype. Female holotype from Rio de Janeiro, Brazil, 26 May 1979 (C. J. Becker), in MCN no. 8582. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Cephalic region orange with some white setae, sides of thoracic region brown to black. Legs yellowish with brown rings. Venter of abdomen black between epigynum and spinnerets with a white line on each side of dark patch. Carapace without macrosetae. (Anterior median eyes absent from holotype only.) Lateral eyes 0.6 diameter of posterior median eyes. Posterior median eyes 1.2 diameters apart. Laterals separated by slightly less than their diameter. Abdomen with only eight tubercles (Fig. 80). Total length 5.8 mm. Carapace 2.3 mm long, 1.7 mm wide. First femur 2.2 mm; patella and tibia 2.7 mm; metatarsus 1.3 mm; tarsus 0.7 mm. Second patella and tibia 2.3 mm; third, 1.3 mm; fourth, 2.0 mm.

Male from Botucatu. Color as in female, but with a transverse dark patch on cephalic region. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.6 diameter. Anterior median eyes 0.6 diameter apart. Posterior median eyes their diameter apart. Fourth trochanter with one short macroseta. Abdomen with about 11 tubercles. Total length 5.2 mm. Carapace 2.5 mm long, 2.0 wide. First femur 2.5 mm; patella and tibia 3.0 mm; metatarsus 1.7 mm; tarsus 0.7 mm. Second patella and tibia 2.3 mm; third, 1.3 mm; fourth, 2.1 mm.

Note. The male and the females were matched because they were collected at the same site. The female holotype has only six eyes, an abnormality. The lateral edge of the median apophysis differs slightly in the two males.

Illustration. The female holotype and the male from Botucatu were illustrated.

Variation. Total length of females 6.0 to 6.3 mm.

Diagnosis. The epigynum in ventral view is oval and set-off all around (Fig. 77), unlike that of other species, which lack an anterior lip. The oval area contains two dark patches (Fig. 77). In posterior view of the epigynum, the lateral plates appear ventrally swollen (Fig. 78). The male differs from others by the shape of the median apophysis in the palpus (Fig. 81).

Paratypes. BRAZIL *Rio de Janeiro:* Itabapoana, ♀ (M. Rosa, MNRJ); Goitacases, Campos, ♀ (M. Rosa, MNRJ). *São Paulo:* Botucatu, Parque Municipal, 5 Nov. 1986, 2♂, 16 Dec. 1986, 2♀ (I. M. P. Rinaldi, L. C. Forte, IMPR, MCZ).

Wagneriana cobella new species
Figures 82–87; Map 3

Holotype. Female holotype from Cuchillo Cebolleta, San Pedro, 1,920 m, Sierra Nevada de Santa Marta, Depto. Magdalena, Colombia, in lower montane forest, 10 May 1975 (J. A. Kochalka), in MCZ. The specific name is an arbitrary combination of letters.

Description. Female holotype. Carapace yellow-orange. Legs dusky orange, indistinctly ringed. Venter of abdomen black with a pair of light lines. Carapace without macrosetae. Eyes subequal. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen with eight tubercles (Fig. 86). Total length 6.2 mm. Carapace 2.8 mm long, 2.0 mm wide. First femur 2.5 mm; patella and tibia 3.1 mm; metatarsus 1.8 mm; tarsus 0.8 mm. Second patella and tibia 2.7 mm; third, 1.6 mm; fourth, 2.5 mm.

Male paratype. Posterior median eyes same diameter as anterior medians, anterior laterals 0.8 diameter of anterior medians, posterior 0.7 diameter. Anterior median eyes slightly more than their diameter apart. Posterior median eyes their diameter apart. Fourth trochanter with one short, relatively slender macroseta. Total length 5.5 mm. Carapace 2.7 mm long, 2.2

mm wide. First femur 2.9 mm; patella and tibia 3.1 mm; metatarsus 1.7 mm; tarsus 0.7 mm. Second patella and tibia 2.5 mm; third, 1.5 mm; fourth, 2.1 mm.

Variation. Total length of females 6.2 to 7.4 mm. The specimen from Venezuela has the tip of the epigynum torn off (Fig. 83). The white coloration of the female holotype and of the male paratype was damaged because of the presence of formaldehyde in the alcohol. The Venezuelan paratype has white pigment where the holotype is light on the abdomen.

Diagnosis. The median plate of the epigynum in posterior view is short and wide (Fig. 84) unlike the epigynum of any other species. The male has a characteristically shaped median apophysis distally bent on itself, and a cone-shaped, pointed embolus (Fig. 87).

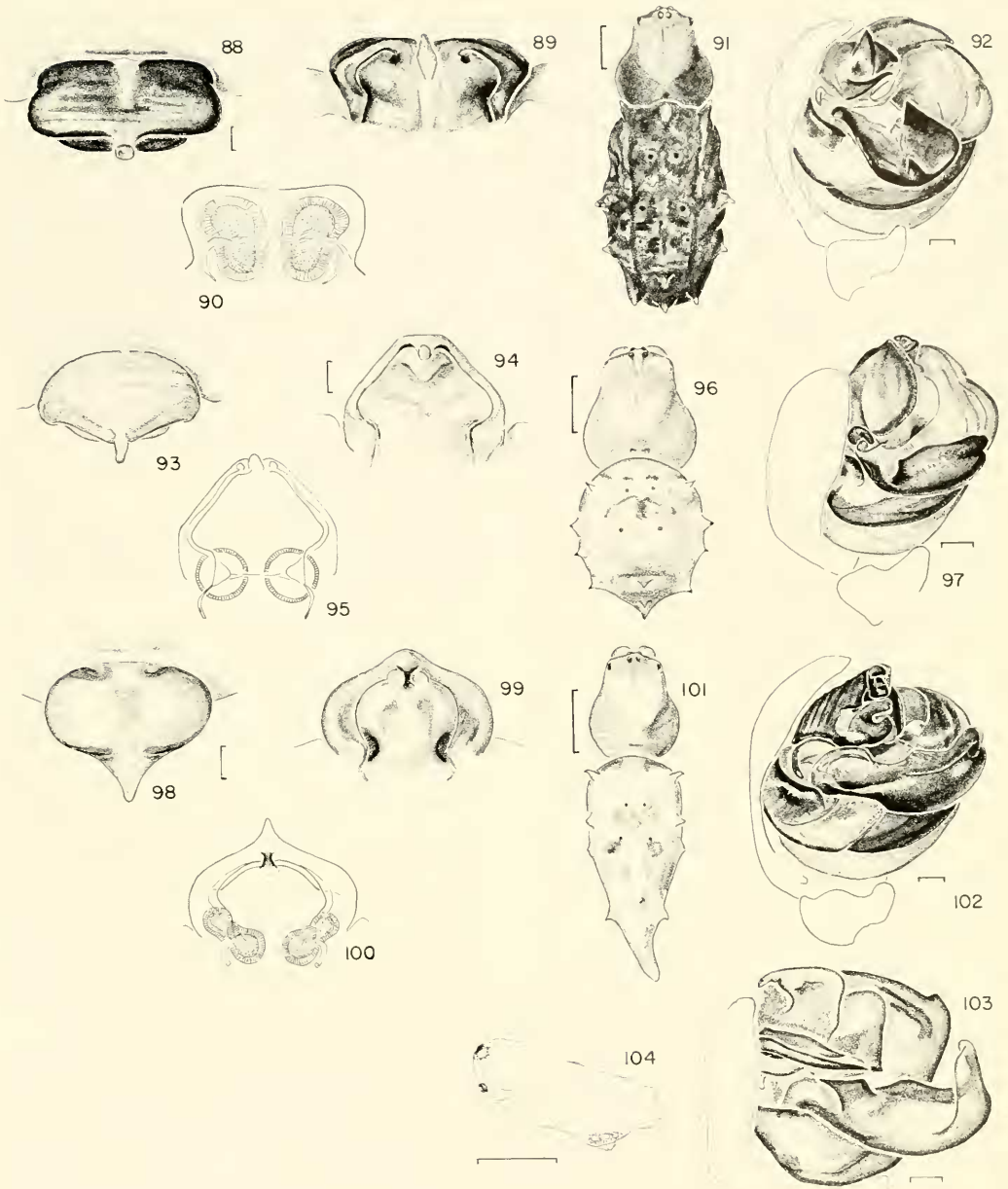
Natural History. Specimens have been collected at high elevations, 1,560–2,200 m, in cloud forest in Venezuela and in low vegetation in Colombia.

Paratypes. VENEZUELA *Mérida:* La Carboneira, NW Mérida, on road from Mérida to La Azulita, 2,200 m, 11 Jan. 1985, ♀ (J. Palmer, MCZ). COLOMBIA *Magdalena:* San Javier, San Pedro, 1,560 m, 29 Mar. 1975, ♂ (J. Kochalka, MCZ).

Wagneriana lechuza new species
Figures 88–92; Map 3

Holotype. Female holotype from Cueva de La Lechuza, Tingo María, Huánuco, Peru, 31 May 1967 (A. F. Archer, S. Risco), in AMNH. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace orange to dark brown. Legs orange with irregular black rings. Venter black with an orange longitudinal band on each side. Carapace without macrosetae (Fig. 91). Posterior median eyes 0.8 diameter of anterior medians, anterior laterals 0.8 diameter, posterior laterals 0.6 diameter. Anterior median eyes 0.8 diameter apart.



Figures 93–97. *W. atuna* n. sp. 93–96. Female. 93. Epigynum, ventral. 94. Epigynum, posterior. 95. Epigynum, cleared. 96. Dorsal. 97. Male palpus.

Figures 98–101. *W. juquia* n. sp., female. 98. Epigynum, ventral. 99. Epigynum, posterior. 100. Epigynum, cleared. 101. Dorsal. Figure 102. *W. carimagua* n. sp., male palpus.

Figures 103–104. *W. uropygialis* (Mello-Leitão), male. 103. Palpus. 104. Abdomen, lateral.

Scale lines. 1.0 mm, genitalia, 0.1 mm.

Posterior median eyes 0.8 diameter apart. First femur with a distal, mesal field of four macrosetae. Abdomen with four tubercles on each side and two median posteriorly (Fig. 91). Total length 7.2 mm. Carapace 3.1 mm long, 2.5 mm wide. First femur 3.0 mm; patella and tibia 3.5 mm; metatarsus 2.0 mm; tarsus 0.9 mm. Second patella and tibia 3.1 mm; third, 1.9 mm; fourth, 2.9 mm.

Male from Tambopata Reserve. Color as in female. Carapace with many white setae. Posterior median eyes 0.6 diameter of anterior medians, laterals 0.5 diameter. Anterior median eyes 0.5 diameter apart. Posterior median eyes their diameter apart. Fourth trochanter without macroseta. Fourth femur with seven short macrosetae on tubercles. Abdomen as in female. Total length 7.5 mm. Carapace 3.4 mm long, 2.5 mm wide. First femur 3.4 mm; patella and tibia 4.0 mm; metatarsus 2.2 mm; tarsus 0.9 mm. Second patella and tibia 3.0 mm; third, 2.0 mm; fourth, 2.9 mm.

Illustrations. The illustrations were made from the female holotype and a male from the Tambopata Reserve, Peru.

Note. Male and female were matched by one collection with both sexes.

Variation. Total length of females 6.4 to 9.0 mm, of males 5.9 to 8.5. The largest specimen is the one collected in Espírito Santo, Brazil.

Diagnosis. The epigynum of this species differs by being almost rectangular in ventral view with the posterior margin forming a transverse straight line (Fig. 88) and in posterior view having the median plate constricted in the middle (Fig. 89). The male palpus has a tegulum bearing a projection on the distal edge of the palpus, a squarish median apophysis and a short gently curved embolus (Fig. 92).

Paratypes. PERU *Amazonas:* Alto Río Comaina, Puesto de Vigilancia, 850–1,150 m, 04°27'S, 78°03'W, left bank of Río Marañón 21 Oct.–3 Nov. 1987, 3♀ (D. Silva D., MHNSM). *Huánuco:* Cucharas, Hullaga Valley, Feb.–Apr. 1954, 5♀, ♂ (F. Woytkowski, CAS). *Madre de Dios:* Zona Re-

servada Tambopata, 23 July 1987, ♀; 30 July 1987, ♂; 23–26 May 1988, ♀; 7 June 1988, 2♀ (D. Silva D., MHNSM); 6 Oct. 1987, ♀ (J. Coddington, D. Silva D., MHNSM); Zona Reservada de Manu, 5 km upstream Pakitza, 11°58'S, 71°18'W, 4 Oct. 1987, ♂ (J. Coddington, D. Silva D., USNM). BRAZIL *Acre:* Rio Purus, NW Sena Madureira Seringal, Santo Antônio, above Manuel Urbano, 15–18 Sept. 1973, ♀ (B. Patterson, MCZ). *Espírito Santo:* Parque Nacional de Sooretama, Linhares, 19°00'S, 40°05'W, 12–27 Oct. 1962, ♀ (P. Pereira, MZSP 7677).

