

A revision of the Neotropical spider genera *Tenedos* O.P. CAMBRIDGE and *Ishania* CHAMBERLIN (ARANEAE, ZODARIIDAE)

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Summary

The genera *Tenedos* O.P.-CAMBRIDGE and *Ishania* CHAMBERLIN are revised. They are analysed cladistically mainly on the base of characters of the secondary genitalia. According to the results of the analysis the genera appear to be closely related and only differ by the structure of the chilum which is double in *Tenedos* and single in *Ishania*. *Tenedos* now contains the type species *T. lautus* O.P.-CAMBRIDGE (♂) and the known species *T. barronus* (CHAMBERLIN) (♂♀), *T. certus* (JOCQUÉ & UBICK) n. comb. (♂♀), *T. cufodontii* (REIMOSER) (♂♀) and *T. eduardoi* (MELLO-LEITÃO) (♂). It further contains 35 species which are new: *T. andes* (♂), *T. asteronoides* (♂♀), *T. banos* (♂♀), *T. brescoviti* (♀), *T. capote* (♀), *T. convexus* (♀), *T. estari* (♀), *T. equatorialis* (♂), *T. fertilis* (♂♀), *T. figaro* (♂♀), *T. grandis* (♂), *T. hoeferi* (♂♀), *T. honduras* (♀), *T. inca* (♂♀), *T. inflatus* (♂♀), *T. infrarmatus* (♂), *T. juninus* (♀), *T. lateromaculatus* (♀), *T. ligulatus* (♂♀), *T. microlaminatus* (♀), *T. parinca* (♂♀), *T. peckorum* (♂), *T. perfidus* (♂♀), *T. persulcatus* (♂), *T. procreator* (♂♀), *T. quadrangulatus* (♀), *T. quinquangulatus* (♀), *T. reygeli* (♀), *T. ultimus* (♂), *T. serrulatus* (♂♀), *T. sumaco* (♂), *T. trilobatus* (♂♀), *T. ufoides* (♀), *T. ultimus* (♂) and *T. venezolanus* (♂♀).

Ishania contains the type species *I. tentativa* CHAMBERLIN (♂♀), the known species *I. absoluta* (GERTSCH & DAVIS) n. comb. (♂♀), *I. mundella* (GERTSCH & DAVIS) n. comb. (♀), *I. hessei* (CHAMBERLIN & IVIE) n. comb. (♂♀), *I. tinga* (F.O.P.-CAMBRIDGE) n. comb. (♀) and the following 31 new species *I. aztek* (♂♀), *I. centroavata* (♀), *I. chicanna* (♀), *I. chichimek* (♂♀), *I. firma* (♂♀), *I. gertschi* (♀), *I. guerrero* (♀), *I. huastek* (♂♀), *I. ivieorum* (♀), *I. latefossulata* (♀), *I. maya* (♂), *I. minuta* (♀), *I. mixtek* (♂♀), *I. nayarit* (♀), *I. oaxaca* (♂♀), *I. ocosingo* (♀), *I. olmek* (♂♀), *I. paxoides* (♂♀), *I. perforatus* (♀), *I. protecta* (♂♀), *I. querci* (♀), *I. real* (♀), *I. relativa* (♂♀), *I. simplex* (♀), *I. sumaco* (♂), *I. tarask* (♂♀), *I. tormento* (♂♀), *I. totonak* (♂♀), *I. vacua* (♀), *I. xilitla* (♂) and *I. zapotek* (♂♀).

Tenedos veracruzana GERTSCH & DAVIS, so far only known from the female, proves to be a synonym of *I. absoluta*, that was described on the male only. A key

to those species of which the male is known, is provided. A hypothesis about the dispersal of the genus is formulated. There is evidence that the clade was originally distributed in the semiarid areas around the Amazon Basin and invaded North America after the contact between the North and South American Plates. Its occurrence in the Andes and the Amazon Basin is the result of several incursions.

Introduction

The Zodariidae is one of the few sizeable spider families for which there is a global revision and cladistic analysis (JOCQUÉ, 1991). That generic revision and subsequent revisions of genera give the strong impression that South America is much poorer in zodariid species than Asia which itself is far less rich than Africa. It would appear indeed that the Afro-tropical region is the richest in genera and perhaps also in species (so far 25 genera, 192 species) (PLATNICK, 2002). The African and Australian genera that have been revised tend to be very species rich: *Diores* SIMON for instance, contains 55 species (JOCQUÉ, 1990; JOCQUÉ & DIPPENAAR-SCHOEMAN, 1992). *Storena* SIMON, not including the many non Australian species that have erroneously been placed in it and await revision, has 29 (JOCQUÉ & BAEHR, 1992, 1995) and the number of species in the *Asteron*-complex will exceed a hundred (BAEHR & JOCQUÉ, 1996). The genus *Mallinella* STRAND, which has a huge distribution (JOCQUÉ, 1993), is bound to be among the most speciose zodariid genera although so far it only contains 29 Afrotropical species and 28 from tropical Asia from where the majority of its members is to be expected. Although the zodariids are considered a family with tropical origin, the largest genus remains the Palaearctic *Zodarion* with almost 120 species described.

South America lacks the important "femoral organ" clade which includes some of the most speciose genera (*Diores* SIMON, *Zodarion* WALCKENAER and many provisionally small genera which still need revision). Both the neotropical genera that have been revised so far, *Ishania* CHAMBERLIN (JOCQUÉ & UBICK, 1991) and

Leprolochus SIMON (JOCQUÉ, 1988; JOCQUÉ & PLATNICK, 1989, LISE, 1994) are known from only a few species, respectively 2 and 7. The genera of the southern part of the Neotropical Region, *Platnickia* JOCQUÉ and *Cybaeodamus* MELLO-LEITÃO are equally poor in species. It was therefore a surprise to find that *Tenedos* is very rich in species. The present study also reveals that *Tenedos* and *Ishania* are very close and that many species that were placed in the former (JOCQUÉ & BAERT 1996) do in fact belong to the latter. Both are now among the largest zodariid genera with respectively 38 and 35 species. However, the present review probably only describes part of the existing species as very extensive areas within its distribution area, mainly in Brazil, remain to be prospected for smaller ground dwelling animals.

Abbreviations

ALS: anterior lateral spinnerets
 AW: anterior width
 DTA: distal tegular apophysis
 Fe: femur
 juv.: juveniles
 L: length
 MA: median apophysis
 MOQ: median ocular quadrangle
 Mt: metatarsus,
 Pa: patella
 PLS: posterior lateral spinnerets
 PMS: posterior median spinnerets
 PW: posterior width
 RTA: retrolateral tibial apophysis
 sa: subadult
 Ta: tarsus
 Ti: tibia
 Tr: trochanter
 *: one row

Acronyms of museum and institutions

AMNH: American Museum of Natural History, New York, USA, N. PLATNICK
 CAS: California Academy of Sciences, San Francisco, USA, Ch. GRISWOLD
 FMNH: Field Museum of Natural History, Chicago, USA, P. SIERWALD
 HNHM: Hungarian Natural History Museum, Budapest, Hungary, S. MAHUNKA
 KBIN: Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, Belgium
 MCN: Museu de Ciencias Naturais, Porto Alegre, Brazil, E.H. BUCKUP
 MCP: Museu de Ciencias da Pontificia Universidade catolica do Rio Grande do Sul, Porto Alegre, Brazil, A. LISE
 MCZ: Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA, L. LEIBENSPERGER

MUSM: Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru, D. SILVA
 NHM: Natural History Museum, London, Great Britain, P. HILLYARD
 NHMW: Naturhistorisches Museum, Wien, Austria, J. GRÜBER
 PUCE: Pontificia Universidad Católica del Ecuador, Quito, G. ONORE
 SMN: Staatliches Museum für Naturkunde, Karlsruhe, Germany, H. HÖFER

All measurements are in millimeter.

Phylogenetics and character analysis

Character analysis (table 1)

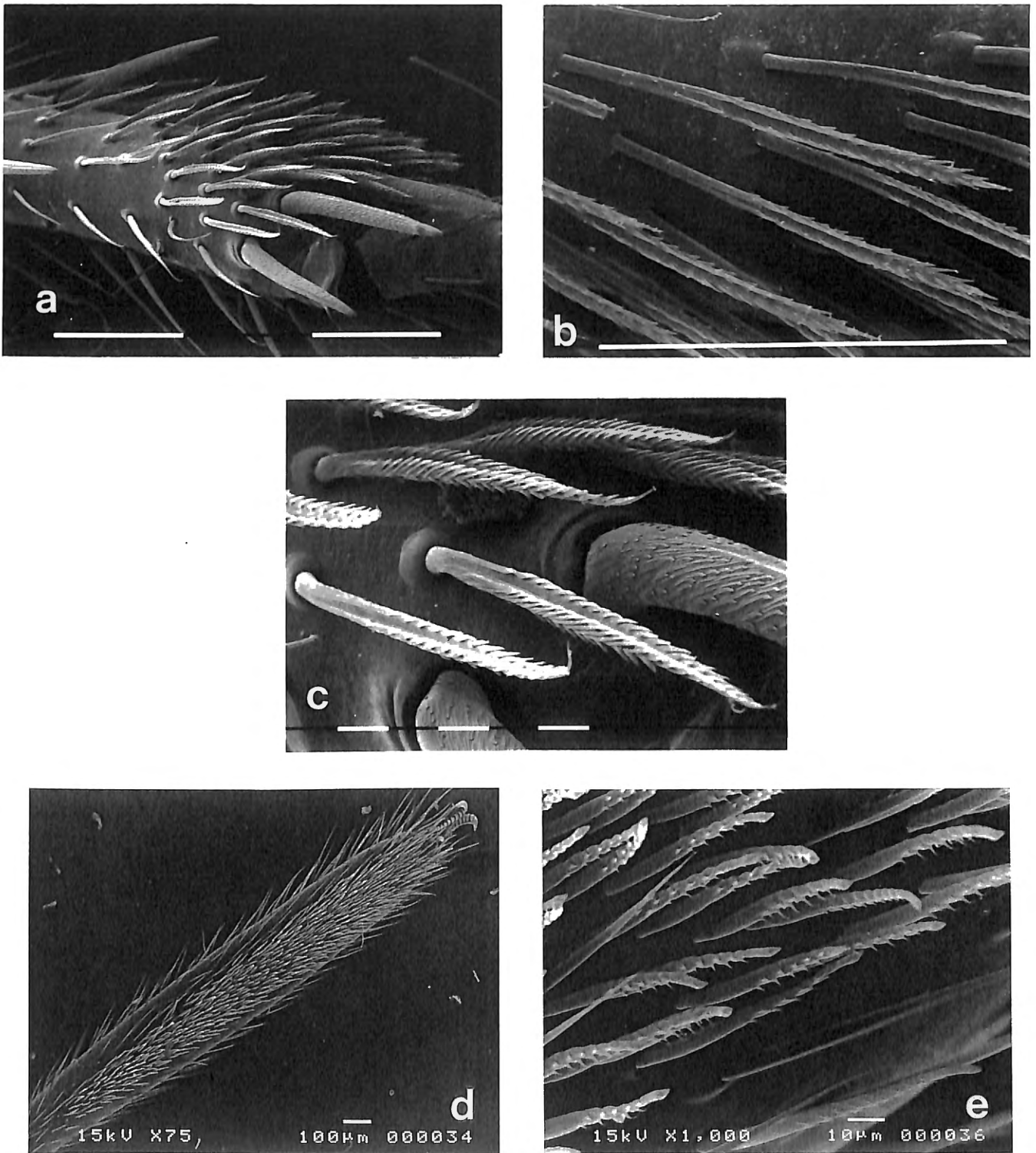
Only five somatic characters were considered. Both the height of the clypeus (character 1), and the number of promarginal cheliceral teeth (character 2) appear to be diagnostic (state 1 for both characters) for the *Tenedos*-clade. Character 3 concerning the chilum appears to be important as it is the only somatic character (state 2) that defines the genus *Ishania*. Although the outgroups possess a single chilum, the presence of a double chilum is considered plesiomorphic in contrast to absent (state 2) or single (state 1).

The number of leg spines (character 4) is subject to reduction and species with 2 or less dorsal and lateral patellar spines on legs III and IV are considered apomorphic.

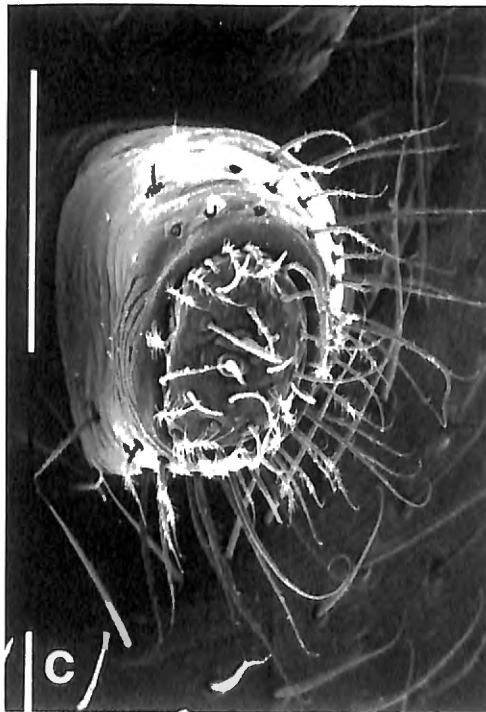
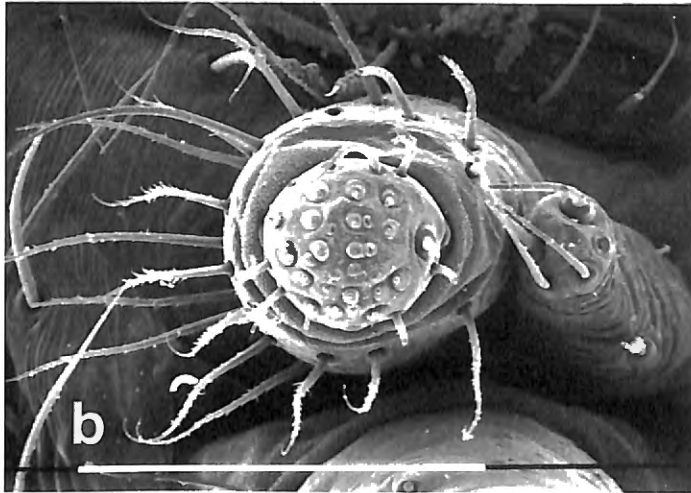
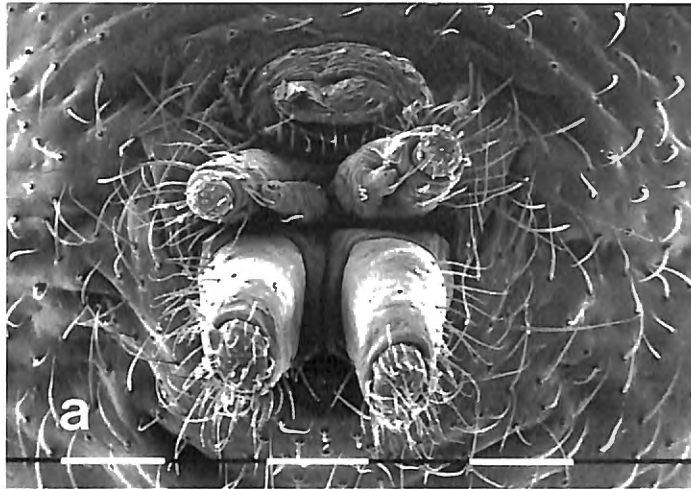
A complex abdominal pattern (character 5) is considered plesiomorphic (JOCQUÉ 1991, p. 16); it is considered that the pattern has become simpler in more derived species (state 1).

Analysis of the male palpal morphology resulted in 20 characters. Nine of these are multistate characters (table 1 and 2). The basal condition of the male palp of the *Tenedos*-clade is characterized by its simplicity (Figs. 32a-b, 22a-b). The tibia has a single dorsolateral apophysis which tends to shift to a more lateral position in more derived species. The embolus is short and may be flexible or rigid but originates on the prolateral side of the tegulum. The tegulum has two simple tapering apophyses with converging tips. This character is the autapomorphy of the clade. Linked with this simple palp is an equally simple epigyne (Figs. 32c-d, 30c-d), characterized by short entrance ducts with a single bend leading to often complex spermathecae. This poorly understood spermatheca is typical for many genera in the Zodariidae.

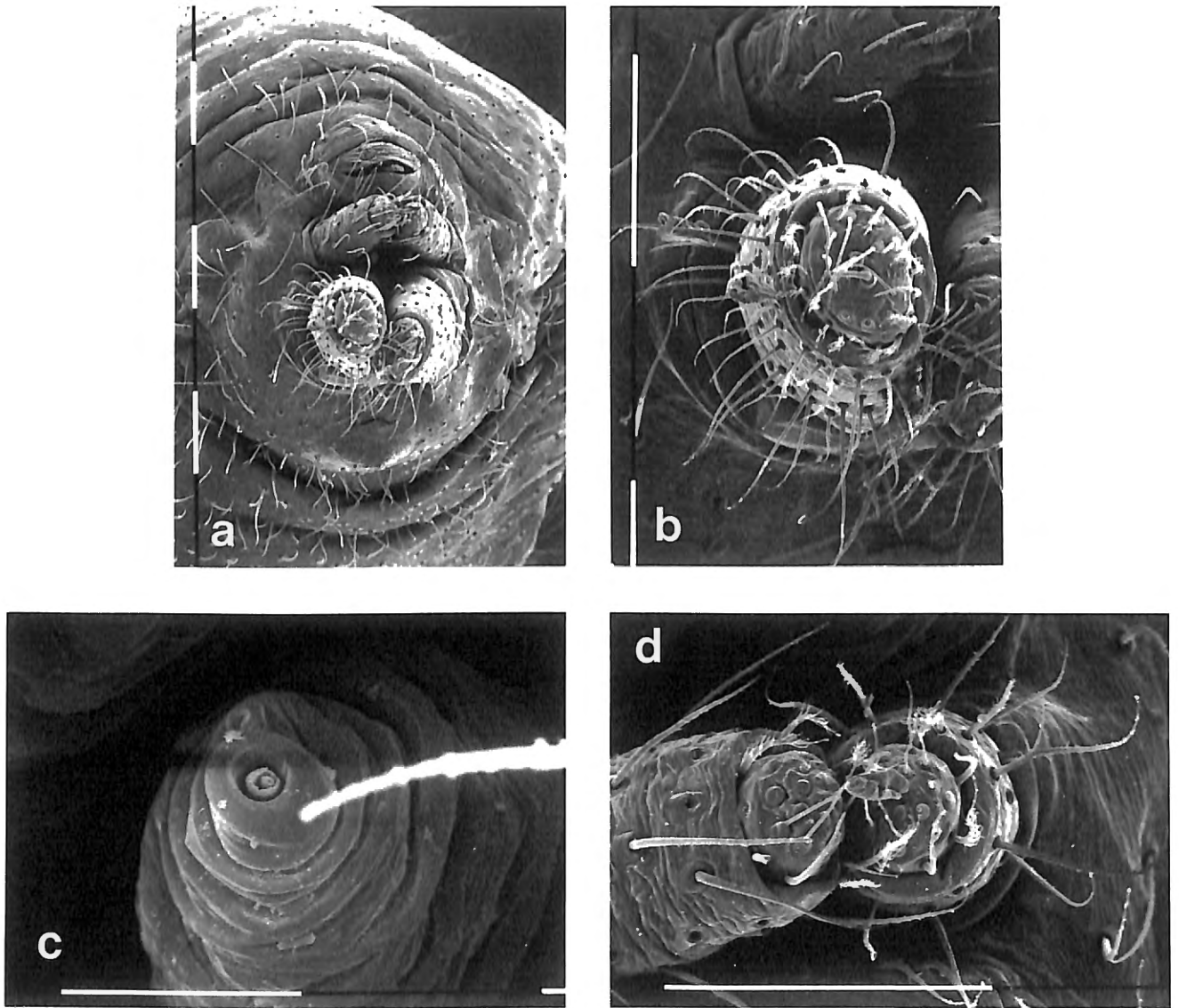
The evolution of the genus is characterized by an increasing complexity of the epigyne in which the number of bends is multiplied (compare Figs. 30d and 32e with 16d and 44d). The male palp goes through an evident parallel increase in complexity (Figs. 55d, 58d, 43d). The most conspicuous changes are the increase in the number of tibial apophyses, the lengthening of the embolus and the complication of the tegular apophyses.