Wagneriana atuna new species Figures 93–97; Map 3

Holotype. Female holotype from Cali, 1,000 m, Depto. Valle, Colombia, 1 Apr. 1964 (P. B. Schneble), in MCZ. The specific name is an arbitrary combination of letters.

Description. Female holotype. Carapace dusky orange-yellow. Legs dusky orange with indistinct narrow black rings. Venter of abdomen with a white square between epigynum and spinnerets. Carapace without macrosetae. Eyes small and subequal. Anterior median eyes 2 diameters apart. Posterior median eyes 2.7 diameters apart. Abdomen soft, with 11 tubercles (Fig. 96). Total length 4.5 mm. Carapace 2.1 mm long, 1.9 mm wide. First femur 2.2 mm; patella and tibia 2.5 mm; metatarsus 1.1 mm; tarsus 0.5 mm. Second patella and tibia 2.2 mm; third, 1.2 mm; fourth, 1.8 mm.

Male from Cali. Color as in female but cephalic region light, sides of thoracic region dark. Posterior median eyes 0.6 diameter of anterior medians, laterals 0.5 diameter. Anterior median eyes slightly less than their diameter apart. Posterior median eyes 1.3 diameters apart. Fourth trochanter with one short macroseta. Total length 5.2 mm. Carapace 2.1 mm long, 1.6 mm wide. First femur 2.1 mm; patella and tibia 2.3 mm; metatarsus 1.2 mm; tarsus 0.5 mm. Second patella and tibia 1.9 mm; third, 1.2 mm; fourth, 1.7 mm.

Illustrations. The illustrations were made from the female holotype and a male from Cali, Colombia.

Note. The match of males to females is not certain. The male from Cali has relatively larger eyes than the female.

Variation. Total length of females 4.5 to 6.0 mm, of males 4.5 to 5.2. A female from Costa Rica has a long tail and was 9.3 mm total length. The female from Belém, Brazil, has the posterior median plate of the epigynum concave and more sclerotized than that of other specimens.

Diagnosis. In posterior view of the epigynum, the median plate has a transverse groove (Fig. 94). The male has one macroseta on the fourth trochanter and the palp has the wide cymbium covering most of the radix with the embolus just outside its edge (Fig. 97). The terminal apophysis is rounded on one side and the median apophysis is oval and without large lobes (Fig. 97).

Natural History. The male from Guyana came from a forest savanna.

Distribution. From Costa Rica to Paraguay (Map 3).

Paratypes. COSTA RICA *Heredia:* La Selva, 16 Sept. 1981, ♀ (Coville, MCZ). GUYANA *Canje, Ikurua Rivers,* Aug.–Dec. 1961, 2♂ (G. Bentley, AMNH); *Kartabo,* 1920, ♀ (CUC), 1924, ♀ (AMNH). COLOMBIA *Valle:* Atuncela, 800 m, 15 Dec. 1969, ♀ (W. Eberhard 162, MCZ); Cali, 1,000 m, 1976, ♂ (W. Eberhard, MCZ); nr. Cali, 1,000 m, ♀ (W. Eberhard 574, MCZ). PERU *Junín:* Uteuyacu, 1,600–2,200 m, 4 Apr. 1948, ♂ (F. Woytkowski, AMNH). BRAZIL *Pará:* Utinga, Belém, 10–21 Nov. 1963, ♀, doubtful det. (Oliveira, P. Wygodzinsky, AMNH). *Rio de Janeiro:* Rio de Janeiro, ♀ (MNRJ). *Mato Grosso:* 260 km N Xavantina, 12°49'S, 51°46'W, Feb.–Apr. 1969, ♂ (Xavantino-Cochimbo Exped., MCZ). *Rio Grande do Sul:* Parque Zool. Gico, Sapucaia do Sul, 20 Jan. 1986, ♀ (A. Tavares, MCN 14339). PARAGUAY *Amambay:* Parque Nacional Cerro Corá, 28 May–9 June 1982, ♀ (J. A. Kochalka, IBNP).

Wagneriana juquia new species

Figures 98–101; Map 3

Holotype. Female holotype from Fazenda Poço Grande, Juquiá, São Paulo State, Brazil, 21–26 July 1949 (F. Lane), in MZSP no. 7360. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace orange, sides of thoracic region darker. Legs light orange. Venter of abdomen between epigynum and spinnerets underlain by white pigment, dusky behind epigynum. Carapace without macrosetae. Posterior median eyes 1.2 diameters of anterior medians, anterior laterals 0.8 diameter, posterior laterals 1 diameter. Anterior median eyes 1.4 diameters apart. Posterior median eyes 1.2 diameters apart. Abdomen with 11 tubercles (Fig. 101). Total length 5.5 mm. Carapace 2.0 mm long, 1.5 mm wide. First femur 2.0 mm; patella and tibia 2.3 mm; metatarsus 1.2 mm; tarsus 0.5 mm. Second patella and tibia 1.9 mm; third, 1.0 mm; fourth, 1.7 mm.

Illustration. The female holotype was illustrated.

Note. *Wagneriana juquia* may belong with the male of *W. uropygialis*.

Variation. Total length of females 5.0 to 7.0 mm. The holotype is the only specimen with a long tail (Fig. 101).

Diagnosis. Unlike other species *W. juquia* has a dark, sclerotized septum ventrally on the posterior face, below the tip of the epigynum (top of Fig. 99).

Paratypes. BRAZIL *São Paulo:* Fazenda Poço Grande, Juquiá, 21–26 July 1949, 3♀ (F. Lane, MZSP 7326,7330); Barueri, 16 Jan. 1966, ♀ (K. Lenko, MZSP 5582); São José Barreiro, S Bocaina, 1,960 m, Nov. 1968, ♀ (M. Alvarenga, AMNH). PARAGUAY *Concepción:* Territ. Fonciere, 1908, ♀ (E. Reimoser, NHMW). ARGENTINA *Río Negro:* El Bolsón area, 1965–1966, ♀ (A. Kovacs, AMNH).

Wagneriana carimagua new species

Figure 102; Map 3

Holotype. Male holotype from Carimagua, 100 m, Dpto. Meta, Colombia, Oct. 1973, grass and brush

along fence (W. Eberhard), in MCZ. The specific name is a noun in apposition after the type locality.

Description. Male holotype. Carapace light orange, sides of thoracic region dusky anteriorly. Sternum dusky with three pairs of clear spots. Coxae yellowish; legs yellowish with dusky spots and rings. Abdomen dusky. Posterior median eyes 0.6 diameter of anterior medians, laterals 0.5 diameter. Anterior median eyes 1.5 diameters apart. Posterior median eyes slightly less than their diameter apart. Fourth trochanter with two short macrosetae. Abdomen with a pair of anterior tubercles, and posteriorly two median tubercles in a line. Total length 5.8 mm. Carapace 2.9 mm long, 2.3 mm wide. First femur 3.2 mm; patella and tibia 3.8 mm; metatarsus 2.3 mm; tarsus 1.0 mm. Second patella and tibia 3.0 mm; third, 1.8 mm; fourth, 2.9 mm.

Note. This might be the male of *W. jacaza*.

Diagnosis. The two elongate lobes of the median apophysis (Fig. 102) differ from that of all other species.

***Wagneriana uropygialis* (Mello-Leitão), new combination**

Figures 103, 104; Map 3

Paraverrucosa uropygialis Mello-Leitão, 1944: 334. Male holotype from Tigre, Buenos Aires Prov., Argentina, in MLP, examined. Brignoli, 1983: 278.

Description. Male holotype. Carapace, sternum, legs yellow-white. Dorsum of abdomen blackish with median dorsal area lighter, a pair of white spots on anterior margin separated by black (Fig. 104); venter black with some white pigment spots

near spinnerets (Fig. 104). Eyes subequal. Anterior median eyes 1.2 diameters apart. Posterior median eyes slightly more than a diameter apart. Abdomen elongate (shrivelled) with a posterior line of three tubercles (Fig. 104). Total length 4.2 mm. Carapace 2.1 mm long, 1.4 mm wide. First femur 1.7 mm; patella and tibia 2.2 mm; metatarsus 1.1 mm; tarsus 0.7 mm. Second patella and tibia 1.7 mm; third, 1.2 mm; fourth, 1.7 mm.

Note. The shape of the paramedian apophysis, an L on its side (Fig. 103), suggests that this species is a *Wagneriana*. The female *W. juguia* may be conspecific.

Diagnosis. This male differs from others by the relatively long median apophysis (Fig. 103).

***Wagneriana heteracantha* (Mello-Leitão), new combination**

Figures 105–109; Map 4

Actinosoma heteracantha Mello-Leitão, 1943: 174, fig. 15, ♀. Female holotype from Rio Grande do Sul, Brazil, in MNRJ, lost. Brignoli, 1983: 255.

[?] *Marxia labidura* Mello-Leitão, 1943: 184, fig. 22, ♂. Male holotype from Rio Grande do Sul, in MNRJ, lost. DOUBTFUL NEW SYNONYMY.

Note. The type of *Marxia labidura* is lost. Its size suggests that it may have been this species or perhaps *W. palaestrus*.

Description. Female from Canela, Rio Grande do Sul. Cephalic region orange with a dark transverse band behind eyes and two dark patches, sides of thoracic region brown-black. Legs yellowish with brown to black rings. Venter of abdomen with a black square having a white line on each side enclosing three pairs of white spots. Carapace without macrosetae. Pos-

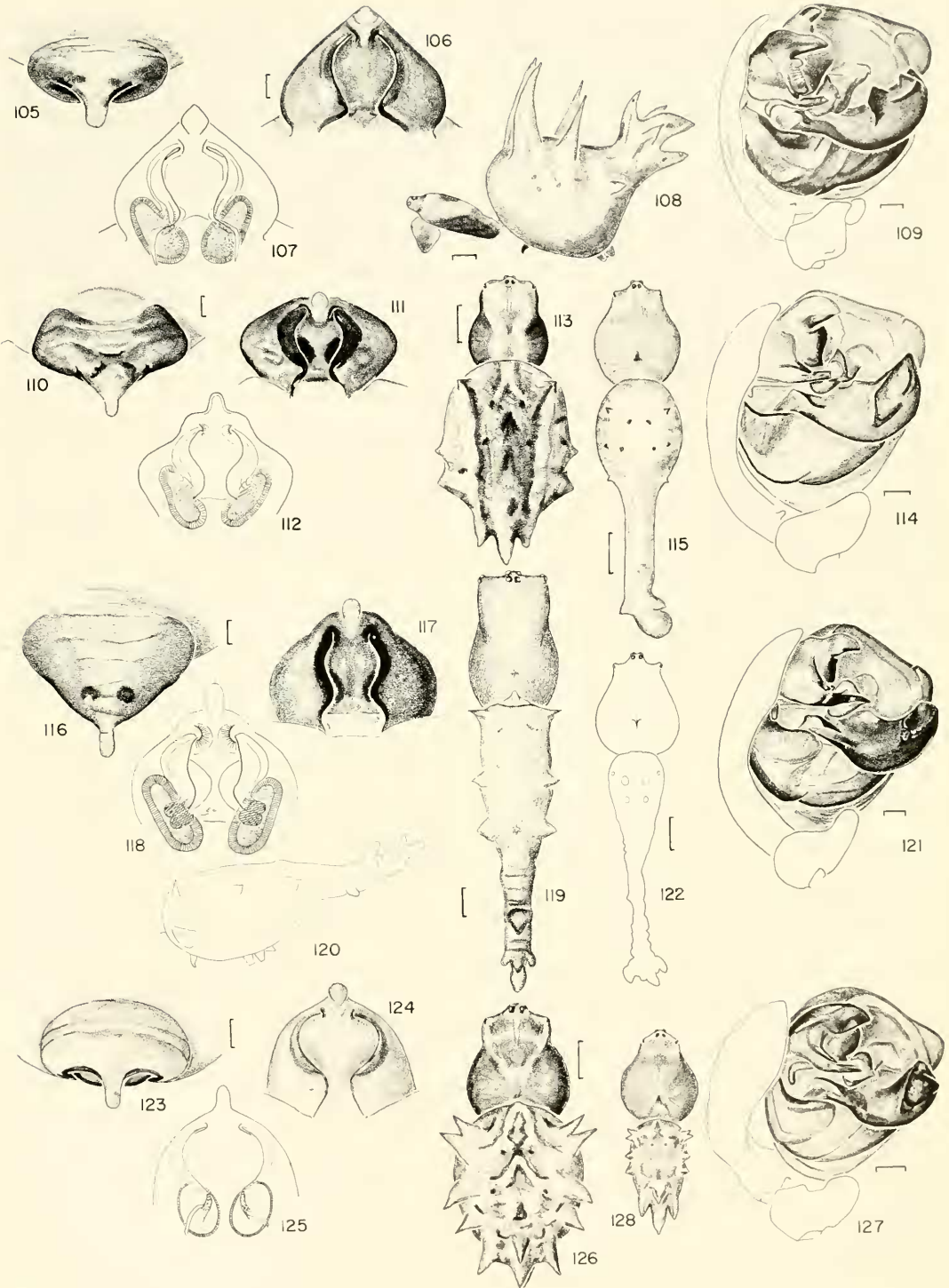
Figures 105–109. *Wagneriana heteracantha* (Mello-Leitão). 105–108. Female. 105. Epigynum, ventral. 106. Epigynum, posterior. 107. Epigynum, cleared. 108. Lateral. 109. Male left palpus.

Figures 110–115. *W. eupalaestrus* (Mello-Leitão). 110–113. Female. 110. Epigynum, ventral. 111. Epigynum, posterior. 112. Epigynum, cleared. 113. Dorsal. 114, 115. Male. 114. Palpus. 115. Dorsal.

Figures 116–122. *W. neglecta* (Mello-Leitão). 116–120. Female. 116. Epigynum, ventral. 117. Epigynum, posterior. 118. Epigynum, cleared. 119. Dorsal. 120. Abdomen, lateral. 121, 122. Male. 121. Palpus. 122. Dorsal.

Figures 123–128. *W. uzaga* n. sp. 123–126. Female. 123. Epigynum, ventral. 124. Epigynum, posterior. 125. Epigynum, cleared. 126. Dorsal. 127, 128. Male. 127. Palpus. 128. Dorsal.

Scale lines. 1.0 mm, genitalia 0.1 mm.



terior median eyes 1.2 diameters of anterior medians, anterior laterals 1.1 diameters, posterior laterals 1 diameter. Anterior median eyes 1.1 diameters apart. Posterior median eyes 1.5 diameters apart. Abdomen with 11 drawn out tubercles (Fig. 108). Total length 12.0 mm. Carapace 4.1 mm long; 3.1 mm wide. First femur 3.8 mm; patella and tibia 4.4 mm; metatarsus 2.3 mm; tarsus 1.1 mm. Second patella and tibia 3.8 mm; third, 2.3 mm; fourth, 3.4 mm.

Male from Carmo do Rio Claro, Minas Gerais. Color as in female. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes their diameter apart. Posterior median eyes slightly more than their diameter apart. Fourth trochanter with two short macrosetae. Abdomen with a tail. Total length 9.0 mm. Carapace 3.4 mm long, 2.5 mm wide. First femur 3.2 mm; patella and tibia 3.5 mm; metatarsus 2.1 mm; tarsus 0.9 mm. Second patella and tibia 2.9 mm; third, 1.8 mm; fourth, 2.7 mm.

Illustrations. The female from Canela and the male from Carmo do Rio Claro were illustrated.

Note. Males and females have been collected together.

Variation. Total length of females 11 to 13.7 mm, of males 5.6 to 9.7. Males have one tubercle on the fourth trochanter; some males have one tubercle on one side, two on the other.

Diagnosis. The female can be separated from others by the long abdominal tubercles (Fig. 108), and the shape of the epigynum. The posterior median plate of the epigynum is as wide as the lateral plates in posterior view (Fig. 106), while in both *W. neglecta* (Fig. 117) and *W. eupalaestris* (Fig. 111) the median plate is narrower. The male palpus has a distal lobe on the tegulum (top of Fig. 109) and the median apophysis has a median vertically placed keel, neither structure being present in the two related species.

Distribution. From Minas Gerais State

of Brazil to Río Negro Prov. of Argentina (Map 4).

Records. BRAZIL *Minas Gerais*: ♀, ♂ (NHMW); Carmo do Rio Claro, ♀, ♂ (J. C. Carvalho, MNRJ). *São Paulo*: São José Barreiro, S Bocaina, 1,960 m, Nov. 1968, ♂ (A. Alvarenga, MCZ). *Paraná*: Río Negro, 2♂ (MNRJ); Curitiba, 10 Nov. 1938, 2♀ (F. S. Pereira, MZSP 3088, 132); Cavinna[?] 1947, ♀ (A. Maller, AMNH). *Santa Catarina*: Pinhal, Dec. 1947, ♂ (A. Maller, AMNH). *Rio Grande do Sul*: Taquara, 18 Jan. 1983, ♀ (T. Lema, MCN 11444); Canela, 7 Oct. 1967, ♀ (R. Teixeira, MCN 0643). ARGENTINA *Misiones*: Parque Nacional Iguazu, Oct. 1977, ♀ (M. E. Galiano, MEG); Eldorado, 1 Sept.–15 Nov., ♂ (A. Kovacs, AMNH). *Río Negro*: El Bolsón area, 1965–1966, ♀, 2♂ (A. Kovacs, AMNH).

Wagneriana eupalaestris (Mello-Leitão), new combination

Figures 110–115; Map 4

Edricus eupalaestris Mello-Leitão, 1943: 177, fig. 17, ♂. Male holotype from Rio Grande do Sul, Brazil, in MNRJ, examined.

Paraverrucosa eupalaestris.—Mello-Leitão, 1947a: 13. Brignoli, 1983: 278.

Description. Female from Campos de Jordão, São Paulo. Carapace orange, darker in midline, sides of thoracic region black. Sternum black. Coxae yellowish; legs yellowish with indistinct dark rings. Venter of abdomen with a black longitudinal band. Carapace without macrosetae. Posterior median eyes same diameter as anterior medians, laterals 0.8 diameter of anterior medians. Anterior median eyes 1.5 diameters apart. Posterior median eyes 1.5 diameters apart. Lateral eyes separated by almost their diameter. Abdomen with 10 tubercles, the one above spinnerets missing (Fig. 113). Total length 7.3 mm. Carapace 2.9 mm long, 2.1 mm wide. First femur 2.5 mm; patella and tibia 2.9 mm; metatarsus 1.5 mm; tarsus 0.8 mm. Second patella and tibia 2.4 mm; third, 1.5 mm; fourth, 2.3 mm.

Male holotype. Color as in female. Pos-

terior median eyes same diameter as anterior medians, lateral eyes 0.9 diameter of anterior medians. Anterior median eyes 1.1 diameters apart. Posterior median eyes 1.1 diameters apart. Fourth trochanter with one short macroseta on one side, two on other. Abdomen with tail (Fig. 115). Total length 7.5 mm. Carapace 2.7 mm long, 2.1 mm wide. First femur 3.0 mm; patella and tibia 3.5 mm; metatarsus 2.0 mm; tarsus 0.8 mm. Second patella and tibia 2.7 mm; third, 1.7 mm; fourth, 2.4 mm.

Illustrations. The female from Campos do Jordão, São Paulo State, the male from Viamão, Rio Grande do Sul State, were illustrated.

Variation. Total length of females 7.3 to 11.2 mm, of males 5.3 to 9.2. A large male from Viamão is most like the holotype of *W. eupalaestris*, including the long abdomen. In some females the abdomen has a tail.

Diagnosis. This species is smaller than *W. neglecta*; there does not seem to be a size overlap. The female usually has a short abdomen and relatively short abdominal tubercles (Fig. 113). The female differs from that of *W. heteracantha* in having the median plate of the epigynum narrower in posterior view than the lateral plates (Fig. 111). The male differs from *W. neglecta* by having one or two macrosetae on the fourth coxa, from *W. heteracantha* by lacking the lobe at the distal edge of the tegulum and the median keel of the median apophysis (Fig. 114).

Distribution. From Minas Gerais State of Brazil to Misiones Prov. of Argentina (Map 4).

Records. BRAZIL *Minas Gerais*: 2♀ (NHMW). *São Paulo*: Boracéia, Salesópolis, 21–25 Oct. 1963 (Oliveira, P. Wygodzinsky, AMNH); Campos do Jordão, Mar. 1945, ♀ (P. Wygodzinsky, MZSP 4631); Dec. 1944, ♀ (F. Lane, MZSP 4645); 3 Jan. 1948, 3♀ (F. Lane, MZSP 7323); Cantareira, Capital, Nov. 1951, ♀ (Carrera, Andreotta, MZSP 8281). *Rio Grande do Sul*: São Francisco de Paula, ♀ (P. P. Buck,

MNRJ); Morro de Côco, Viamão, 25 July 1985, ♂ (A. A. Lise, MCN 13359). ARGENTINA *Misiones*: Eldorado, 1 Sept.–15 Nov. 1964, ♀ (A. Kovacs, AMNH).

Wagneriana neglecta (Mello-Leitão), new combination

Figures 116–122; Map 4

Paraverrucosa neglecta Mello-Leitão, 1939a: 65, figs. 38–40, ♂. Male holotype from Paraguay, in NMB, examined. Roewer, 1942: 870. Bonnet, 1958: 3339. *Verrucosa longicauda* Mello-Leitão, 1947b: 251. Immature male and immature female syntypes from Barigui, Municip. Curitiba, Paraná State, Brasil, in MHNC, examined. Brignoli, 1983: 280. NEW SYNONYMY.

Wagneriana tuberculicauda di Caporiacco, 1947: 25; 1948: 657, figs. 64, 65, ♀. Female holotype from near Demerera River, Guyana, in MZUF, examined. Brignoli, 1983: 281. NEW SYNONYMY.

Description. Female from Kartabo, Guyana. Carapace orange-brown darkest on sides of thoracic region; light between median eyes. Legs orange to brown, femora darkest. Venter black. Carapace without macrosetae. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes 0.9 diameter apart. Posterior median eyes 1.4 diameters apart. Abdomen with three pairs of lateral tubercles and 3 to 5 pairs of posterior ones (Fig. 119). Total length 15 mm. Carapace 5.4 mm long, 3.5 mm wide. First femur 4.1 mm; patella and tibia 5.3 mm; metatarsus 2.7 mm; tarsus 1.1 mm. Second patella and tibia 4.7 mm; third, 2.7 mm; fourth, 3.8 mm.

Male from Trinidad. Color as in female except for carapace brown, lighter in midline, and light between eyes. Posterior median eyes 0.7 diameter of anterior medians, anterior laterals 0.5 diameter, posterior laterals 0.4. Anterior median eyes 0.7 diameter apart. Posterior median eyes 1.3 diameters apart. Fourth trochanter without macroseta. Abdomen with tubercles at posterior end (Fig. 122). Total length 11.4 mm. Carapace 3.9 mm long, 2.8 mm wide. First femur 3.9 mm; patella and tibia 4.4 mm; metatarsus 2.0 mm; tarsus 0.7 mm.

Second patella and tibia 3.4 mm; third, 2.0 mm; fourth, 2.7 mm.

Illustrations. Illustrations of the female were made from the holotype of *W. tuberculicauda*, those of the male from a specimen from Trinidad.

Variation. Total length of females 12.3 to 16 mm, of males 9.5 to 10.7.

Diagnosis. *Wagneriana neglecta* is larger than *W. eupalaestris* and *W. heteracantha* and both sexes have a long tail (Figs. 119, 122); in the two related species only the male may have a long tail. As in the related two species, *W. neglecta* lacks a ventral tubercle at the tip of the tail. The posterior median plate of the epigynum is relatively narrow as in *W. eupalaestris* (Fig. 117). The male lacks macrosetae on the trochanter unlike *W. eupalaestris* and *W. heteracantha*. The truncate distal end of the median apophysis (Fig. 121) is smaller than that of *W. eupalaestris* (Fig. 114) and *W. uzaga* (Fig. 127).

Natural History. Males were collected by sweeping brush in Trinidad.

Distribution. Trinidad to Jujuy Prov. of Argentina (Map 4).

Records. LESSER ANTILLES *Trinidad*: Simla, 6.4 km N Arima, 10 May 1981, 2♂ (R. West, MCZ). GUYANA *Bartica Dist.*: Kartabo, 1924, ♀ (*W. Beebe*, AMNH). BRAZIL *Goias*: Fazenda Aceivo, Jataí, Oct. 1962, ♀ (MZSP 7863). *Paraná*: Rolândia, 1948, ♀, 2♂ (A. Maller, AMNH). *Rio Grande do Sul*: Garruchos, São Borja, 7 Dec. 1985, ♀ (A. A. Lise, MCN 3203); São Gabriel, Jan. 1924, ♀ (A. Roman, NRMS). PARAGUAY *Chaco*: Parque Nacional Defensores del Chaco, Cerro León, 19–27 Nov. 1984, ♀ (J. A. Kochalka, IBNP). BOLIVIA *Santa Cruz*: Buena Vista, Feb. 1951, ♂ (R. F. Prosea, MLP). ARGENTINA *Jujuy*: Yuto, El Pantanoso, Mar. 1967, ♀ (M. E. Galiano, MEG).

Wagneriana uzaga new species

Figures 123–128; Map 4

Holotype. Female holotype from Parque Nacional Iguazu, Misiones Prov., Argentina, Jan. 1966 (M. E. Galiano), in MACN no. 8791. The specific name is an arbitrary combination of letters.

Description. Female holotype. Carapace yellowish, cephalic region with two pairs of darker patches, sides of thoracic region dark dusky. Legs yellowish with dusky rings. Venter of abdomen black with a white line on each side. Carapace without macrosetae. Eyes small and subequal. Anterior median eyes 2.2 diameters apart. Posterior median eyes 2.5 diameters apart. Lateral eyes separated by their diameter. Abdomen with anterior lateral double tubercles (Fig. 126). Total length 6.5 mm. Carapace 3.2 mm long, 2.4 mm wide. First femur 2.5 mm; patella and tibia 2.9 mm; metatarsus 1.5 mm; tarsus 0.7 mm. Second patella and tibia 2.6 mm; third, 1.6 mm; fourth, 2.4 mm.