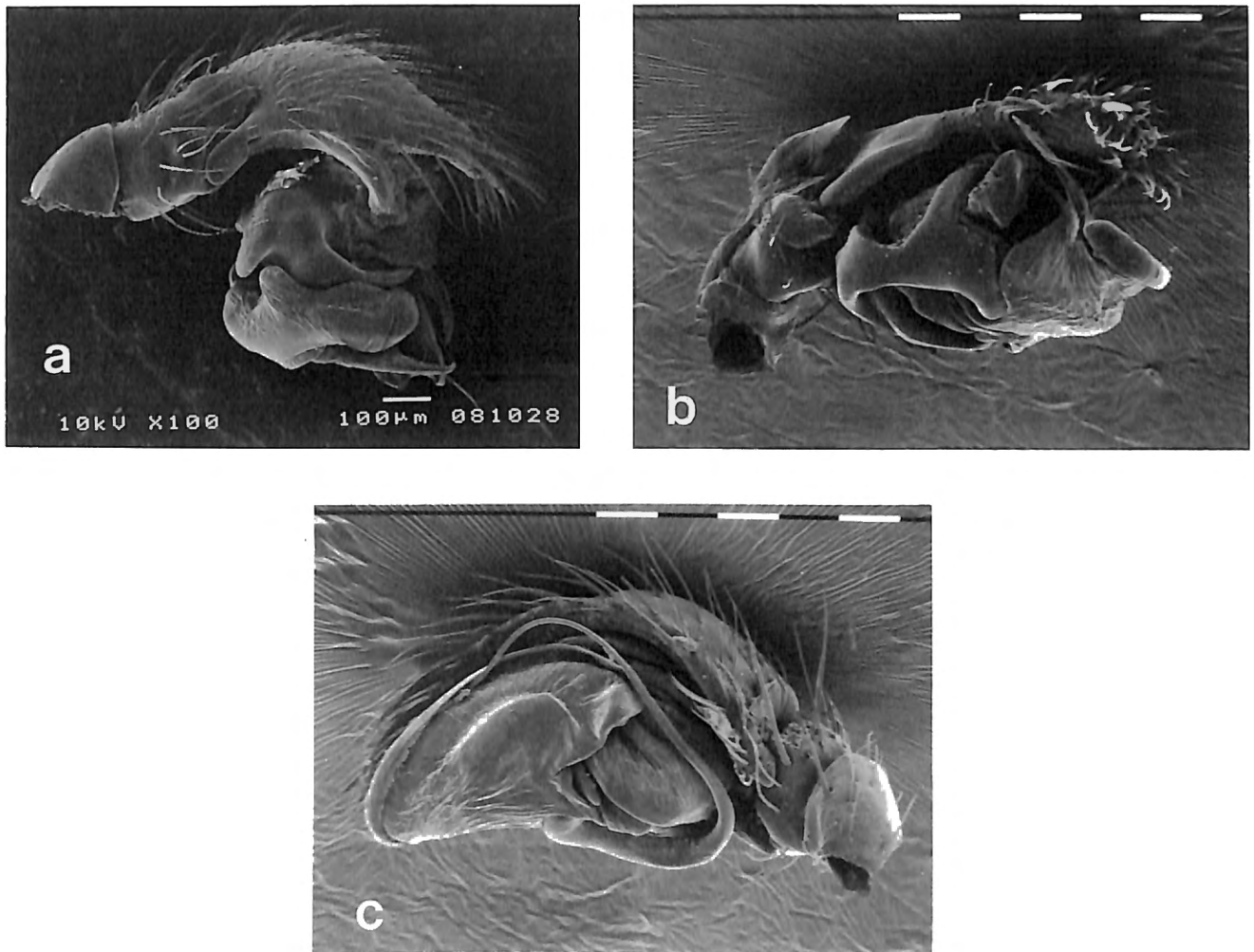
Figs. 1a-e — a-c: *Tenedos figaro*, male. a. Metatarsal hair tuft. b. Detail of marginal hair of tuft on metatarsus IV. c. Detail of central hair of tuft on metatarsus IV. d-e: *Tenedos grandis*, male. d. Metatarsal I hair tuft. e. Special hairs on Metatarsus I.



Figs. 2a-c — *Tenedos figaro*, female. a. Spinnerets. b. PLS and PMS. c. ALS.



Figs. 3a-d — *Tenedos figaro*, male. a. Spinnerets. b. ALS. c. PLS. d. PMS.



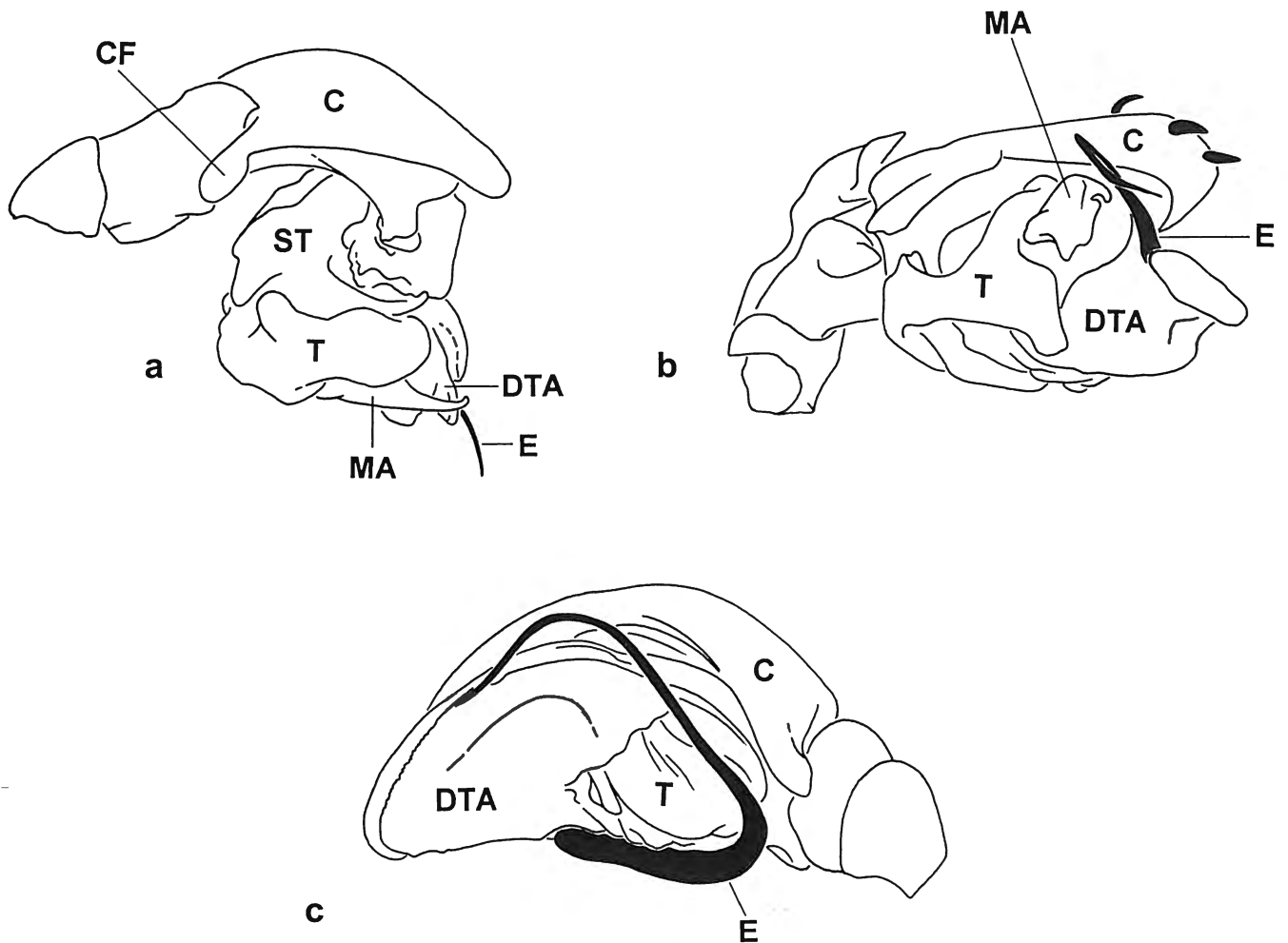
Figs. 4a-c — a-b. *Tenedos fertilis*. a. Male palp, slightly expanded, retrolateral view. b. Ventral view. c. *Tenedos figaro*, Male palp, prolateral view.

The presence of an apophysis on the palpal patella (character 6) appears to be synapomorphic for three Mexican species (Fig. 50a). Apophyses on patella or femur of the male palp are good apomorphic characters as they are rather rare and usually stable. This is clear from an analysis of the genus *Diores* in which either patellar or femoral apophyses are always linked to a similar type of bulbus.

Probably the most difficult part for the analysis is the polarizing of the changes found in the palpal tibia (character 8). It is clear from previous studies that the plesiomorphic state of the male palpal tibia is very simple; in that state the tibia has only one apophysis near the dorsal margin (Fig. 32a): this situation is found in *Storena procedens* JOCQUÉ & BAEHR (JOCQUÉ & BAEHR, 1992, Fig. 2) and in *Procydrela* JOCQUÉ 1999, an ancestral genus from South African that is probably at the root of the Cydrelineae. In the outgroup *Platnickia* (JOCQUÉ 1991, figs 155, 156), the palpal tibia is also very simple but the apophysis is central and has a slight indentation. Similar simple configurations are found in ancestral *Diores*, e.g.

Diores damara JOCQUÉ (JOCQUÉ 1990, Fig. 109) and in *Nostera nadgee* JOCQUÉ (JOCQUÉ 1995, Fig. 8c) which represents one of the most ancestral genera in Australia.

The modification of the RTA follows two directions: the apophysis either shifts from the dorsal to a more ventral position (Fig. 22a) in one evolution line (state 2), or it becomes long and modified (grooves or denticles, states 1, 3, 4) (e.g. Figs. 31a, 26a), in the other one. It can further become bifid (Fig. 25a)(state 5) or shift back to the dorsal position (Fig. 53a, Fig. 73a) in case a second retrolateral apophysis is acquired. Strangely enough this second one is often an apophysis that originally has a mediadorsal position. It gradually shifts backward and toward the retrolateral side thereby pushing the RTA back into a frontal dorsal position (state 7). In some species this gives the remarkable situation in which the dorsal apophysis has become retrolateral whereas the retrolateral has a dorsal position! Its position in relation to the longitudinal axis however, reveals what the origin of the apophysis is. There are a few cases in which the RTA has become very small (state 6, Fig. 41a).



Figs. 5a-c — Schematic drawing of Figs. 4a-c. showing different parts of male palp. **a-b.** *Tenedos fartilis*, male palp. **a.** slightly expanded, retrolateral view. **b.** Ventral view. **c.** *Tenedos figaro*, Male palp, prolateral view. (C = Cymbium, CF = Cymbial Flange, DTA = Distal tegular Apophysis, E = Embolus, MA = Median Apophysis, ST = Subtegulum, T = Tegulum).

The dorsal tibial apophysis (DA) (character 9) goes through an equally complex number of states. Its absence, as in the outgroup, is considered plesiomorphic. It is initially small (Fig. 55a) and well separated from the RTA. Becoming larger, it is less well separated from the RTA (Fig. 44a). It can shift to a position near the posterior tibial margin (state 3) or consequently be displaced towards the lateral side (state 4, Figs. 47a, Fig. 50a) as in *I. aztek* (Fig. 44a).

The absence of a ventral tibial apophysis (character 11) is plesiomorphic.

A ventral haired swelling (character 12) is absent in the plesiomorphic situation. It may remain ventral (state 1, Fig. 60a) or be shifted to a lateral position (state 2, Figs. 30a-b).