Male from Dpto. Chaco, Paraguay. Much darker than female with a light, longitudinal band on each side of abdomen. Posterior median eyes 0.8 diameter of anterior medians, anterior laterals 0.8 diameter, posterior laterals 0.7 diameter. Anterior median eyes their diameter apart. Posterior median eyes 1.5 diameters apart. Fourth trochanter with two short macrosetae, a thick one on a tubercle and a thin one not on a tubercle. Abdomen with anterior pair of double tubercles (Fig. 128). Total length 5.0 mm. Carapace 2.5 mm long, 1.8 mm wide. First femur 2.3 mm; patella and tibia 2.7 mm; metatarsus 1.3 mm; tarsus 0.7 mm. Second patella and tibia 2.2 mm; third, 1.1 mm; fourth, 1.7 mm.

Illustrations. Figures 123–125 were made from the holotype, Figure 126 from a female from Paraguay, the figures of the male from a specimen from Chaco, Paraguay.

Note. Female and males were matched because both have the anterior tubercle on the abdomen double and because of the similarity of their genitalia to those of *W. eupalaestris* and *W. heteracantha*.

Variation. Total length of females 6.0 to 7.1 mm, of males 5.0 to 5.7.

Diagnosis. This species differs from most similar species by having the anterior lateral tubercle of the abdomen double (Figs. 126, 128). It is most similar to *W. spicata*

found in Mexico but differs by being smaller and having weakly sclerotized, pear-shaped seminal receptacles (Fig. 125). The posterior view of the epigynum differs from that of *W. eupalaestris* (Fig. 111) by having a wider median plate (Fig. 124). The male differs from *W. eupalaestris* in the sculpturing of the blunt end of the median apophysis (Fig. 127).

Distribution. Mato Grosso do Sul State of Brazil to Paraguay and Misiones Prov. of Argentina (Map 4).

Paratypes. BRAZIL *Mato Grosso do Sul:* Três Lagoas, 21 Sept. 1964, ♂ (MZSP 3631). *Paraná:* Rolândia, 1948, ♀ (A. Maller, AMNH). PARAGUAY *Concepción:* nr. Concepción, 1956, ♂ (C. J. D. Brown, MCZ). *Chaco:* Parque Nacional Defensores del Chaco, Misión Cué, 24 Aug. 1983, ♂ (J. A. Kochalka, IBNP). *Central:* San Lorenzo, 8 Aug. 1986, ♀ (J. A. Kochalka, IBNP). ARGENTINA Pto. Aguirre [?], 27 Dec. 1933, ♀ (Hayward, MACN).

Wagneriana spicata (O. P.-Cambridge)

Figures 129–133; Map 4

Epeira spicata O. P.-Cambridge, 1889: 45, pl. 6, fig. 4, imm. Immature male holotype from Valley of the Motagua, Guatemala, in BMNH, examined.

Turckheimia armata O. P.-Cambridge, 1893: 114, pl. 14, fig. 11, ♀. Female holotype from Rincón, Guerrero [16 km S Chilpancingo], Mexico, 2,800 ft [850 m], in BMNH, examined. First synonymized by F. P.-Cambridge, 1904.

Wagneriana spicata:—F. P.-Cambridge, 1904: 499, pl. 47, figs. 19, 20, ♀, ♂. Roewer, 1942: 880. Bonnet, 1959: 4803.

Description. Female from Chiapas. Carapace orange to black-brown. Legs orange with black rings and black spots. Venter of abdomen black with paired and unpaired light spots. Carapace with two macrosetae (Fig. 132). Posterior median eyes 0.8 diameter of anterior medians, anterior laterals 0.8 diameter, posterior laterals 0.7 diameter. Anterior median eyes 0.6 diameter apart. Posterior median eyes their diameter apart. Abdomen with 13 tubercles, the anterior pair double (Fig. 132). Total length 11.4 mm. Carapace 4.6 mm long, 3.6 mm wide. First femur 4.2 mm; patella and tibia 5.4 mm; metatarsus

2.8 mm; tarsus 1.1 mm. Second patella and tibia 4.5 mm; third, 2.7 mm; fourth, 4.3 mm.

Male from Chiapas. Color as in female but darker. Posterior median eyes 0.7 diameter of anterior medians, anterior laterals 0.7 diameter, posterior laterals 0.6 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. Fourth trochanter with two short macrosetae. Abdomen as in female. Total length 8.7 mm. Carapace 4.5 mm long, 3.6 mm wide. First femur 4.6 mm; patella and tibia 5.7 mm; metatarsus 3.1 mm; tarsus 1.2 mm. Second patella and tibia 4.4 mm; third, 2.7 mm; fourth, 4.2 mm.

Natural History. Immature specimens 2.7 mm long have the macrosetae on the carapace and the bifid spine on the abdomen.

Variation. Total length of females 8.2 to 12.3 mm, of males 7.6 to 8.3. The illustrations were made from specimens from Chiapas, Mexico.

Diagnosis. The pair of double anterior tubercles (Fig. 132) separates females from other species in Mexico and Central America. In posterior view of the epigynum the narrow median plate is distinctive (Fig. 130). Males can be separated from most other species by having two macrosetae on the fourth trochanter, by the two lobes of the tegulum, one apical and one lateral, and by the shapes of median and terminal apophyses (Fig. 133).

Distribution. Mexico to Costa Rica (Map 4).

Records. MEXICO *Sonora:* Minas Nuevas, 8 Aug. 1952, ♀ (P., C. Vaurie, AMNH). *Nayarit:* 3.2 km N Sayulita, 19 Nov. 1976, ♀ (D. D. Wilder, CAS); 12 km E San Blas, 17 Oct. 1973, ♀ (S. C. Williams *et al.*, CAS); 24 to 32 km W Tepic, Sept. 1961, ♂ (A. Aschwanden, AMNH). *Jalisco:* Esta. Biol. Chamela, Sept. 1988, 4♀, 2♂, 10 imm. (W. Eberhard, MCZ); Puerto Vallarta, Aug., Sept. 1957, 2♂ (J. Comstock, AMNH). *Colima:* Armeria, 1 Aug. 1954, ♂ (W. J. Gertsch, AMNH); Velle Verde, 1 Aug. 1954, ♂ (W. J. Gertsch, AMNH). *Veracruz:*

Puente National, 3 Aug. 1956, ♀ (R. Dreisbach, MCZ). *Oaxaca*: 3 km SE Niltepec, 16 Aug. 1966, ♂ (J. W. Ivie, AMNH); San Gerónimo, 1909, ♀ (A. Petrunkevitch, AMNH). *Chiapas*: nr. Huehuetan, 31 July 1950, ♀, ♂ (C., M. Goodnight, AMNH); Puerto Madero, Puerto de San Benito, 2 Aug. 1950, 3♀, ♂, 2 imm. (C., M. Goodnight, AMNH); Tonalá, 1909, ♀ (A. Petrunkevitch, AMNH). COSTA RICA *San José*: Santa María Dota, 09°39'N, 83°57'W, 2♀ (Tristan, MCZ). *Guanacaste*: Finca Palo Verde, 14 July 1979, ♀ (J. Coddington, MCZ).

Wagneriana gavensis (Camargo), new combination

Figures 134–139; Map 4

Wixia gavensis Camargo, 1950: 231, pl. 1, figs. 1, 2, 5, pl. 2, fig. 6, pl. 3, fig. 1, pl. 4, figs. 1–3, 5, ♂. Male holotype from Gávea, Rio de Janeiro State, Brazil, in MZSP no. C1348. Brignoli, 1983: 281.

Description. Female from Angra dos Reis. Carapace orange-brown, lighter around eyes and a pair of large light patches on thoracic region. Legs yellowish with wide brown rings. Venter of abdomen dark dusky. Carapace without macrosetae. Posterior median eyes large, 1.4 diameters of anterior medians, anterior laterals 0.6 diameter, posterior laterals 0.7 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. Abdomen with 9 tubercles, the anterior laterals double (Fig. 138). Total length 6.5 mm. Carapace 3.2 mm long, 2.5 mm wide. First femur 2.5 mm; patella and tibia 3.1 mm; metatarsus 1.8 mm; tarsus 0.8 mm. Second patella and tibia 2.8 mm; third, 1.8 mm; fourth, 2.7 mm.

Male from Reprêsa. Color dark brown to black. Posterior median eyes 1.5 diameters of anterior medians, anterior laterals 0.7 diameter, posterior laterals 0.7 diameter. Anterior median eyes slightly less than their diameter apart. Posterior median eyes slightly more than their diameter apart. Fourth trochanter without macroseta. Total length 5.0 mm. Carapace 3.0 mm long, 2.3 mm wide. First femur 2.5 mm; patella and tibia 2.9 mm; metatarsus 1.7 mm; tarsus 0.7 mm. Second patella and tibia 2.5 mm; third, 1.6 mm; fourth, 2.3 mm.

Illustrations. Figures 134, 136–138 were made from a female from Angra dos Reis, Figure 135 from a female from Teresópolis, Figure 139 from a male from Paineiras, Rio de Janeiro.

Note. Both males from Rio de Janeiro State are in poor condition, they may once have been dry. The males were not collected with a female but were matched because of the similar large median eyes and because both female and male genitalia are similar to those of *W. iguape*. In a male from São Paulo State, the shape of the palpal sclerites, the median apophysis, tegulum, and conductor is intermediate between *W. gavensis* and *W. iguape*, but the embolus is sickle-shaped as in *W. gavensis*.

Diagnosis. The female is separated from others by the long, wide epigynum having transverse grooves on the venter surrounded by a lip (Figs. 134, 135), the male by the elongate, projecting median apophysis and sickle-shaped embolus (Fig. 139).

Distribution. Rio de Janeiro and São Paulo States of Brazil (Map 4).

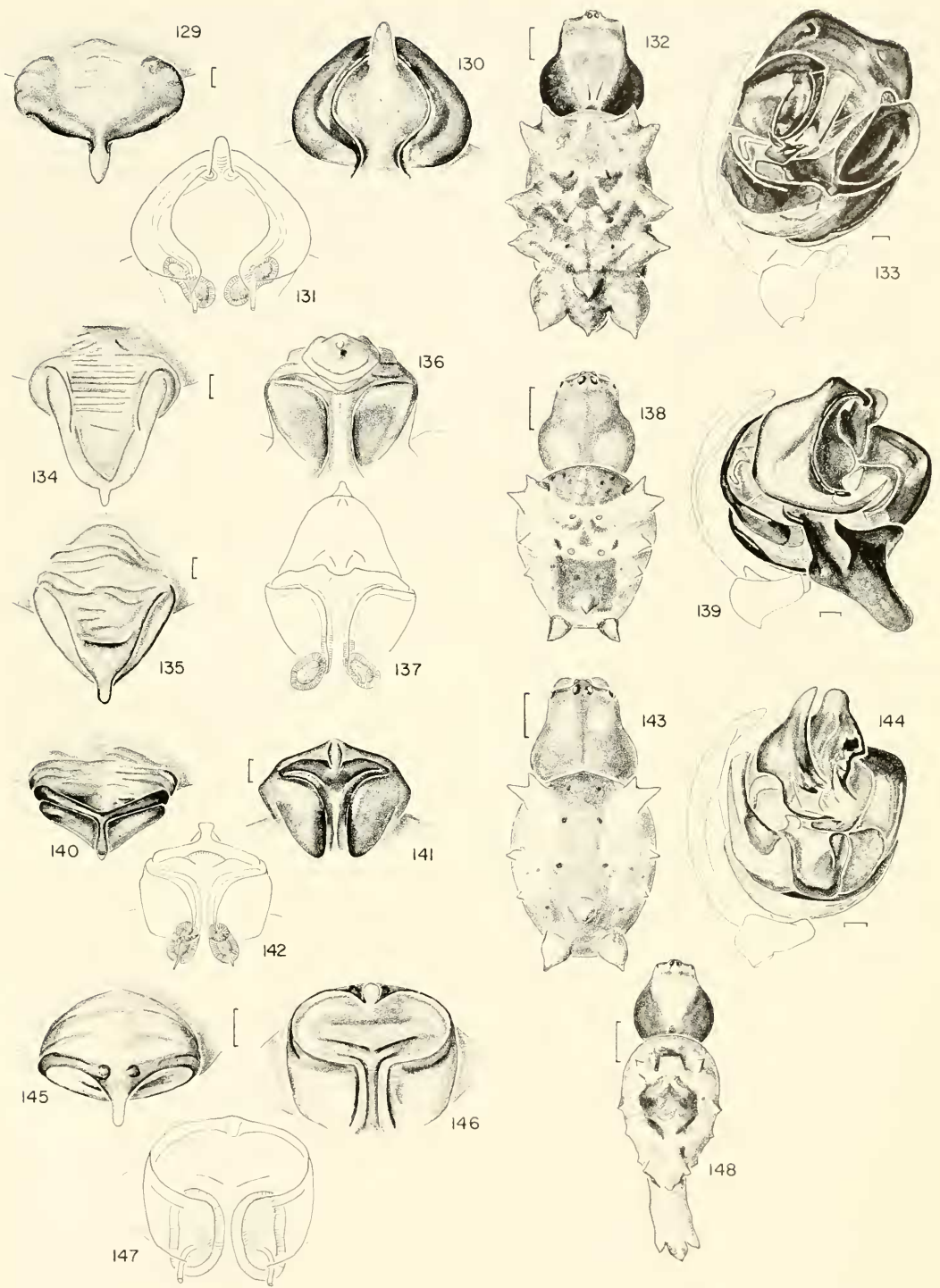
Figures 129–133. *Wagneriana spicata* (O. P.-Cambridge). 129–132. Female. 129. Epigynum, ventral. 130. Epigynum, posterior. 131. Epigynum, cleared. 132. Dorsal. 133. Left male palpus.

Figures 134–139. *W. gavensis* (Camargo). 134–138. Female. 134, 135. Epigynum, ventral. 136. Epigynum, posterior. 137. Epigynum, cleared. 138. Dorsal. 139. Male palpus.

Figures 140–144. *W. iguape* n. sp. 140–143. Female. 140. Epigynum, ventral. 141. Epigynum, posterior. 142. Epigynum, cleared. 143. Dorsal. 144. Male palpus.

Figures 145–148. *W. madrejon* n. sp., female. 145. Epigynum, dorsal. 146. Epigynum, posterior. 147. Epigynum, cleared. 148. Dorsal.

Scale lines. 1.0 mm, genitalia, 0.1 mm.



Paratypes. BRAZIL *Rio de Janeiro*: Angra dos Reis, 23 Mar. 1951, ♀ (W. Boker-mann, MZSP 7702); Teresópolis, 900–1,200 m, 7–9 Nov. 1945, ♀, Mar. 1946, ♀ (H. Sick, AMNH); Paineiras, Rio de Janeiro, Aug. 1961, ♂ (M. Alvarenga, AMNH); Reprêsa, Rio Grande, Feb. 1976, ♂ (M. Alvarenga, AMNH). *São Paulo*: São José do Barreiro, S Bocaina, 1,960 m, Nov. 1968, ♂ (M. Alvarenga, AMNH).

Wagneriana iguape new species

Figures 140–144; Map 4

Holotype. Female holotype from Iguape, São Paulo State, Brazil (Leonardos), in MNRJ. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace orange-brown. Legs dusky orange with indistinct dark rings. Venter brown between epigynum and spinnerets, a lighter band on each side. Carapace without macrosetae. Cephalic region bulging, eyes large, posterior median eyes with large black rings. Posterior median eyes 1.5 diameters of anterior medians, laterals 0.8 diameter. Anterior median eyes 0.5 diameter apart. Posterior median eyes 0.7 diameter apart. Abdomen with three pairs of lateral tubercles, the first double, one pair posterior, and only one median posterior (Fig. 143). Total length 7.5 mm. Carapace 3.2 mm long, 2.4 mm wide. First femur 2.8 mm; patella and tibia 3.4 mm; metatarsus 1.8 mm; tarsus 0.8 mm. Second patella and tibia 2.9 mm; third, 1.9 mm; fourth, 2.7 mm.

Male from São Paulo State. Color as in female but carapace with a median brown streak and brown bands on sides of thoracic region. Thoracic depression a cross shape. Posterior median eyes 1.3 diameters of anterior medians, laterals 0.7 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. Fourth trochanter without macroseta. Abdomen with three pairs of tubercles, the most anterior pair double, and a small posterior median tubercle. Total length 5.5 mm. Carapace 2.8 mm long, 2.3 mm wide. First femur 2.5 mm; patella and tibia 3.1

mm; metatarsus 1.7 mm; tarsus 0.9 mm. Second patella and tibia 2.5 mm; third, 1.5 mm; fourth, 2.3 mm.

Illustrations. The illustrations were made from the holotype and a male from São Paulo State.

Note. Male and female have been matched because both have the double anterior tubercle on the abdomen.

Variation. Total length of females 5.5 to 7.7 mm, of males 5.1 to 5.5.

Diagnosis. This species is separated from others by the large posterior median eyes and the double tubercle on the anterior of the abdomen (Fig. 143). Both characters are present in females and males. In ventral view the epigynum has a raised T-shaped bar (Fig. 141). The palpus has a large conductor with a distal spherical knob (Fig. 144).

Distribution. Rio de Janeiro State of Brazil to Paraguay (Map 4).

Paratypes. BRAZIL *Rio de Janeiro*: Itatiaia, Dec. 1966, imm. (H. Reichardt, MZSP 7231). *São Paulo*: Guaianases, Feb. 1950, ♀ (M. Carrero, MZSP 7231); Rincão, Nov. 1947, ♀ (Goff, MZSP 7781); Ilha São Sebastião, 23 Mar. 1951, ♀ (H. Urban, MZSP 7215); Cocais, Apr. 1950, ♂ (H. Urban MZSP 7359); Ribeirão Pires, Cidade São Paulo, 700–800 m, Dec. 1945, ♂ (H. Sick AMNH). *Paraná*: Cataratas do Iguazu, 24 Mar. 1985, ♂ (H., L. Levi, MCZ). *Santa Catarina*: Pinhal, Apr., May 1947, 6♀ (A. Maller, AMNH). *Rio Grande do Sul*: Itaimbezinho, Cambará do Sul, 27 Apr. 1985, ♀, 18 May 1985, ♀ (A. A. Lise, MCN 13289, 13310); São Francisco de Paula, 4 May 1974, ♀, 5 Jan. 1985, ♂ (A. A. Lise, MCN 2165, 12728); Triunfo, 21 Sept. 1989, ♂ (E. H. Backup, MCN 18652). *PARAGUAY Alto Paraná*: Italo Reserve, 19 June 1984, ♂ (L. Baert, J. P. Malfait, IRSNB).

Wagneriana madrejon new species

Figures 145–148; Map 4

Holotype. Female holotype from Madrejon, Parque Nacional Defensores del Chaco, Depto. Chaco, Paraguay, 12 Dec. 1981 (J. A. Kochalka), in IBNP. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Cephalic region orange with some white setae. Sides of thoracic region brown to black. Legs yellowish with black rings. Venter of abdomen with white pigment between epigynum and spinnerets. Carapace without macrosetae. Posterior median eyes 1.3 diameters of anterior medians, laterals 0.8 diameter. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen with 17 tubercles, 4 pairs on sides, 3 proximal and 3 distal on tail and 3 ventrally on tail (Fig. 148). Total length 8.3 mm. Carapace 2.3 mm long, 2.0 mm wide. First femur 2.5 mm; patella and tibia 2.9 mm; metatarsus 1.4 mm; tarsus 0.6 mm. Second patella and tibia 2.4 mm; third, 1.5 mm; fourth, 2.2 mm.

Diagnosis. The abdomen has 17 tubercles, more than any other species (Fig. 148). In posterior view, unlike that of other species, the epigynum has a T-shaped, raised fold, with the vertical member of the T between the lateral plates (Fig. 146).

Wagneriana huanca new species
Figures 149–153; Map 4

Holotype. Female holotype from Huancabamba, Quebrada Castillo, NW of Iscozacin, 345 m, Pasco, Peru, 10°10'S, 75°15'W, 13 Sept. 1987 (D. Silva D.), in MHNSM. The specific name is an arbitrary combination of letters.

Description. Female holotype. Carapace orange-brown to brown with white setae. Legs yellow, ringed dark brown. Venter of abdomen with white pigment in center. Carapace with two macrosetae. Posterior median eyes 0.9 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. Abdomen [damaged], with three pairs of lateral and three posterior median tubercles (Fig. 153). Total length 11.0 mm. Carapace 4.2 mm long, 3.2 mm wide. First femur 4.7 mm; patella and tibia 5.5 mm; metatarsus 2.9 mm; tarsus 1.0 mm. Second patella and tibia 4.8 mm; third, 2.6 mm; fourth, 3.9 mm.

Illustrations. Figures 150, 151–153 were

made from the holotype, Figure 149 from a female from the Amazonas Dept., Peru.

Variation. Total length of females 11.0 to 11.4 mm.

Diagnosis. Unlike that of most *Wagneriana* species, the epigynum is longer than wide with the dorsal part of the posterior median plate swollen as seen in posterior view (bottom of Fig. 151). The epigynum is larger in size than that of *W. acrosomoides*.

Paratype. PERU Amazonas: Montenegro, Bagua, 350 m, 29 Sept.–1 Oct. 1963, ♀ (Herrer, P. Wygodzinsky, AMNH).

Wagneriana alma new species
Figure 154; Map 4

Holotype. Male holotype from Fazenda Almada, Uruçuca, Bahia State, Brazil, 27 Nov. 1977 (J. S. Santos), in MCN no. 15924. The specific name is an arbitrary combination of letters.

Description. Male holotype. Carapace orange, darkest posteriorly with dark A-shaped thoracic mark. Legs orange with only faint rings. Venter of abdomen with white spots behind epigastric groove, black in front of spinnerets. Posterior median eyes same diameter as anterior medians, anterior laterals 0.6 diameter, posterior laterals 0.5 diameter. Anterior median eyes slightly less than their diameter apart. Posterior median eyes their diameter apart. Fourth trochanter without macroseta. Abdomen with a pair of anterior tubercles, and five tubercles at posterior end. Total length 4.8 mm. Carapace 2.3 mm long, 1.5 mm wide. First femur 2.4 mm; patella and tibia 2.6 mm; metatarsus 1.4 mm; tarsus 0.6 mm. Second patella and tibia 2.0 mm; third, 1.2 mm; fourth, 1.8 mm.

Diagnosis. The male has a large shield-shaped conductor supporting the embolus; the black shape of the embolus can be seen above the conductor (Fig. 154).

Wagneriana vegas new species
Figures 155–159; Map 4

Holotype. Female holotype and immature male paratype from Santiago de las Vegas, Cuba (Horne and Houser), in MCZ. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace orange-brown, cephalic region darker than sides with short white setae; lightest between median eyes and between lateral eyes. Legs light orange with brown rings. Venter of abdomen black. Carapace without macrosetae. Posterior median eyes 1.1 diameters of anterior medians, anterior laterals 0.8 diameter, posterior laterals 0.9 diameter. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen with 11 or more shrivelled and difficult to distinguish tubercles (Fig. 158). Total length 5.0 mm. Carapace 2.0 mm long, 1.8 mm wide. First femur 2.3 mm; patella and tibia 2.5 mm; metatarsus 1.3 mm; tarsus 0.5 mm. Second patella and tibia 2.2 mm; third, 1.3 mm; fourth, 1.9 mm.

Male from Dominican Republic. Color as in female, but cephalic region lighter than thoracic region. Posterior median eyes 0.8 diameter of anterior medians, anterior laterals 0.8 diameter, posterior laterals 0.5 diameter. Anterior median eyes slightly less than their diameter apart. Posterior median eyes slightly less than their diameter apart. Fourth trochanter with one short macroseta. Abdomen with long tail. Total length 4.5 mm. Carapace 2.2 mm long; 1.8 mm wide. First femur 2.3 mm; patella and tibia 2.7 mm; metatarsus 1.3 mm; tarsus 0.6 mm. Second patella and tibia 2.2 mm; third, 1.3 mm; fourth, 1.9 mm.

Note. Banks considered this female specimen from Cuba to be *W. tauricornis*.

Variation. The median plate in posterior view of the epigynum is wider dorsally in specimens from Hispaniola than in the one illustrated from Cuba (Fig. 156). Total length of females 5.0 to 6.7 mm.

Diagnosis. In posterior view of the epigynum the median plate is almost circular and contains a median groove (Fig. 156). The male palpus has a short small embolus (center of Fig. 159) and a median apophysis with a distal, fleshy hook (Fig. 159).

Natural History. The male was collected from a broad-leaf and pine forest.

Distribution. Cuba, Hispaniola (Map 4).

Paratypes. DOMINICAN REPUBLIC *La Vega Prov.*: above Ciénago on "Mount Llano", 19°04'N, 70°51'W, 10 Jan. 1986, 2♀ (S. Larcher, D. Pérez, USNM); A. Bermudez Natl. Park, 10 Jan. 1986, ♂ (S. Larcher, USNM). *La Romana*: Isla Saona, Catuano, 27 Jan. 1980, ♀ (Marcano F., MNSD).