The presence of a prolateral tibial apophysis (character 13) is considered apomorphic.

The plesiomorphic shape of the embolus (character 14) is short and slender (Figs. 32a, 22a). It gradually becomes longer and whip-shaped (state 1, figs 35b, 13b). In a

further stage it becomes rigid (state 2, Fig. 48b) and may acquire a terminal appendage (state 3, Fig. 50b). In other genera (*Storena*, *Asteron*, *Procydrela*) a rigid embolus usually occurs in the more plesiomorphic species. We consider a rigid embolus in the *Tenedos*-clade to be apomorphic for several reasons. Its base is not on the frontal part of the tegulum and directed forward as it is in the ancestral species of the outgroups (see character 15). It is also linked with a DTA with short concave extension which is a remnant of an appendage extended in opposite direction of the embolus (see character 18). The rigid embolus also has a shape which differs from the rigid embolus found in *Storena* for instance, where it strongly tapers and is poorly separated from the tegulum. In the *Tenedos*-clade it is well delimited from the tegulum and tends to taper much less strongly.

The area of implantation of the embolus on the tegulum (character 15) is likely to be linked with the previous character. When its base is situated far in front and directed forward (Figs. 22b, 32b), as in the outgroups

Table 1 — Characters used in Cladistic Analysis
(0 = plesiomorph; 1 - 7: apomorphic states)

| | | | |
|----|---|----|--|
| 0 | 0 dummy | 20 | 0 tegulum without swelling near base of embolus |
| 1 | 0 Clypeus low | 1 | 1 tegulum with swelling near base of embolus; |
| 1 | 1 Clypeus high, more than 3 times diameter of ALE | 2 | 2 tegulum with apophysis near base of embolus. |
| 2 | 0 Chelicerae with one or two promarginal teeth | 3 | 3 tegulum with membranous appendage over base of embolus |
| 1 | 1 Chelicerae without marginal teeth | 21 | 0 cymbial flange unmodified |
| 3 | 0 chilum double | 1 | 1 cymbial flange extended backwards. |
| 1 | 1 chilum absent | 22 | 0 number of apical cymbial spines high (4 or more) |
| 2 | 2 chilum single | 1 | 1 number of apical spines low (3 or less) |
| 4 | 0 patellae III & IV with many spines | 23 | 0 anterior male tarsi unmodified |
| 1 | 1 number of spines on patellae III and IV less than, or equal to 2 prolateral and 2 dorsal ones. | 1 | 1 anterior male tarsi swollen and with dense pads of modified setae |
| 5 | 0 abdominal pattern with many small patches and chevrons | 24 | 0 palpal tibia without a strong dorsal spine |
| 1 | 1 abdominal pattern simple (less than 8 patches). | 1 | 1 palpal tibia with a strong dorsal spine. |
| 6 | 0 no patellar apophysis | 25 | 0 tegulum without proximal swelling |
| 1 | 1 with dorsal apophysis on patella | 1 | 1 tegulum with large proximal swelling |
| 7 | 0 sperm duct runs through backward extension of tegulum | 26 | 0 tibia without retrolateral concavity |
| 1 | 1 tegulum without backward extension | 1 | 1 tibia with retrolateral concavity with additional inner lateral apophysis |
| 8 | 0 RTA dorsolateral | 27 | 0 epigyne without small central plate near posterior margin |
| 1 | 1 RTA lateral, simple | 1 | 1 epigyne with small central plate near posterior margin, mostly horseshoe-shaped |
| 2 | 2 RTA lateral, indented, with extra tooth or bifid | 28 | 0 epigyne without central groove |
| 3 | 3 RTA lateral, grooved or ridged | 1 | 1 epigyne with central groove, running from front to back (often showing parallel stretches of ED) |
| 4 | 4 RTA lateral, <i>grandis</i> type | 29 | 0 epigyne without frontal lip |
| 5 | 5 RTA <i>aztek</i> type | 1 | 1 epigyne with frontal lip hanging over central groove |
| 6 | 6 RTA ventrolateral | 30 | 0 epigyne without transverse frontal concavity |
| 9 | 0 dorsal tibial apophysis (DA) absent | 1 | 1 with transverse frontal concavity |
| 1 | 1 DA present, small | 2 | 2 with large depression reaching posterior margin |
| 2 | 2 DA large | 3 | 3 large depression covered with plate |
| 3 | 3 DA displaced, lateral | 31 | 0 entrance ducts short and straight or slightly curved |
| 4 | 4 DA <i>aztek</i> type | 1 | 1 entrance ducts long and sinuous with sharp curves |
| 10 | 0 palpal tibia without large lateral extension near posterior margin | 2 | 2 entrance ducts with parallel, adjacent, longitudinal stretches |
| 1 | 1 palpal tibia with large lateral extension near posterior margin | 3 | 3 entrance ducts with extra loops (cf <i>minutus</i> , <i>protectus</i>) |
| 11 | 0 ventral tibial apophysis (VA) absent; | 32 | 0 position entrance openings frontal, central |
| 1 | 1 VA present | 1 | 1 position entrance openings halfway, central |
| 12 | 0 ventral haired swelling absent; | 2 | 2 position entrance openings lateral |
| 1 | 1 ventral haired swelling present; | 3 | 3 position entrance openings caudal |
| 2 | 2 ventral haired swelling displaced to lateral side. | 33 | 0 entrance openings closely together, in between spermathecae |
| 13 | 0 no prolateral tibial apophysis | 1 | 1 entrance ducts far apart, laterad of spermathecae |
| 1 | 1 prolateral tibial apophysis present. | 34 | 0 glands absent |
| 14 | 0 embolus short, slender | 1 | 1 glands present |
| 1 | 1 embolus long, slender and flexible; | 35 | 0 spermathecae simple and small, thin-walled |
| 2 | 2 embolus rigid; | 1 | 1 large, thick-walled |
| 3 | 3 embolus rigid, with distal extension. | 36 | 0 spermathecae with one compartment |
| 15 | 0 embolus originates far in front on tegulum, base directed forward; | 1 | 1 with two compartments |
| 1 | 1 base of embolus directed prolaterad; | 2 | 2 with three compartments |
| 2 | 2 base of embolus directed backwards. | 37 | 0 spermathecae globular |
| 16 | 0 distal tegular apophysis (DTA) absent | 1 | 1 spermathecae corkscrew-shaped or with spirally wound internal chamber |
| 1 | 1 DTA simple or bifid, not flattened | 2 | 2 spermathecae kidney-shaped |
| 2 | 2 DTA flat and with distal groove (type <i>eduardoi</i>) | 38 | 0 fertilization ducts short, ending directly near posterior rim of epigyne |
| 17 | 0 Frontal margin of DTA smoothly rounded | 1 | 1 fertilization ducts long and sinuous, with proximal coil |
| 1 | 1 Frontal margin of DTA with triangular extension | 39 | 0 epigyne without large dead-end tubes |
| 18 | 0 DTA not bifid | 1 | 1 epigyne with large dead-end tubes |
| 1 | 1 DTA bifid, extended in opposite direction of embolus, 1/4 length of cymbium; | 40 | 0 position of spermathecae frontal, central |
| 2 | 2 DTA bifid, extended in opposite direction of embolus, 1/2 length of cymbium; | 1 | 1 position of spermathecae caudal |
| 3 | 3 DTA bifid, extended in opposite direction of embolus, 3/4 length of cymbium; | 2 | 2 position of spermathecae lateral |
| 4 | 4 DTA narrow and triangular, with short distal groove, slightly concave, obviously derived from 3 | 41 | 0 opening to fertilization duct in posterior part of spermathecae |
| 19 | 0 tegular apophysis (MA) well developed with median groove | 1 | 1 opening to fertilization duct in anterior part of spermathecae |
| 1 | 1 MA membranous; | 42 | 0 entrance ducts entering spermathecae from in front |
| 2 | 2 MA membranous, with sclerotized tip; | 1 | 1 entrance ducts entering spermathecae from the inside |
| 3 | 3 MA spoonshaped with membranous base; | 2 | 2 entrance ducts entering spermathecae from the outside |
| 4 | 4 MA hook-shaped; | 3 | 3 entrance ducts entering spermathecae from the back |
| 5 | 5 MA slightly curved and unmodified; | | |
| 6 | 6 MA bifid; | | |
| 7 | 7 MA flat with membranous base and spine-shaped tip | | |

mentioned above, it is considered plesiomorphic. As the embolus becomes longer its base is directed laterad (state 1, Fig. 13a) or backward (state 2, Fig. 16b).

The distal tegular apophysis (DTA) (character 16) may be absent, which is plesiomorphic, or present. It can be flattened and broad with distal groove as in *T. eduardoi* (Fig. 13b). Character 17 concerns another feature of the DTA. In certain species where it is bifid it may develop a distal triangular extension (Figs. 9b, 12b) which is more derived than where this extension is absent. The DTA becomes bifid (character 18) with a long extension directed in the opposite direction of the embolus and is obviously a functional conductor. This may have the length of 1/4 (state 1, Fig. 15c), 1/2 (state 2, Figs. 8b, 9b) or 3/4 (state 3, Fig. 43b) the length of the embolus. In its most derived state (state 4, Fig. 76b) the appendage is short and concave. The evolution of this character shows a certain parallelism with what happens in *Asteron* (JOCQUÉ & BAEHR, 1996). In that genus the tegular apophysis also becomes a functional conductor developed in the opposite direction of the embolus. In most other Zodariidae and in spiders in general, the conductor points in the same direction as the embolus. Whereas the increasing length of the embolus leads to a spectacular palp in *Asteron*, the evolution takes another direction in the *Tenedos*-clade. Instead of further lengthening, the embolus becomes rigid and eventually develops a distal extension (Figs. 50b, 76b). This phenomenon is characterized by a parallel shortening of the conductor (DTA) which at the same time becomes concave.

The median apophysis (character 19) is also very variable. It is considered to be well developed with a median groove in its plesiomorphic state (Fig. 32a). Initially it loses importance with increasing size of the DTA and becomes simply membranous (state 1, Fig. 22b) or has a sclerotised tip (state 2, 44b) which may be spoon-shaped (state 3, Fig. 7b). It further becomes hook-shaped (state 4, Fig. 15b) or slightly curved (state 5, Fig. 13b). It may eventually become bifid (state 6, Fig. 29b) or flat with a membranous base and spine-shaped tip (state 7, Fig. 63c).

The tegulum may have a swelling near the base of the embolus (character 12), its absence being ancestral. The swelling (state 1, Figs. 66b, 67b) may acquire the shape of a real apophysis (state 2, Fig. 30b) or of a well developed membrane (state 3, Figs. 8b, 37b).

The cymbial flange (character 21) may be unmodified or extended backward in its apomorphic state (Fig. 15b). A high number of cymbial spines (character 22) is considered ancestral (JOCQUÉ 1991, p. 23) whereas three spines or less is regarded as apomorphic.