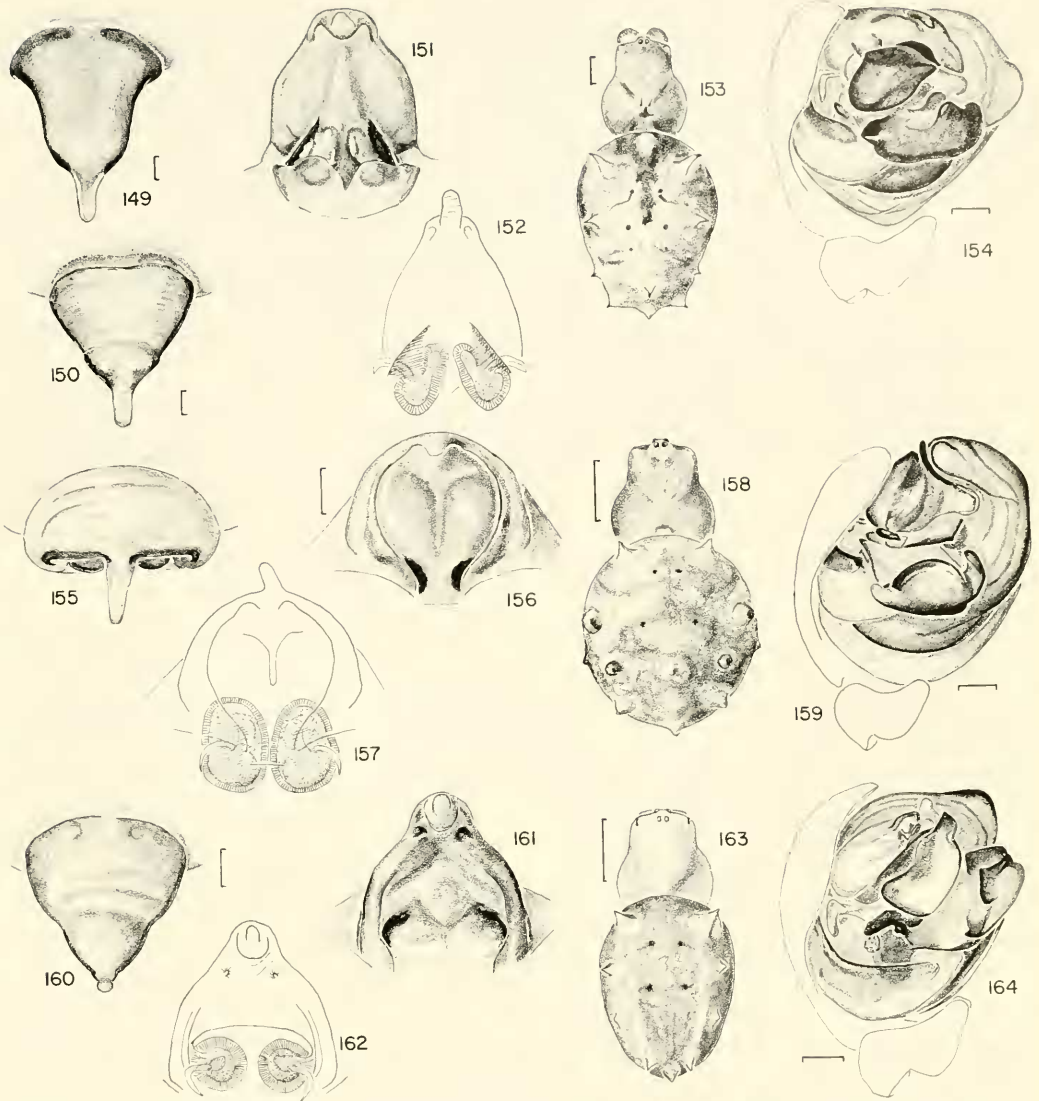
Wagneriana acrosomoides
(Mello-Leitão), new combination
Figures 160–164; Map 4

Wixia acrosomoides Mello-Leitão, 1939b: 109, figs. 9–11, ♀. Female holotype from Mazaruni Settlement, Guyana, prey of *Trypoxylon* wasp, in BMNH, examined. Roewer, 1942: 881. Bonnet, 1959: 4828. *Paraverrucosa octospinosa* Mello-Leitão, 1949: 9, figs. 8–9, ♂. Male holotype from Mato Grosso, in MNRJ, examined. Brignoli, 1983: 278. NEW SYNONYMY.

Note. The abdomen, with the attached epigynum, is separate from the prosoma of the holotype of *W. acrosomoides* but they probably belong together.

Description. Female from Depto. Meta, Colombia. Carapace orange, sides of thoracic region darker. Legs orange without rings. Venter of abdomen black with a pair of white patches. Carapace without macrosetae. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.6 diameter. Anterior median eyes their diameter apart. Posterior median eyes 1.2 diameters apart. Abdomen with 9 tubercles, the third pair indistinct (Fig. 163). Total length 4.5 mm. Carapace 2.1 mm long, 1.6 mm wide. First femur 1.8 mm; patella and tibia 2.2 mm; metatarsus 1.1 mm; tarsus 0.5 mm. Second patella and tibia 1.8 mm; third, 1.1 mm; fourth, 1.7 mm.

Male from Meta, Colombia. Color as in female but abdomen lighter. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.5 diameter. Anterior median eyes 0.9 diameter apart. Posterior median eyes 1.4 diameters apart. Fourth trochanter with two short macrosetae. Abdomen as in female. Total length 3.7 mm. Carapace 1.9 mm long, 1.6 mm wide. First



Figures 149–153. *Wagneriana huanca* n. sp., female. 149, 150. Epigynum, ventral. 151. Epigynum, posterior. 152. Epigynum, cleared. 153. Dorsal.

Figure 154. *W. alma* n. sp., male left palpus.

Figures 155–159. *W. vegas* n. sp. 155–158. Female. 155. Epigynum, ventral. 156. Epigynum, posterior. 157. Epigynum, cleared. 158. Dorsal. 159. Male palpus.

Figures 160–164. *W. acrosomoides* (Mello-Leitão). 160–163. Female. 160. Epigynum, ventral. 161. Epigynum, posterior. 162. Epigynum, cleared. 163. Dorsal. 164. Male palpus.

Scale lines. 1.0 mm, genitalia, 0.1 mm.

femur 1.8 mm; patella and tibia 2.1 mm; metatarsus 1.1 mm; tarsus 0.5 mm. Second patella and tibia 1.7 mm; third, 1.1 mm; fourth, 1.5 mm.

Illustrations. The illustrations were made from specimens from Meta Dept., Colombia.

Variation. Total length of females 4.5 to 5.8 mm, of males 3.7 to 3.8.

Diagnosis. The epigynum is slightly longer than wide, pointed and distally swollen (Fig. 160). In posterior view it has a ventral depression and a dorsal pair of bulges (Fig. 161). The palpus of the male has a characteristically shaped flat conductor in the middle of the palpus, and a median apophysis with a median "vertical" keel (Fig. 164).

Natural History. Females have been collected in campo grassland in Mato Grosso State. The specimens from near Manaus, Brazil, came from a wasp nest.

Distribution. Guianas and Amazon drainage (Map 4).

Records. COLOMBIA *Meta*: 20 km N Río Muco, 20 km S El Porvenir, Finca Cheneva, 170 m, 1978, 7♀, ♂ (W. Eberhard 1337, 1367, 1378, 1388, 1389, 1394, MCZ). GUYANA Kaieteur, 31 July 1911, ♀, ♂ (F. Lutz, AMNH). BRAZIL *Amapá*: Oiapoque, May 1959, ♀, ♂ (M. Alvarenga, AMNH). *Roraima*: Ilha de Maracá, 20, 25 July 1987, 3♀ (A. A. Lise, MCN). *Amazonas*: Manaus, 2♀ (M.V. Bastos Garcia, INPA). *Goiás*: Santa Isabel, Ilhado Bananal, Rio Araguaia, 15–29 July 1957, ♂ (B. Malkin, AMNH). *Mato Grosso*: 260 km N Xavantina, 400 m, 12°49'S, 51°46'W, Feb.–Apr. 1969, ♀ (Oxford Xavantina Cach. Exped., MCZ).

Wagneriana tayos new species

Figures 165–171; Map 4

Holotype. Female holotype and male paratype from Los Tayos, 3°06'S, 76°12'W (as 78°12'W in error on

label), Morona-Santiago Prov., Ecuador, 24 July 1976, cliffs by stream-bed near main cave entrance (N. Engler), in MCZ. The specific name is a noun in apposition after the type locality.

Note: The latitude and longitude on the label is a Peruvian locality, a misprint.

Description. Female holotype. Carapace brown, darkest on sides of thoracic region, white setae on cephalic region. Legs light brown with darker rings. Venter of abdomen with black square constricted by a pair of white spots in front of spinnerets (Fig. 169). Carapace without macrosetae. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.6 diameter. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen with four pairs of lateral tubercles and two posterior median ones (Fig. 168). Total length 7.0 mm. Carapace 2.6 mm long, 1.8 mm wide. First femur 2.5 mm; patella and tibia 2.8 mm; metatarsus 1.6 mm; tarsus 0.6 mm. Second patella and tibia 2.4 mm; third, 1.3 mm; fourth, 2.1 mm.

Male collected with female. Color as in female. Posterior median eyes 0.7 diameter of anterior medians, laterals 0.6 diameter. Anterior median eyes slightly less than one diameter apart. Posterior median eyes 1.2 diameters apart. Fourth trochanter with one short macroseta. Abdomen as in female (Fig. 171). Total length 5.3 mm. Carapace 2.5 mm long; 1.8 mm wide. First femur 2.5 mm; patella and tibia 3.0 mm; metatarsus 1.7 mm; tarsus 0.6 mm. Second patella and tibia 2.3 mm; third, 1.5 mm; fourth, 2.2 mm.

Illustrations. The illustrations were made from the holotype and the male paratype collected with it.

Variation. The terminal apophysis of the male collected at Tambopata differs considerably, but other sclerites of the palpus are as in the paratype illustrated. Total length of females 5.6 to 7.0 mm.

Figures 165–171. *Wagneriana tayos* n. sp. 165–169. Female. 165. Epigynum, ventral. 166. Epigynum, posterior. 167. Epigynum, cleared. 168. Dorsal. 169. Abdomen, ventral. 170, 171. Male. 170. Left palpus. 171. Dorsal.

Figures 172–175. *W. yacuma* n. sp., female. 172. Epigynum, ventral. 173. Epigynum, posterior. 174. Epigynum, cleared. 175. Dorsal.

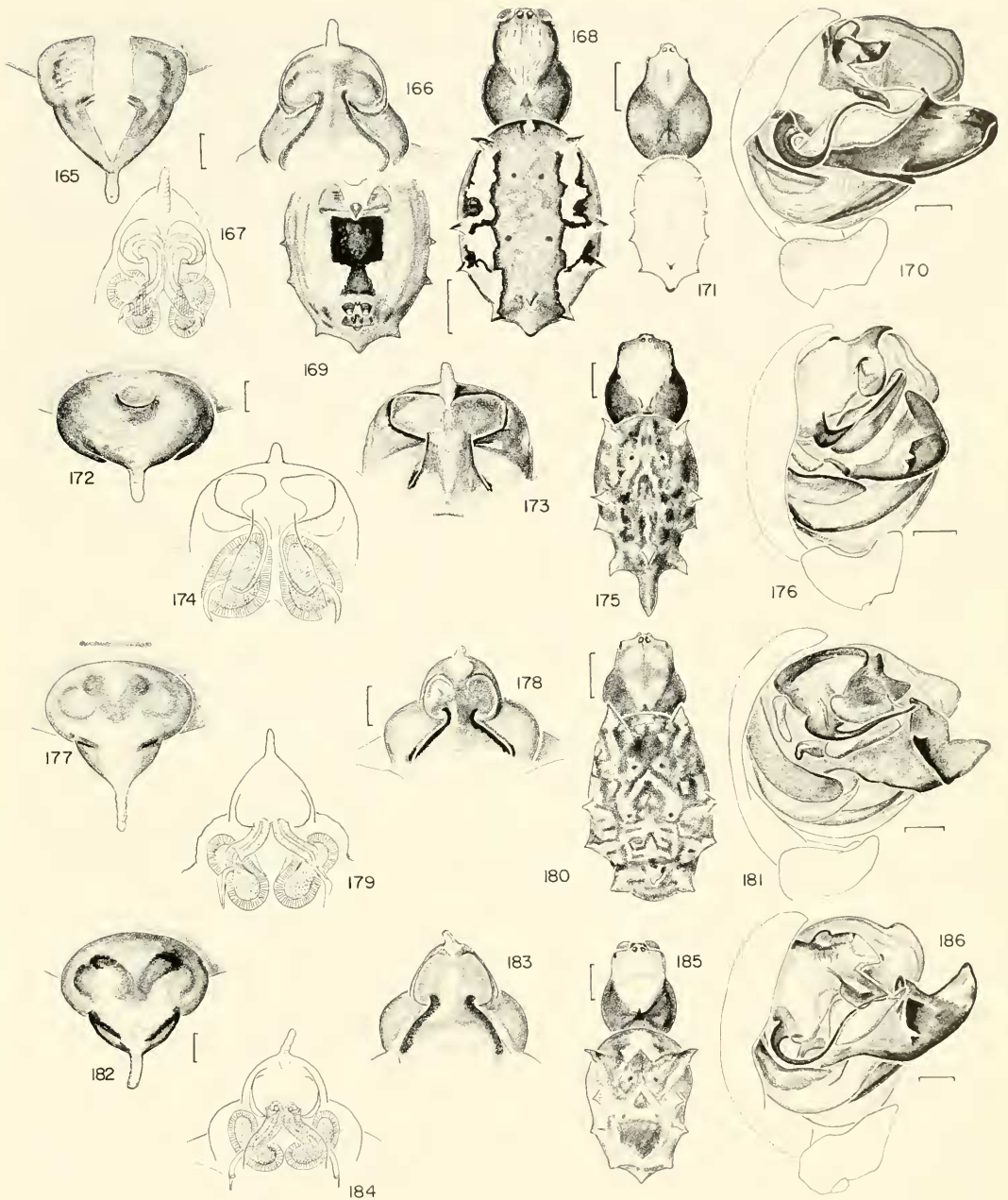


Figure 176. *W. eldorado* n. sp., male palpus.