In some species, the anterior tarsi of the males are swollen and provided with a ventral dense cover of modified setae (character 23, Fig. 1 c,d).

Character 24 is an autapomorphy of *I. xilitla* and concerns the presence of a large dorsal spine on the palpal patella (Fig. 76a).

Characters 25 and 26 are autapomorphies of *T. inflatus* (Fig. 21).

The characters 27-42, pertaining to the female copulatory organs are self-explaining.

Outgroups

As outgroups we used the genus *Procydrela* JOCQUÉ which is among the most ancestral genera in the family (JOCQUÉ 1999), *Platnickia* JOCQUÉ, the sister-group of the large clade in which *Tenedos* takes a position near the base (JOCQUÉ, 1991) and *Ishania* which turned out to be the sister-taxon of *Tenedos* in the cladistic analysis of the Zodariidae (JOCQUÉ 1991). As more revisions on species level become available, it appears that the choice of what species to choose as a representative of the genus is problematic and may have a major effect on the rooting. The more derived species are often so aberrant (e.g. *Storena*, BAEHR & JOCQUÉ, 1994; *Asteron* BAEHR & JOCQUÉ, 1996) that they do not give any clue about the plesiomorphic state of a character. The information in the revisions of some Australian and African zodariid genera is therefore of paramount importance for the polarization of the characters in other genera in the family and for the rooting of these cladograms in particular, the more since the majority of the characters tend to be genitalic in view of the stable somatic morphology.

Cladistic analysis

Running the data including the species for which only females are known added a high amount of noise and resulted in an almost complete loss of resolution in the consensus. Therefore only the 48 species for which the male is known were considered in the analysis.

The analysis was carried out with Nona (GOLOBOFF, 1994) interfaced by Winclada (NIXON, 2002). All characters were run unordered. Five uninformative characters (0, 14, 26, 29, 41) including the dummy were deactivated. The taxa were entered alphabetically except the outgroups *Procydrela*, *Platnickia*, *Ishania tentativa* and *I. certa*, the latter now placed in *Tenedos*. The ratchet (NIXON, 1999) (200 iterations, 1 tree to hold, 4 characters to sample, amb-) yielded only 25 equally long trees ($L=232$, $CI=31$, $RI=61$). Fig. 6a shows one of the 25 trees and Fig. 6b the majority rule tree with frequency scores for each node. As the preferred tree only differs in minor details of terminal clades from the majority rule tree, the symbols showing the distribution area of the species is shown on the former.

Discussion

The taxa that are here described have a remarkably stable somatic morphology whereas the palpal morphology is extremely variable. It was therefore suspected that all the species would have to remain in the genus *Tenedos*. It has indeed been argued (JOCQUÉ 1998, 2002) that the increase

Table 2 — Character matrix for species of the genera *Tenedos* and *Ishania*

| | | | | | |
|-----------------|---------------------|-----------------------|-----------------------|-----------------------|-------|
| Procydrela | 0 0 0 2 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 ? ? 0 | 0 0 0 0 0 1 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 0 | 1 1 2 |
| Platnickia | 0 0 0 2 0 1 0 1 1 0 | 0 0 0 0 0 0 0 0 ? ? 0 | 0 0 1 0 0 1 0 0 0 0 0 | ? 1 2 0 0 0 0 0 0 0 0 | 0 0 0 |
| absoluta | 0 1 1 2 0 1 0 1 5 3 | 0 0 1 0 1 1 1 0 3 2 | 0 0 1 0 0 0 0 0 0 0 0 | 1 2 0 0 0 1 1 2 1 0 | 1 0 1 |
| andes | 0 1 1 0 0 1 0 1 3 2 | 0 1 0 0 1 1 2 0 0 3 | 2 1 1 0 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| asteronoides | 0 1 1 0 1 1 0 1 5 3 | 0 1 0 1 1 2 1 0 2 4 | 3 0 1 0 0 0 0 0 0 0 0 | 2 1 3 0 0 0 0 0 0 ? 0 | 1 0 0 |
| aztek | 0 1 1 2 1 1 0 1 5 4 | 0 0 0 0 1 2 1 0 3 2 | 1 0 1 0 0 0 0 0 1 1 | 1 2 0 0 0 1 1 2 1 0 | 1 0 1 |
| banos | 0 1 1 0 0 1 0 1 3 0 | 0 1 0 1 1 1 1 1 2 4 | 1 1 1 1 0 0 0 1 0 0 | 0 1 3 0 0 1 1 2 1 0 | 2 0 1 |
| barronus | 0 1 1 0 1 1 0 1 2 0 | 0 1 0 0 1 1 2 0 0 5 | 1 1 1 0 0 0 0 1 0 0 | 0 0 1 0 0 1 0 2 1 1 | 2 0 1 |
| brescoviti | 0 0 1 0 1 0 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 1 0 2 1 1 1 0 0 1 0 | 1 0 1 |
| capote | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 0 3 0 0 1 0 2 1 1 | 2 0 1 |
| centrocavatus | 0 1 1 2 0 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 1 2 0 0 0 1 1 2 1 0 | 1 0 1 |
| certa | 0 1 1 0 1 1 0 1 1 0 | 0 0 0 0 1 0 1 0 0 6 | 1 0 0 0 0 0 0 0 1 0 | 0 1 3 1 0 1 1 0 ? 0 | 0 ? ? |
| chicanna | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 0 1 0 1 0 1 0 2 1 0 | 1 1 2 |
| chichimek | 0 1 1 2 1 1 1 1 5 0 | 1 0 1 0 3 1 1 0 4 4 | 1 0 1 0 0 0 0 0 0 0 | 2 2 0 0 0 1 0 2 1 0 | 1 0 1 |
| convexus | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 0 3 0 0 1 1 2 1 0 | 0 0 1 |
| cufodontii | 0 1 1 0 1 1 0 1 1 0 | 0 1 0 1 1 1 1 1 2 5 | 0 1 1 0 0 0 0 1 0 0 | 0 0 3 0 0 1 0 0 1 0 | 2 0 1 |
| eduardoi | 0 1 1 0 1 1 0 1 1 1 | 0 0 0 0 1 1 2 0 0 4 | 0 0 1 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| equatorialis | 0 1 1 0 0 1 0 1 2 1 | 0 1 0 1 1 1 1 0 2 4 | 1 1 0 1 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| estari | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 1 3 0 0 1 2 2 ? 0 | 2 0 1 |
| fartilis | 0 1 1 0 1 1 0 1 2 0 | 0 1 0 0 1 1 1 1 2 5 | 0 1 1 1 0 0 0 0 0 0 | 0 0 3 0 0 1 0 1 1 0 | 2 0 1 |
| figaro | 0 1 1 0 1 1 0 1 1 2 | 0 1 0 0 1 2 2 0 0 2 | 0 0 1 0 0 0 0 1 0 0 | 0 1 3 0 1 1 0 1 1 0 | 2 0 1 |
| firma | 0 1 1 2 1 1 0 1 5 0 | 0 0 0 0 2 1 1 0 2 1 | 1 0 1 0 0 0 0 0 1 0 | 1 2 0 0 0 1 1 2 1 0 | 1 0 1 |
| gertschi | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 1 3 0 0 1 2 0 1 0 | 0 0 1 |
| grandis | 0 1 1 0 1 1 0 1 4 0 | 0 1 0 1 1 1 1 1 2 5 | 0 1 1 1 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| guerrero | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 0 0 1 0 0 1 1 0 1 0 | 0 0 1 |
| hessei | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 1 0 | 0 2 0 0 0 1 0 2 1 0 | 2 0 1 |
| hoeferi | 0 1 1 0 1 1 0 1 2 0 | 0 1 0 0 1 2 2 0 0 4 | 0 1 1 0 0 0 0 1 0 0 | 0 0 1 0 0 1 1 2 1 1 | 2 0 1 |
| honduras | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 0 1 0 1 0 1 0 2 1 0 | 1 1 2 |
| huastek | 0 1 1 2 1 1 1 1 5 0 | 1 0 0 0 3 1 1 0 3 4 | 1 0 1 0 0 0 0 0 0 0 | 3 2 2 1 0 1 1 2 1 0 | 2 0 1 |
| inca | 0 1 1 0 1 1 0 1 2 1 | 0 1 0 1 1 2 1 0 2 4 | 0 1 1 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| inflatus | 0 1 1 0 1 1 0 1 2 2 | 0 1 0 1 1 0 2 0 0 4 | 3 0 1 0 0 1 1 1 0 0 | 0 1 3 1 0 1 2 2 1 0 | 0 0 1 |
| infrarmatus | 0 1 1 0 0 0 0 1 ? 0 | 0 0 0 0 0 0 2 0 0 1 | 0 0 0 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| ivieorum | 0 1 1 2 0 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 1 3 0 0 1 0 0 1 0 | 2 1 1 |
| juninus | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 0 1 0 0 1 2 2 0 0 | 0 0 0 |
| latefossulata | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 1 1 | 1 2 0 0 0 1 1 2 1 1 | 2 0 1 |
| lautus | 0 1 1 0 1 0 0 1 2 0 | 0 0 0 0 1 1 2 0 0 5 | 0 0 0 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| ligulatus | 0 1 1 0 0 1 0 1 2 0 | 0 1 0 0 0 0 2 0 0 5 | 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 1 1 2 1 0 | 2 0 1 |
| maya | 0 1 1 2 1 1 0 1 0 0 | 1 1 0 0 3 1 1 0 2 4 | 0 0 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| microlaminatus | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 1 3 0 0 1 0 0 1 0 | 2 0 3 |
| minuta | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 0 1 3 0 0 1 1 2 1 0 | 2 0 1 |
| mixtek | 0 1 1 2 1 1 0 1 5 3 | 0 0 1 0 1 2 1 0 3 4 | 0 0 1 0 0 0 0 0 0 0 | 0 2 0 0 0 1 1 2 1 0 | 2 0 1 |
| nayarit | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 1 0 | 0 0 1 0 0 1 0 0 1 0 | 2 0 3 |
| oaxaca | 0 1 1 2 1 1 0 1 3 4 | 0 0 1 0 1 1 1 0 3 2 | 1 0 1 0 0 0 0 0 1 0 | 1 2 0 0 0 1 1 2 1 0 | 2 0 1 |
| ocosingo | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 1 1 | 1 2 0 0 0 1 1 2 1 0 | 2 1 1 |
| olmek | 0 1 1 2 1 1 0 0 5 4 | 0 0 1 0 1 2 1 0 3 2 | 0 0 1 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| parinca | 0 1 1 0 1 1 0 0 2 0 | 0 1 0 1 1 1 2 0 0 6 | 0 1 1 0 0 0 0 1 0 0 | 0 1 3 0 0 1 2 ? 1 0 | 2 0 1 |
| paxoides | 0 1 1 2 1 1 0 0 1 2 | 0 0 1 0 1 1 1 0 3 5 | 0 0 1 0 0 0 0 1 0 0 | 0 1 1 0 0 1 0 0 1 0 | 2 0 1 |
| peckorum | 0 1 1 0 1 1 0 0 6 0 | 0 1 0 1 1 1 2 0 0 6 | 2 1 1 1 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| perfidus | 0 1 1 0 0 1 0 0 2 0 | 0 0 2 0 0 0 2 0 0 1 | 2 0 0 0 0 0 0 0 0 0 | 0 1 0 0 1 0 0 0 0 0 | 1 0 0 |
| perforata | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 1 1 1 0 0 1 1 2 1 0 | 2 0 1 |
| persulcatus | 0 1 1 0 1 1 0 1 3 0 | 0 0 0 0 2 0 1 0 0 0 | 0 0 1 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| procreator | 0 1 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 | 1 0 0 |
| protecta | 0 1 1 2 1 1 0 1 2 0 | 0 0 0 0 1 2 1 0 3 7 | 1 0 1 0 0 0 0 0 0 0 | 3 3 0 0 0 1 0 0 ? 0 | 1 ? 1 |
| querci | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 1 2 0 0 0 1 0 0 ? 0 | 1 0 1 |
| quinquangulatus | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 3 0 0 0 0 1 1 2 1 0 | 2 0 1 |
| real | 0 1 1 2 0 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 3 3 0 0 1 1 2 1 0 | 2 1 1 |
| relativa | 0 1 1 2 1 1 0 0 5 0 | 1 0 0 0 1 1 1 0 4 5 | 1 1 0 0 0 0 0 0 0 0 | 2 2 2 0 0 1 0 0 0 0 | 2 0 1 |
| reygeli | 0 1 1 0 1 0 0 0 2 0 | 0 0 2 1 1 1 2 0 0 2 | 0 0 0 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| serrulatus | 0 1 1 0 1 1 0 0 4 0 | 0 1 0 1 1 1 1 1 2 4 | 0 1 1 1 0 0 0 0 0 0 | 2 1 3 0 0 1 1 2 1 0 | 2 0 1 |
| simplex | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 3 1 3 0 0 1 1 2 1 0 | 2 0 1 |
| sumaco | 0 1 1 0 1 1 0 1 2 3 | 0 1 0 1 1 2 1 0 2 4 | 3 0 1 0 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| tarask | 0 1 1 2 1 1 0 1 5 3 | 0 0 0 0 2 2 1 0 2 1 | 0 0 1 0 0 0 0 0 0 0 | 2 2 2 1 0 1 1 2 0 0 | 1 0 1 |
| tentativa | 0 1 1 2 1 1 0 1 3 0 | 0 1 0 0 1 1 1 0 3 2 | 1 0 1 0 0 0 0 0 0 0 | 2 2 1 0 ? 1 1 2 ? 0 | 1 0 1 |
| tormento | 0 1 1 2 1 1 0 1 0 0 | 1 1 0 0 2 0 1 0 4 4 | 0 0 0 0 0 0 0 0 0 0 | 3 1 0 0 0 1 1 2 1 0 | 2 0 1 |
| tononak | 0 1 1 2 1 1 1 1 5 0 | 1 0 1 0 2 1 1 0 4 4 | 1 0 1 0 0 0 0 0 0 0 | 3 2 0 0 0 1 1 2 1 0 | 2 0 1 |
| trilobatus | 0 1 1 0 1 1 0 1 2 2 | 0 1 0 0 0 0 2 0 0 4 | 0 0 1 0 0 0 0 0 0 0 | 3 1 3 0 1 1 0 1 1 0 | 2 0 1 |
| ufoides | 0 1 1 0 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 1 0 0 | 0 0 3 0 0 1 1 2 1 0 | 0 0 3 |
| ultimus | 0 1 1 0 1 1 0 1 3 1 | 0 1 2 1 1 1 1 0 3 6 | 1 1 1 1 0 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| vacua | 0 1 1 2 1 1 ? ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? ? ? ? ? 0 0 0 | 3 2 2 1 0 1 1 2 1 0 | 2 0 1 |
| venezolanus | 0 1 1 0 1 1 0 1 1 0 | 0 1 0 1 1 2 2 0 0 6 | 0 0 1 1 0 0 0 1 0 0 | 0 1 3 0 0 1 2 1 1 0 | 0 0 3 |
| xilitla | 0 1 1 2 0 1 0 1 ? 0 | 0 0 1 0 3 1 1 0 4 4 | 1 1 0 0 1 0 0 ? ? ? | ? ? ? ? ? ? ? ? ? ? ? | ? ? ? |
| zapotek | 0 1 1 2 1 1 0 1 5 3 | 0 0 1 0 3 1 1 0 2 2 | 1 0 1 0 0 0 0 0 0 0 | 2 2 2 1 0 1 0 2 1 0 | 1 0 1 |

in complexity of genitalia is a normal phenomenon in the evolution of genitalia in general and of those of the RTA-clade (CODDINGTON & LEVI 1991) in particular. Lengthening of the embolus is the main characteristic of this increase in complexity and is paralleled by the addition of retrolateral tibial apophyses and an increase in complexity of accompanying sclerites: cymbium, median apophysis, conductor, embolic membrane. It is most often particularly difficult to homologize these characters. The relative length of the embolus for instance is particularly inappropriate as a homologous character as it occurs over and over again in different RTA clades. This results in a horizontal classification. It also explains why phylogenetic trees based mainly on genitalic characters are usually very unstable.

The species of the genus *Ishania*, meant to be used as an outgroup, appeared to fall among the species we had considered as *Tenedos*. The type species *I. tentativa* turned out to fall among the species of a large clade with distribution centre in Mexico and Central America. The only somatic character we could find that separates it from the other clades in the analysis is the presence of a single chilum whereas in all the other representatives it is double. The second species, *I. certa*, ended at the base of a large clade with what we now consider to be proper *Tenedos* species. It is the only species in the analysis without a chilum.

It is clear that according to the cladograms here provided, *Tenedos* is now a paraphyletic taxon. The alternative was to keep all the species in one huge genus by synonymizing *Ishania*. As the latter is now well delimited not only on the base of its genitalia but even by a somatic character we decided to keep *Ishania* valid. This has the consequence that, if we want avoid paraphyletic groupings, seven new genera would have to be created, mostly monospecific and that *Tenedos* itself would have become a tiny genus with two species. However, the dataset is very incomplete as many species are known from only one sex, and the data themselves may be subject to discussion as one might question the homology of different characters as pointed out above. Since the structure of the female genitalia is poorly understood in many cases, the accommodation of several females would have been a problem. For these reasons we decided to keep the species for the time being in the two already existing genera *Tenedos* and *Ishania*.

Dispersal history

It is known that cladistic analyses at species level are rather unstable. The analysis we have carried out with this character-set might also be susceptible to modifications for reasons explained above. However, the conclusions about the historical biogeography remain constant whatever the details of the different cladograms we have obtained: there is always a group of ancestral species scattered around the forested area of northern South America and the clades found in Mexico contain the most

derived species in the genus. There are some discrepancies in the position of the taxa that occur in the Amazon basin which may branch off several times independently probably of the radiations which "conquered" Mexico and the Andes (JOCQUÉ & BAERT 1996). This latter conclusion is different from what we stated in the previous paper in which we assumed that the invasion of the Amazon basin was of relatively recent origin (< 3 my bp).

However, this study is among the few that provide evidence for an invasion by a Neotropical invertebrate clade into North America following the connection between the North American and the South American plates via the Caribbean plate which resulted in the "Great American Biotic Interchange" (see STEHLI & WEBB, 1985).

The present distribution of the *Tenedos*-clade can be explained as follows: the most plesiomorphic species (Fig. 6a) are found around the Amazon Basin (Fig. 6). This corroborates the idea that Zodariidae were initially spiders adapted to arid or semi-arid habitats, or at least habitats with a marked dry season. The majority of South America is supposed to have had a xerophilous vegetation at the time Gondwanaland split up (ENDRÖDY-YOUNGA, 1995). Ancestors of the present-day *Tenedos* species are therefore supposed to have colonized a large part of the subcontinent until their habitat shrunk as a result of the expansion of the rain-forest similarly to what is supposed to have happened in Africa (JOCQUÉ, 1993). Due to alternating forest expansion and contraction (see LOURENÇO 1986, 1994), the habitat of the ancestral *Tenedos* was fragmented. The subsequent isolation of the populations resulted in different species which have apparently been separated for a long time as can be deduced from the ladder-shape of the inferior part of the cladogram.

The large radiations in the *Tenedos*-clade apparently only began after the connection of North and South America. This happened about 3 mybp when the Caribbean plate filled the gap between the North American and the South American plates (MALFAIT & DINKELMAN, 1972). Thanks to the low dispersion speed of zodariids and their usually small distribution areas, it is possible to follow the direction of the distribution of particular clades during their radiation. Some of the more plesiomorphic species succeeded in reaching Central America. From there on, a rapid radiation took place. The *Ishania* clade (*) invaded North America (Mexico) from south to north. The species that occur in Central America are among the most plesiomorphic in that clade whereas the most derived occur at the far end of Yucatan (*I. maya*, *I. tormento*) and in northern Mexico (*I. chichimek*, *I. huastek*). *Tenedos* ss radiated in South America mainly in the Andes and on several occasions in the Amazon Basin. The similarity with the historical conquest of South America in the 16th century with main incursions into Mexico and along the Andes in South America, explains why we called the present distribution of *Tenedos* the result of an "early conquest" of the New World (JOCQUÉ & BAERT, 1996). This is also the reason why many of the species here described receive names of the tribes that were extermi-