Figures 177–181. *W. hassleri* n. sp. 177–180. Female. 177. Epigynum, ventral. 178. Epigynum, posterior. 179. Epigynum, cleared. 180. Dorsal. 181. Male palpus.

Figures 182–186. *W. silvae* n. sp. 182–185. Female. 182. Epigynum, ventral. 183. Epigynum, posterior. 184. Epigynum, cleared. 185. Dorsal. 186. Male palpus.

Scale lines. 1.0 mm, genitalia, 0.1 mm.

Diagnosis. The posterior view of the epigynum of the female differs from that of *W. acrosomoides* (Fig. 161) by having a neck in the middle of the median plate (Fig. 166); in the cleared epigynum the connecting ducts are long with a loop at the ventral end (Fig. 167). The male differs by the long, slender, gracefully curved embolus in the palpus and by lacking the "vertical" keel on the median apophysis (Fig. 170) present in *W. silvae* (Fig. 186).

Natural History. A hot air balloon (Radeau des Cîmes) was used to collect the male from a forest canopy in French Guiana.

Distribution. French Guiana, Colombia to southern Peru (Map 4).

Paratypes. FRENCH GUIANA Petit Saut, 5°07'N, 53°05'W, Oct. 1989, ♂ (E. Nancé, MCZ). COLOMBIA *Antioquia*: Remedios, Hacienda San Martín, 87 m, 23 Dec. 1984, ♀ (M. A. Serna, MHNMC). EC-UADOR *Pastaza*: Puyo, 900 m, Mar. 1941, ♀ (W. Clarke-Macintyre, AMNH). PERU *Amazonas*: Alto Río Comaina, Puesto de Vigilancia, 850–1,100 m, 21 Oct.–3 Nov. 1987, 2♀ (D. Silva D., MHNSM). *Pasco*: Huancabamba, Quebrada Castillo, NW Iscazacín, 245 m, 10°10'S, 75°15'W, 13 Sept. 1987, ♀ (D. Silva D., MHNSM). *Madre de Dios*: Tambopata Reserve, Río Tambopata, Explorers Inn, 30 Mar. 1988, 2♀, ♂ (J. Palmer, D. Smith, MCZ).

Wagneriana yacuma new species

Figures 172–175; Map 4

Holotype. Female holotype from Espíritu, Río Yacuma, Depto. El Beni, Bolivia, in vegetation, 15 April 1954 (W. Forster and O. Schindler), in ZSM. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace brown-black, center of cephalic region orange with white setae. Legs dusky orange with blackish rings. Venter of abdomen with indistinct white pigment square enclosing black pigment anteriorly, sides brown and black. Carapace with two macrosetae; thoracic depression a deep round pit (Fig. 175). Posterior median eyes same diameter as anterior medians, ante-

rior laterals 0.7 diameter, posterior laterals 0.8 diameter. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen with 11 tubercles (Fig. 175). Total length 7.5 mm. Carapace 2.6 mm long, 2.1 mm wide. First femur 2.7 mm; patella and tibia 3.2 mm; metatarsus 1.6 mm; tarsus 0.7 mm. Second patella and tibia 2.9 mm; third, 1.6 mm; fourth, 2.5 mm.

Diagnosis. The epigynum of this species differs from all other *Wagneriana* species by having a transverse notch anteriorly on its ventral surface (Fig. 172), resembling that of *Alpaida* species.

Paratype. A female paratype from the type locality collected on 16 April 1954 (ZSM).

Doubtful record. BRAZIL *Mato Grosso*: São Félix, 8 Apr. 1961, ♀ (AMNH).

Wagneriana eldorado new species

Figure 176; Map 4

Holotype. Male holotype from Eldorado, Misiones Prov., Argentina, Nov. 1970 (M. E. Galiano), in MACN no. 8792. The specific name is a noun in apposition after the type locality.

Description. Male holotype. Cephalic region yellowish, thoracic region blackish brown. Legs yellowish with some narrow dark rings. Venter of abdomen mostly black with a white line on each side. Posterior median eyes same diameter as anterior medians, laterals 0.8 diameter of anterior medians. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Fourth trochanter without macroseta. Abdomen with only indications of tubercles. Total length 3.8 mm. Carapace 1.9 mm long, 1.5 mm wide. First legs lost. Second patella and tibia 1.8 mm; third, 1.1 mm; fourth, 1.7 mm.

Diagnosis. This species differs from *W. hassleri* by having differently shaped median and terminal apophyses (Fig. 176).

Wagneriana hassleri new species

Figures 177–181; Map 4

Holotype. Male holotype from Rapununi River, near Mt. Makarapan, Rapununi County, Guyana, 5 Oct.

1937 (W. G. Hassler), in AMNH. The species is named after the collector.

Description. Female from Kuyuwini River. Carapace orange and dark brown. Legs orange with brown rings. Venter of abdomen with a black square behind epigynum, a white line on each side, and white pigment between black area and spinnerets. Carapace without macrosetae. Posterior median eyes same diameter as anterior medians, anterior laterals 0.9 diameter of anterior medians, posterior 0.8 diameter. Anterior median eyes 0.7 diameter apart. Posterior median eyes their diameter apart. Abdomen with 4 pairs of tubercles and two posterior median ones, the second one small (Fig. 180). Total length 6.3 mm. Carapace 2.8 mm long, 2.1 mm wide. First femur 2.7 mm; patella and tibia 3.2 mm; metatarsus 1.9 mm; tarsus 0.8 mm. Second patella and tibia 2.7 mm; third, 1.5 mm; fourth, 2.5 mm.

Male holotype. Color as in female. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.6 diameter. Anterior median eyes 0.5 diameter apart. Posterior median eyes their diameter apart. Fourth trochanter with one small, short macroseta. Abdomen as in female. Total length 4.0 mm. Carapace 2.1 mm long, 1.5 mm wide. First femur 2.1 mm, other articles broken off. Second patella and tibia 1.9 mm; third, 1.1 mm; fourth, 1.6 mm.

Illustrations. The illustrations were made from the male holotype and female paratype from Guyana.

Note. Males and females have not been collected together. Determination labels by di Caporiacco with the specimens from Kuyuwini had the female named *W. undecimaculata* and the male *tauricornis*. The trochanter macrosetae are broken off in the holotype but present in the paratype.

Variation. Total length of males 4.0 to 4.2 mm.

Diagnosis. In posterior view of the epigynum the females differ from *W. silvae* (Fig. 183) by having the neck of the median plate narrower (Fig. 178). The male

palpus has both the embolus and median apophysis shorter (Fig. 181) than in *W. silvae* (Fig. 186).

Natural History. The specimen from Ukurua River was collected in a forest savanna.

Distribution: Guyana, lower Amazon area (Map 4).

Paratypes. GUYANA *Rupununi*: Kuyuwini Lodge, Kuyuwini River, 20 Nov. 1937, ♀, ♂ (W. G. Hassler, AMNH). *Berbice*: Canje, Ukurua Rivers, ♂ (G. Bentley, AMNH). BRAZIL *Pará*: Belém, Fazenda Velha, July 1970, ♂ (M. E. Galiano, MEG).

Wagneriana silvae new species

Figures 182–186; Map 4

Holotype. Male holotype from Puesto de Vigilancia, Pakitza, Zona Reservada de Manu Depto., Madre de Dios, 11°58'S, 71°18'W, Peru, night collecting, 2 Oct. 1987 (D. Silva D., J. Coddington), in USNM. The species is named after the collector Diana Silva D.

Description. Female from Zona Reservada de Tambopata, Peru. Carapace dark brown, cephalic region orange. Legs yellow with dusky rings. Venter of abdomen with a dusky square. Carapace without macrosetae. Posterior median eyes same diameter as anterior medians, laterals 0.7 diameter of anterior medians. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen with 11 tubercles (Fig. 185). Total length 6.5 mm. Carapace 2.9 mm long, 2.0 mm wide. First femur 2.7 mm; patella and tibia 3.2 mm; metatarsus 1.7 mm; tarsus 0.8 mm. Second patella and tibia 2.7 mm; third, 1.5 mm; fourth, 2.4 mm.

Male holotype. Color as in female but carapace brown with eye region orange and a posterior orange triangular mark pointing posteriorly on cephalic region. Posterior median eyes 0.9 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes 0.4 diameter apart. Posterior median eyes 0.8 diameter apart. Fourth trochanter with one macroseta. Total length 5.0 mm. Carapace 2.5 mm long, 1.8 mm wide. First femur 2.5 mm; patella and tibia 2.8 mm; metatarsus 1.5 mm; tar-

sus 0.7 mm. Second patella and tibia 2.2 mm; third, 1.3 mm; fourth, 2.0 mm.

Illustrations. The illustrations were made from the holotype and specimens from the Tambopata Reserve.

Variation. Total length of females 6.2 to 7.3 mm, of males 4.4 to 5.0.

Diagnosis. The female is difficult to separate from that of *W. hassleri* found in Guyana (Fig. 178). It may differ in posterior view of the epigynum by having the neck of the posterior plate wider (Fig. 183), but it is not certain that this difference is present in all females. The male differs from *W. hassleri* by having both a longer embolus and a longer median apophysis (Fig. 186), from *W. tayos* by having a "vertical" keel on the median apophysis (Fig. 186).

Distribution: Amazon drainage, Peru to Bolivia (Map 4).

Paratypes. PERU *Ucayali:* Colonia Callaria, Río Callaria, 15 km from Ucayali, Oct. 1961, ♀ (B. Malkin, AMNH). *Huánuco:* Cucharas, Huallaga Valley, Feb.–Apr. 1954, 2♀, ♂ (F. Woytkowski, CAS); Dantas to La Molina, SW Puerto Inca, 270 m, 18 May–1 June 1987, 6♀ (D. Silva D., MNHSM). *Pasco:* Huancabamba, Quebrada Castillo, NW Iseozacin, 10°10'S, 75°15'W, 1 Nov. 1986, 2♀ (D. Silva D., MHNSM). *Madre de Dios:* Zona Reservada Tambopata, common (D. Silva D., MHNSM); 15 km E Puerto Maldonado, June 1983, 2♀ (G. C. Hunter, CAS); Zona Reservada Manu, Pakitza, 2–4 Oct. 1987, ♀, ♂ (D. Silva D., J. H. Coddington, USNM). BOLIVIA *Beni:* Est. Biologica Beni, 10 Sept. 1987, ♂ (J. Coddington, USNM).

Wagneriana roraima new species

Figures 187–190; Map 4

Holotype. Female holotype and one female paratype from Ilha do Maracá, Roraima Territory, Brazil,

29 July 1987 (A. A. Lise). Holotype in MCN no. 19655, paratype in MCN no. 18808. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Cephalic region orange with some white setae, sides of thoracic region brown-black. Legs yellowish with brown rings. Venter of abdomen with black square behind epigynum, on each side of square a white line ending in a white spot in front of spinnerets. Carapace without macrosetae. Posterior median eyes same diameter as anterior medians, laterals 0.6 diameter of anterior medians. Anterior median eyes 0.8 diameter apart. Posterior median eyes 0.8 diameter apart. Abdomen with 10 tubercles, most posterior tubercles missing (Fig. 190). Total length 6.5 mm. Carapace 2.7 mm long, 2.2 mm wide. First femur 2.9 mm; patella and tibia 3.4 mm; metatarsus 1.9 mm; tarsus 0.8 mm. Second patella and tibia 2.9 mm; third, 1.6 mm; fourth, 2.5 mm.

Diagnosis. In ventral view the epigynum appears triangular (Fig. 187) and in posterior view the median plate has a neck (Fig. 188) as in *W. hassleri* (Fig. 178).

Wagneriana tauricornis

(O.P.-Cambridge)

Figures 191–195; Map 4

Epeira tauricornis O. P.-Cambridge, 1889: 44, pl. 6, figs. 2, 3, ♀, ♂. Many syntype specimens from numerous localities in Guatemala and Chiriquí Prov., Panama, in BMNH, examined. Keyserling, 1892: 90, pl. 4, fig. 68, ♂.