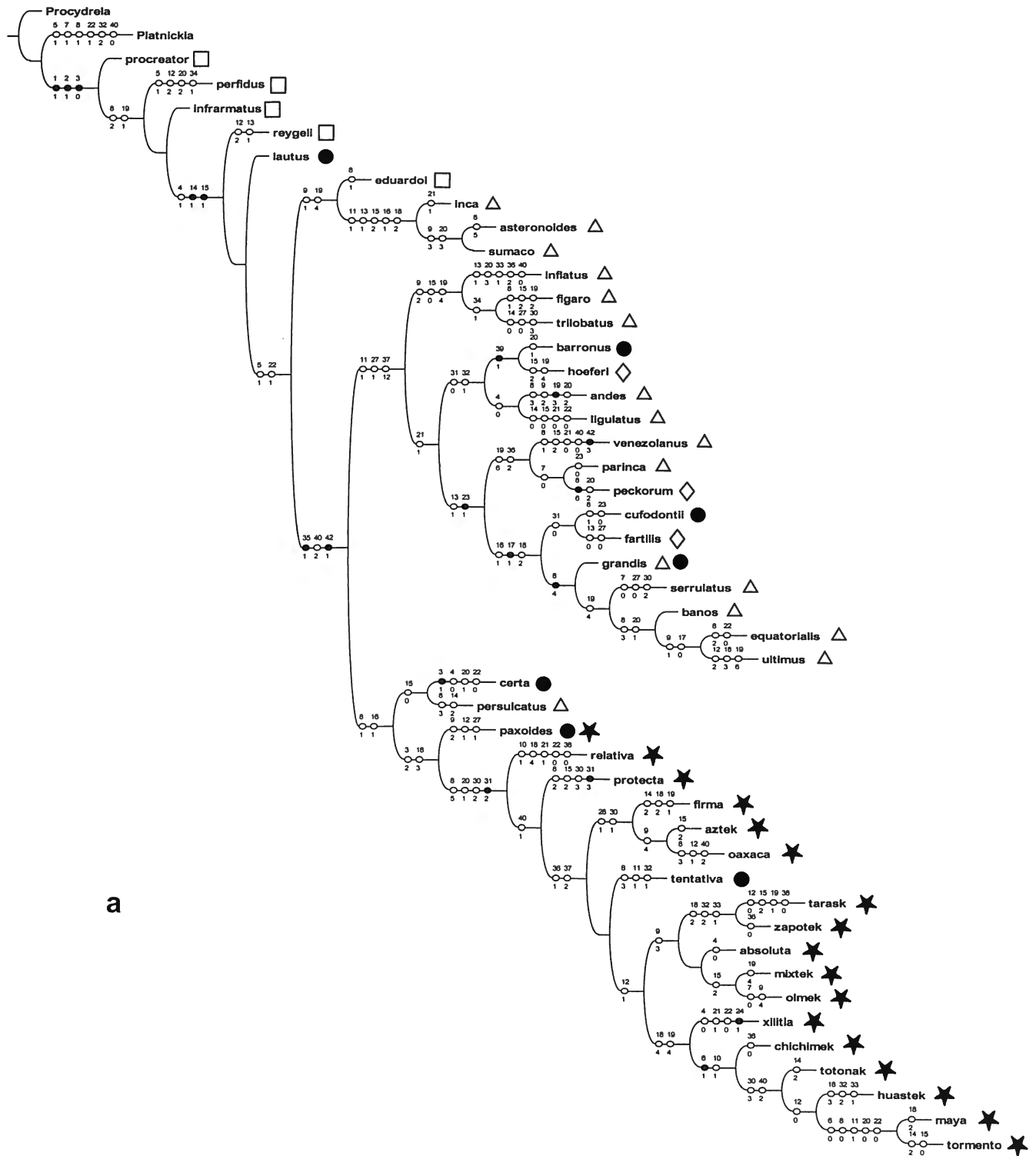
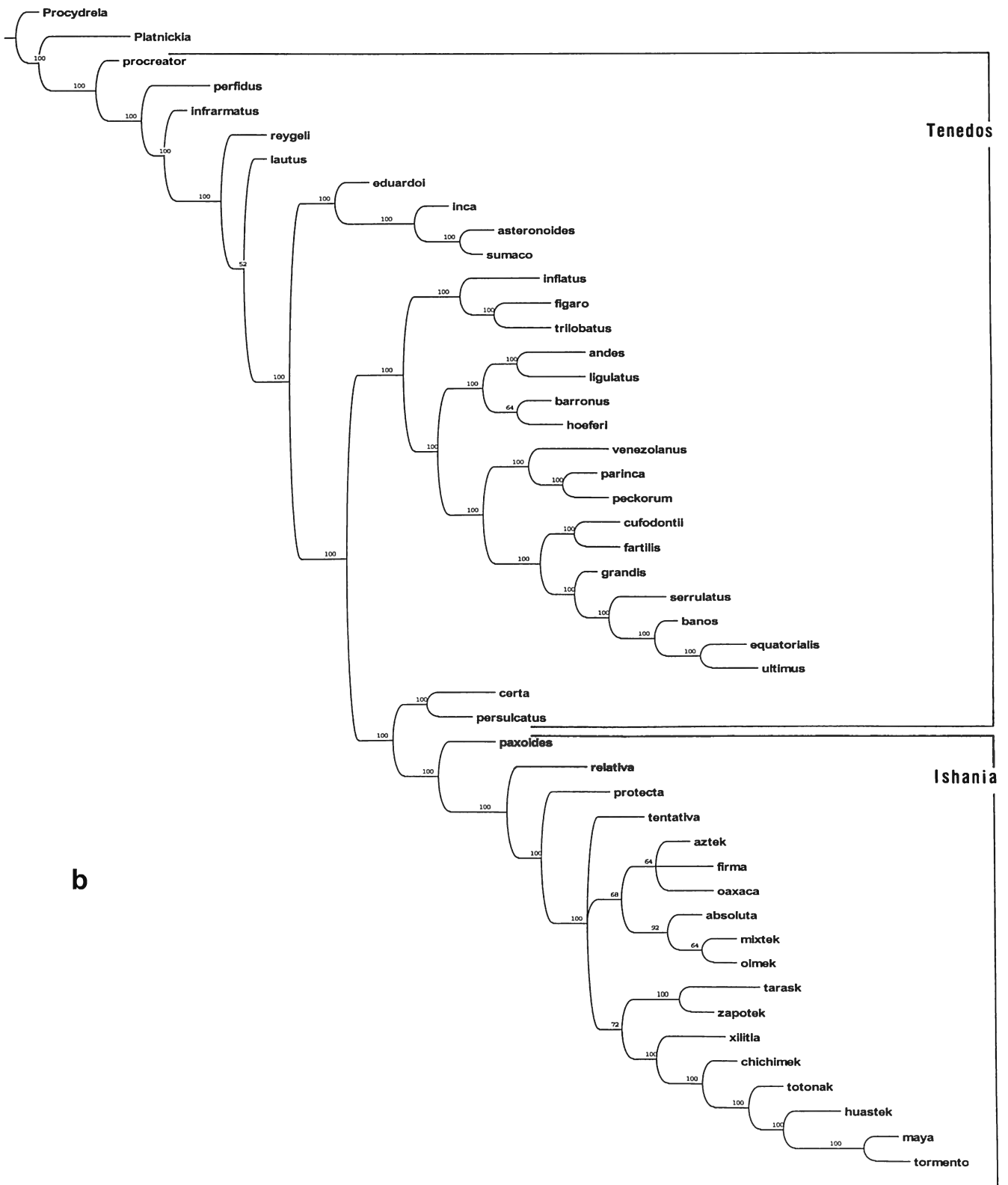


Fig. 6 — Cladogram of species of *Tenedos* and *Ishania* for which the male is known. a. preferred tree of 25 equally parsimonious trees ($L=232$, $CI=31$, $RI=61$) showing character and state changes for each branch (full circles are gains, open circles are reversals); symbols refer to distribution (\square circum-Amazonia; Δ Andes, \bullet Central America, \diamond Amazon Basin, $*$ Mexico). b. majority rule cladogram showing frequency scores for each node and the limits of *Tenedos* and *Ishania*.



nated by the conquistadores. The main difference of the present clade with the one presented by JOCQUÉ & BAERT (1996) is that the lowland rain forest of the Amazon basin has apparently been invaded at several occasions and not only after the development of the large radiations.

It would seem that the plugging of the gap between North and South America triggered several radiations. For one reason or another the genus has become more plastic and was able to colonize different habitats ranging from dry desert (northern Mexico) to very wet rainforest (central Amazon basin). Mainly from the latter habitat many more species are expected as there are enormous gaps in our knowledge of that region.

TENEDOS O.P.-Cambridge

Tenedos O.P.-CAMBRIDGE 1897: 6 (descr. new genus)
Tijuca MELLO-LEITÃO 1925: 461 (descr. new genus; pre-occupied by *Tijuca* FÉRUSAC 1829 (Aves)); HOLT 1926: 85 (Type species *Tijuca eduardoi* MELLO-LEITÃO)
Naibena CHAMBERLIN 1925: 214 (descr. new genus) (type species *Naibena barrona* CHAMBERLIN)
Tijucaia MELLO-LEITÃO 1940: 33 (nomen novum pro *Tijuca*)
Tenedos JOCQUÉ 1991: 93; JOCQUÉ & BAERT 1996: 309.

DIAGNOSIS: Representatives of the genus are recognized by the double chilum, the small AME which are smaller than the other eyes; males have a tegulum with converging distal tegular and median apophyses.

DESCRIPTION: Medium-size spiders (3-9 mm) with elongate carapace, 1.4 to 1.8 times longer than wide; narrowed in front to 0.5-0.7 times maximum width, reached at level of coxae II. Highest point of profile between eyes and fovea, falls sharply behind PME. Fovea shallow.

Colour: prosoma, including legs, chelicerae and sternum orange to reddish brown; abdomen pale to dark grey with pale pattern on dorsum; venter usually pale, sometimes with darker pattern. Carapace slightly reticulated or smooth.

Eyes: both rows procurved, posterior one sometimes almost straight. Eyes rather small. AE equidistant; AME 1 diameter apart; ALE larger than AME. PME about their radius apart and three to four times that distance from PLE. PME slightly smaller than PLE. MOQ longer than wide, narrower in front than behind. Clypeus high, four times the diameter of an ALE; very slightly sinuous, with few setae.

Chilum divided or absent. Chelicerae 1.5 times to twice as long as wide at the base; slightly pubescent in front, with row of long hairs distomesally; lateral condyle strongly developed; no marginal teeth; fangs short. Endites triangular with anteromesal scopula. Labium elongate, triangular; longer than wide (1.2 times). Sternum triangular, with sinuous margins; longer than wide (1.2 times) without lateral extensions.

Legs: Formula 4123. Spination: poor on legs I and II; spines more numerous on legs III and IV. Three tarsal

claws; 10 to 12 teeth on superior tarsal claws. Trichobothria: in two rows on T, in one row on Mt and t. Hinged hairs present. Scopulae normal, spiniform or absent; ventral hair tuft on Mt III and IV poorly developed but with typical chisel-shaped hairs (Figs. 1a-c).

Abdomen elongate, oval; six spinnerets in both sexes (Figs. 2, 3); PS & MS very small (Figs. 2c, 3b-c), AS long, biarticulate, distal segment very short (Figs. 2b, 3b). Colulus represented by group of hairs. Tracheal spiracle just in front of spinnerets, procurved, with sclerified anterior lip.

Male palp (Figs. 4, 5): apophyses on tibia very variable ranging in number from 1 to 4; they may be dorsal, pro- and retrolateral or ventral; sometimes with ventral haired swelling in addition; cymbium with proximal lateral flange, sometimes extended backwards; embolus usually long, implanted on retromesal side of tegulum; tegulum with two well developed, converging apophyses: the median apophysis (MA) and the distal tegular apophysis (DTA) which can be considered a conductor.