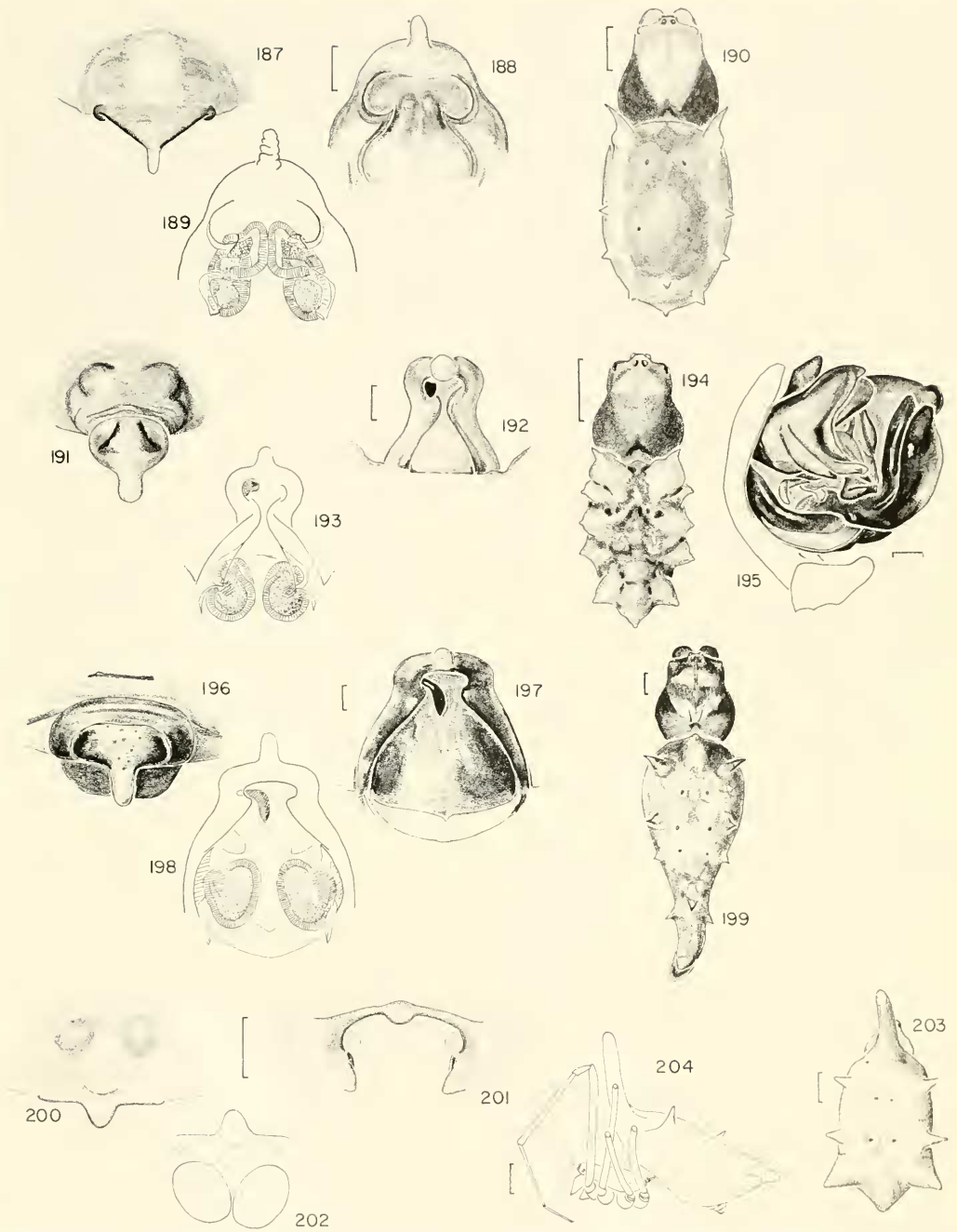
Epeira guatemalensis O. P.-Cambridge, 1889: 40, pl. 7, fig. 8, ♂ (not ♀). Male syntypes from numerous localities in Guatemala. First synonymized by F. P.-Cambridge, 1904: 498.

Wagneria tauricornis:—McCook, 1894: 204, pl. 13, figs. 1, 2, ♀, ♂.

Wagneriana tauricornis:—F. P.-Cambridge, 1904: 498, pl. 47, figs. 14, 15, ♀, ♂. Roewer, 1942: 881. Bonnet, 1959: 4803. Levi, 1976: 370, figs. 57–73, ♀, ♂.

Figures 187–190. *Wagneriana roraima* n. sp., female. 187. Epigynum, ventral. 188. Epigynum, posterior. 189. Epigynum, cleared. 190. Dorsal.

Figures 191–195. *W. tauricornis* (O. P.-Cambridge). 191–194. Female. 191. Epigynum, ventral. 192. Epigynum, posterior. 193. Epigynum, cleared. 194. Dorsal. 195. Left male palpus.



Figures 196–199. *W. pakitza* n. sp., female. 196. Epigynum, ventral. 197. Epigynum, posterior. 198. Epigynum, cleared. 199. Dorsal.

Figures 200–204. *W. turrigera* Schenkel, female. 200. Epigynum, ventral. 201. Epigynum, posterior. 202. Epigynum, cleared. 203. Dorsal. 204. lateral.

Scale lines. 1.0 mm, genitalia, 0.1 mm.

Description. Female from Veracruz, Mexico. Carapace orange to dark brown, darkest on sides of thoracic region. Legs orange with brown to black rings. Venter of abdomen with indistinct paired white patches. Posterior median eyes same diameter as anterior medians, laterals 0.8 diameter of anterior medians. Anterior median eyes their diameter apart. Posterior median eyes 1.5 diameters apart. Abdomen with five pairs of tubercles and three posterior median tubercles (Fig. 194). Total length 5.0 mm. Carapace 2.3 mm long, 1.5 mm wide. First femur 2.1 mm; patella and tibia 2.4 mm; metatarsus 1.3 mm; tarsus 0.5 mm. Second patella and tibia 2.1 mm; third, 1.2 mm; fourth, 1.9 mm.

Male from Veracruz, Mexico. Color as in female. Posterior median eyes 0.7 diameter of anterior medians, laterals 0.5 diameter. Anterior median eyes 0.4 diameter apart. Posterior median eyes 1.2 diameters apart. Fourth trochanter with one short macroseta. Abdomen as in female. Total length 4.2 mm. Carapace 2.1 mm long, 1.7 mm wide. First femur 2.3 mm; patella and tibia 2.5 mm; metatarsus 1.3 mm; tarsus 0.5 mm. Second patella and tibia 1.8 mm; third, 1.3 mm; fourth, 1.8 mm.

Illustrations. The illustrations were made from specimens from Veracruz State, Mexico.

Variation. Total length of females 4.5 to 6.7 mm, of males 3.8 to 4.9.

Diagnosis. In posterior view the epigynum differs from that of other species by having a neck (Fig. 192), and it differs from that of *W. pakitza* (Fig. 197) by its proportions and by lacking macrosetae on the carapace (Fig. 194). The palpus of the male differs from that of other species by having a whale-shaped "vertical" median apophysis (Fig. 195).

Natural History. The species is commonly collected by the edge of a sweeping forest and has been collected from a palm forest in Quintana Roo State, Mexico, a tropical wet forest and a cloud forest in Costa Rica, and from leaves of agave in Colombia

Distribution. Florida, Gulf States of United States, Mexico to Venezuela and northern Peru (Map 4).

Additional records. MEXICO *Tamaulipas:* nr. Gomez Farias (MCZ). *San Luis Potosí:* Xilitla (MCZ); Huichichuayan (AMNH); Valles (AMNH); Tamazunchale (AMNH). *Nayarit:* San Blas (MCZ); Tepic (AMNH). *Veracruz:* 40 km NW Alvarado (REL); Papantla (AMNH); Catemaco [Playa Azul] (AMNH); Fortín de las Flores (AMNH, REL); Atoyac (AMNH); Acayuca (AMNH); nr. La Palma (MCZ); Tampico (USNM). *Hidalgo:* 20 km NE Tlanchinol, 760 m (MCZ). *Oaxaca:* Soyaltepec (AMNH). *Yucatan:* 3 km E Chichen Itza (MCZ); Colonia Yucatan (AMNH). *Quintana Roo:* Kohunlich ruins, 18°26'N, 88°48'W (MCZ); Cozumel (AMNH). *Chiapas:* Palenque ruins (MCZ, AMNH); Escuintla (MCZ); Selva de Ocote, 32 km NW Ocozocoautla (CAS). GUATEMALA Nueva Concepción (CAS). HONDURAS Lago de Yojoa, 600–650 m (AMNH); Lancetillo (MCZ). NICARAGUA San Marcos (MCZ). COSTA RICA *Heredia:* La Selva (MCZ, USNM); 1 km N Montana Azul, 1,500 m (DU); NE San Rafael, 1,400 m (MCZ). *Alajuela:* San Mateo, Higuito (USNM). *Limón:* 5.5 km E Guápiles (DU); Hamburg Farm (NHMW). *Cartago:* Turrialba, (CAS). *Guanacaste:* Carrillo (MCZ). *Puntarenas:* nr. Tarcoles, 20–50 m (MCZ); Las Cruces (MCZ); Corcovado Natl. Park (MCZ); Osa Peninsula (MCZ). *San José:* Bajo La Hondura, 1,360 m, 1,600 m (MCZ); San Pedro (MCZ); San José (AMNH). *Cartago:* Cartago (AMNH, MCZ); Turrialba (AMNH, MCZ); San Isidro General (MCZ). PANAMA *Chiriquí:* Volcán (MCZ); trocha Dir. Continental, Carret. Fortuna to Chiriquí Grande (MIUP). *Coclé:* El Valle (AMNH). *Colon-Panamá:* Panama Canal area, very common (AMNH, MCZ, MIUP). BAHAMA ISLANDS: Nassau (AMNH). HAITI Port au Prince (MCZ). JAMAICA very common (AMNH, MCZ). VENEZUELA *Miranda:* Guatopo Natl. Park, Santa Cruzita, 450 m (USNM). *Carabobo:* Golfo Triste (AMNH). *Aragua:* Rancho Grande (AMNH). COLOMBIA *Magda-*

lena: San Pedro, 1,400 m (JAK); Serra Nueva Granada, 1,300 m (JAK). *Antioquia*: Guarne, 2,000 m (MCZ); San Vicente (MHNM). *Valle*: Anchicaya, 400 m, common (MCZ). ECUADOR *Pichincha*: nr. La Palma (MCZ); Tinalandia, 12 km E Santo Domingo de los Colorados, 750 m (FSCA); km 113, via Pto. Quito (MECN). *Los Ríos*: Est. Cient., P. F. Davila, Jauneche (MECN); Montalvo (AMNH). *Bolívar*: Balzapamba (MCZ, AMNH). PERU *Tumbes*: Palmal [?] (PAN); Lechugal (PAN).

Wagneriana pakitza new species
Figures 196–199; Map 4

Holotype. Female holotype from Zona Reservada Pakitza Depto., Madre de Dios, Peru, 11°58'S, 71°18'W, 3, 4 Oct. 1987 (J. Coddington, D. Silva D.), in MHNSM. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace orange-yellow and brown-black with two patches of dense white, thin setae. Legs orange-yellow, ringed dark brown. Venter of abdomen with some indistinct white pigment in center. Carapace with two macrosetae (Fig. 199). Posterior median eyes 0.8 diameter of anterior medians, anterior laterals 0.6 diameter, posterior laterals 0.5 diameter. Anterior median eyes 0.8 diameter apart. Posterior median eyes their diameter apart. The laterals are separated by their diameter. Abdomen with four pairs of lateral tubercles and three posterior median ones (Fig. 199). Total length 14.5 mm. Carapace 3.9 mm long, 2.9 mm wide. First femur 4.7 mm; patella and tibia 5.6 mm; metatarsus 2.9 mm; tarsus 1.1 mm. Second patella and tibia 4.7 mm; third, 2.6 mm; fourth, 4.0 mm.

Diagnosis. *Wagneriana pakitza* is larger than *W. tauricornis*. The carapace of *W. pakitza* has a pair of macrosetae (Fig. 199) unlike that of *W. tauricornis* (Fig. 194). The epigynum resembles that of *W. tauricornis*, but differing by lacking the two black marks of the tip in ventral view (Fig. 196). In posterior view the neck of the epigynum of *W. pakitza* is near the ventral tip (top of Fig. 197), while that of

W. tauricornis is closer to the middle (Fig. 192).

Wagneriana turrigera Schenkel
Figures 200–204; Map 4

Wagneriana turrigera Schenkel, 1953: 24, fig. 22, ♀. Female holotype from El Pozon, Falcon Prov., Venezuela, in NMB, examined. Brignoli, 1983: 281.

Note. Schenkel placed a question mark before the name of the genus in the original description.

Description. Female holotype. Carapace, legs light brown. Dorsum of abdomen yellow-white (Fig. 203); venter dusky. Posterior median eyes 0.8 diameter of anterior medians, laterals 0.7 diameter. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart. Abdomen as in Figures 203, 204. Total length 6.0 mm. Carapace 2.0 mm long, 1.5 mm wide. First femur 2.5 mm; patella and tibia 3.2 mm; metatarsus 2 mm; tarsus 0.8 mm. Second patella and tibia 2.5 mm; third, 1.7 mm; fourth, 2.5 mm (after Schenkel).

Note. This is the only species with a median anterior hump that is drawn out into a tube (Figs. 203, 204). It may not belong to *Wagneriana*. It was first thought to be an immature *Wixia*; however, seminal receptacles are present. The holotype may be a penultimate instar female ready to molt.

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