Table 3 — Checklist of *Tenedos* species with main distribution area

| | |
|--|--------------------|
| 1. <i>T. andes</i> new species | Colombia |
| 2. <i>T. asteronoides</i> new species | Ecuador |
| 3. <i>T. banos</i> new species | Ecuador |
| 4. <i>T. barronus</i> (CHAMBERLIN) | Panama |
| 5. <i>T. brescoviti</i> new species | Brazil |
| 6. <i>T. capote</i> new species | Colombia |
| 7. <i>T. certus</i> (JOCQUÉ & UBICK) | Costa Rica |
| 8. <i>T. convexus</i> new species | Venezuela |
| 9. <i>T. cufodontii</i> (REIMOSER) | Costa Rica, Panama |
| 10. <i>T. eduardoi</i> (MELLO-LEITÃO) | Brazil |
| 11. <i>T. equatorialis</i> new species | Ecuador |
| 12. <i>T. estari</i> new species | Peru |
| 13. <i>T. fartilis</i> new species | Ecuador |
| 14. <i>T. figaro</i> new species | Ecuador |
| 15. <i>T. grandis</i> new species | Ecuador, Panama |
| 16. <i>T. hoeferi</i> new species | Brazil |
| 17. <i>T. honduras</i> new species | Honduras |
| 18. <i>T. inca</i> new species | Peru |
| 19. <i>T. inflatus</i> new species | Peru |
| 20. <i>T. infrarmatus</i> new species | Brazil |
| 21. <i>T. juninus</i> new species | Peru |
| 22. <i>T. lautus</i> O.P.-CAMBRIDGE | Guatemala |
| 23. <i>T. ligulatus</i> new species | Colombia |
| 24. <i>T. microlaminatus</i> new species | Peru |
| 25. <i>T. parinca</i> new species | Peru |
| 26. <i>T. peckorum</i> new species | Colombia |
| 27. <i>T. perfidus</i> new species | Brazil |
| 28. <i>T. persulcatus</i> new species | Ecuador |
| 29. <i>T. procreator</i> new species | Brazil |
| 30. <i>T. quadrangulatus</i> new species | Peru |

The terminology used to indicate the different sclerites in the male palp is different from what is used in JOCQUÉ & BAERT (1996) but matches the terms used by JOCQUÉ & BAEHR (1992), BAEHR & JOCQUÉ (1996).

Female with cylindrical palpal tarsus, provided with toothed claw. Epigyne very variable: sometimes tiny and inconspicuous, sometimes large and complex: with central depression or median area. Entrance openings in front or at the back; entrance ducts very variable: short and simple or long and with several curves or wound and cork-screw-shaped; spermathecae usually complex with thick-walled atrium.

TYPE SPECIES: *Tenedos lautus* O.P.-CAMBRIDGE.

SPECIES INCLUDED: see table 3.

DISTRIBUTION: central and northern South America, Central America.



Map 2 — Distribution of *Tenedos* species: *T. figaro* (14), *T. inflatus* (19), *T. microlaminatus* (24), *T. parinca* (25), *T. peckorum* (26), *T. perfidus* (27), *T. persulcatus* (28), *T. procreator* (29), *T. quadrangulatus* (30), *T. quinquangulatus* (31), *T. reygeli* (32).



Map 1 — Distribution of *Tenedos* species: *T. andes* (1), *T. asteronoides* (2), *T. banos* (3), *T. barronus* (4), *T. brescoviti* (5), *T. capote* (6), *T. convexus* (8), *T. cufodontii* (9), *T. eduardoi* (10), *T. equatorialis* (11), *T. estari* (12), *T. fertilis* (13), *T. grandis* (15), *T. hoeferi* (16), *T. honduras* (17), *T. inca* (18), *T. infrarmatus* (20), *T. juninus* (21), *T. lautus* (22), *T. ligulatus* (23).



Map 3 — Distribution of *Tenedos* species: *T. serrulatus* (33), *T. sumaco* (34), *T. trilobatus* (35), *T. ufoides* (36), *T. ultimus* (37), *T. venezolanus* (38).

Key to males of *Tenedos*

1. DTA bifid with retrolateral prong developed in opposite direction of embolus (Fig. 17 b) . . . 2
 – DTA not bifid or without retrolateral prong developed in opposite direction of embolus . . . 12
- 2(1). Retrolateral prong of DTA less long than 3/4 the length of the tegulum (Fig. 8b) 3
 – Retrolateral prong of DTA as long as 3/4 the length of the tegulum or longer (Fig. 20b) . . . 11
- 3(2). Base of retrolateral prong of DTA clearly marked with triangular or rounded extension which forms the distal margin of the tegulum (Fig. 9b) . . . 4
 – Distal end of tegulum smoothly rounded (Fig. 8b) 9
- 4(3). Dorsal margin of palpal tibia with serrated margin and small recurved dorsal apophysis (Fig. 32a) 5
 – Tibia different 6
- 5(4). MA bifid *T. grandis*
 – MA unmodified *T. serrulatus*
- 6(4). RTA with inferior prong the longest; superior one concave at extremity (Fig. 14b) . . . *T. equatorialis*
 – RTA different 7
- 7(6). RTA without clear indentation; inferior margin hidden by large cymbial flange (Fig. 12a) *T. cufodontii*
 – RTA clearly indented or ridged; cymbial flange less strongly developed (Fig. 9a) 8
- 8(7). Superior part of RTA clearly truncated and wider than inferior one (Fig. 9a) *T. banos*
 – RTA with two weak indentations; central part the largest (Fig. 15b) *T. fartilis*
- 9(3). Retrolateral margin of cymbium with group of procurved hairs; superior RTA the longest (Figs. 16a-b) *T. figaro*
 – Cymbial margin without such hairs; central RTA the longest 10
- 10(9). Central RTA with smaller parallel-sided prong at its base; central and dorsal RTA widely separated (Fig. 37a) *T. sumaco*
 – Central RTA without basal excrescence; dorsal and central RTA less widely separated (Fig. 8a) *T. asteronoides*
- 11(2). Embolus with swollen tip; palpal tibia with large ventral apophysis (Figs. 40a-b) *T. ultimius*
 – Embolus tapering to tip; ventral apophysis absent or small *T. inca*
- 12(1). Tegulum with large proximal swelling *T. inflatus*
 – Tegulum without swelling 13
- 13(12). Base of embolus directed forward, with narrow appendage also extended forward (Fig. 26b) . . 14
 – Embolus directed backward or laterad, if forward then without appendage 15
- 14(13). RTA, long, narrow curved upward and with denticle at base of dorsal margin; appendage at base of embolus tongue-shaped (Fig. 26b) *T. ligulatus*
 – RTA short, with bifid tip; appendage at base of embolus whip-shaped (Fig. 30b) . . . *T. perfidus*
- 15(13). Distal tegular apophysis, broad and flat covering prolateral part of bulbus in ventral view; tibia with two retrolateral apophyses or RTA bifid; base of embolus directed backward or laterad (Fig. 13b) 16
 – Distal tegular apophysis smaller; 17
- 16(15). Dorsal RTA much larger and longer than ventral one and widely separated from it (Fig. 29a) . . 18
 – Dorsal RTA not or not much larger and longer than ventral one; most often only one prong, with bifid terminal margin (Fig. 41a) 20
- 17(15). Tibia with three apophyses 19
 – Tibia with one retrolateral apophysis 25
- 18(16). Tegular apophysis hook-shaped . . . *T. trilobatus*
 – Tegular apophysis bifid *T. parinca*
- 19(17). Dorsal RTA with longitudinal ridge; ventral RTA a thick tooth-shaped appendage (Fig. 29a) *T. peckorum*
 – Dorsal RTA with large tooth at base; ventral RTA a simple swelling (Fig. 7a) *T. andes*
- 20(16). RTA with two simple prongs, the dorsal one clearly larger and longer than the ventral one (Fig. 18b) 21
 – RTA either with more prongs or dorsal one not the largest and longest (Fig. 25a) 23
- 21(20). MA with bifid extremity: the dorsal part pro- and downcurved, ventral part straight, pointing backward (Fig. 41b) *T. venezolanus*
 – Extremity of MA a simple curved hook (Fig. 10b) 22
- 22(21). Dorsal prong of RTA with rounded tip; cymbial flange simply swollen; tip of MA a procurved hook (Fig. 10b) *T. barronus*
 – Dorsal prong of RTA with sharp tip; cymbial flange with sharp tip in front; tip of MA with recurved hook (Fig. 18c) *T. hoeferi*
- 23(20). RTA with short downcurved, sharp dorsal prong and broadly rounded ventral one (Fig. 25a); MA with blunt downcurved hook (Fig. 25b) *T. lautus*
 – RTA different; MA with sharp hook (Fig. 35b) 24
- 24(23). RTA a large bifid swelling near dorsal margin of tibia which has a large, haired, ventrolateral swelling (Fig. 35a); MA on a large stalk implanted on tegular centre (Fig. 35b) . . . *T. reygeli*
 – RTA with three prongs: dorsal one short and sharp, median one longer and with rounded tip, ventral one truncated (Fig. 13a); stalk of MA less long, implanted near base of embolus (Fig. 13b) *T. eduardoi*
- 25(17). RTA, long, pointed and with oblique groove (Fig. 31a); DTA and MA both short and pointing forward (Fig. 31b) *T. persulcatus*
 – RTA short and truncated or rounded (Fig. 32a); DTA and MA pointing outward (Fig. 32b) . . 26
- 26(25). RTA near dorsal margin of tibia (Fig. 32a); MA

sclerotised; DTA narrow and straight (Fig. 32b)
 *T. procreator*
 – RTA near ventral margin of tibia (Fig. 22b); MA,
 translucent; DTA with large base, twisted
 (Fig. 22b) *T. infrarmatus*

Descriptions

Tenedos andes new species

Figs. 7a-c, Map 1

species 15, JOCQUÉ and BAERT 1996: 312, Table 2.

TYPE MATERIAL: Holotype: Male: COLOMBIA: Cundinamarca, Finca San Pablo, 3km N Alban, 1800m, P. and B. Wygodzinsky (AMNH).

DIAGNOSIS: Males of this species are easily recognized by the sharp tegular apophysis at the base of the embolus and the spoon-shaped median apophysis with membranous base.

ETYMOLOGY: The species name is a noun in apposition referring to the type locality.

DESCRIPTION: *Male holotype*: Total length 6.00; carapace 2.92 long, 2.03 wide, 1.24 high.

Colour: Carapace light brown; legs orange brown but trochanters and proximal third of Fe pale yellow, Mt I pale yellow except at tips; abdomen (Fig. 7c) pale grey with dorsal pattern of white spots in 1-2-3-1 arrangement; sides with three oblique yellowish stripes; venter with white circular patch in front of each lung.

Carapace with few short hairs and central row of bristles in thoracic part.

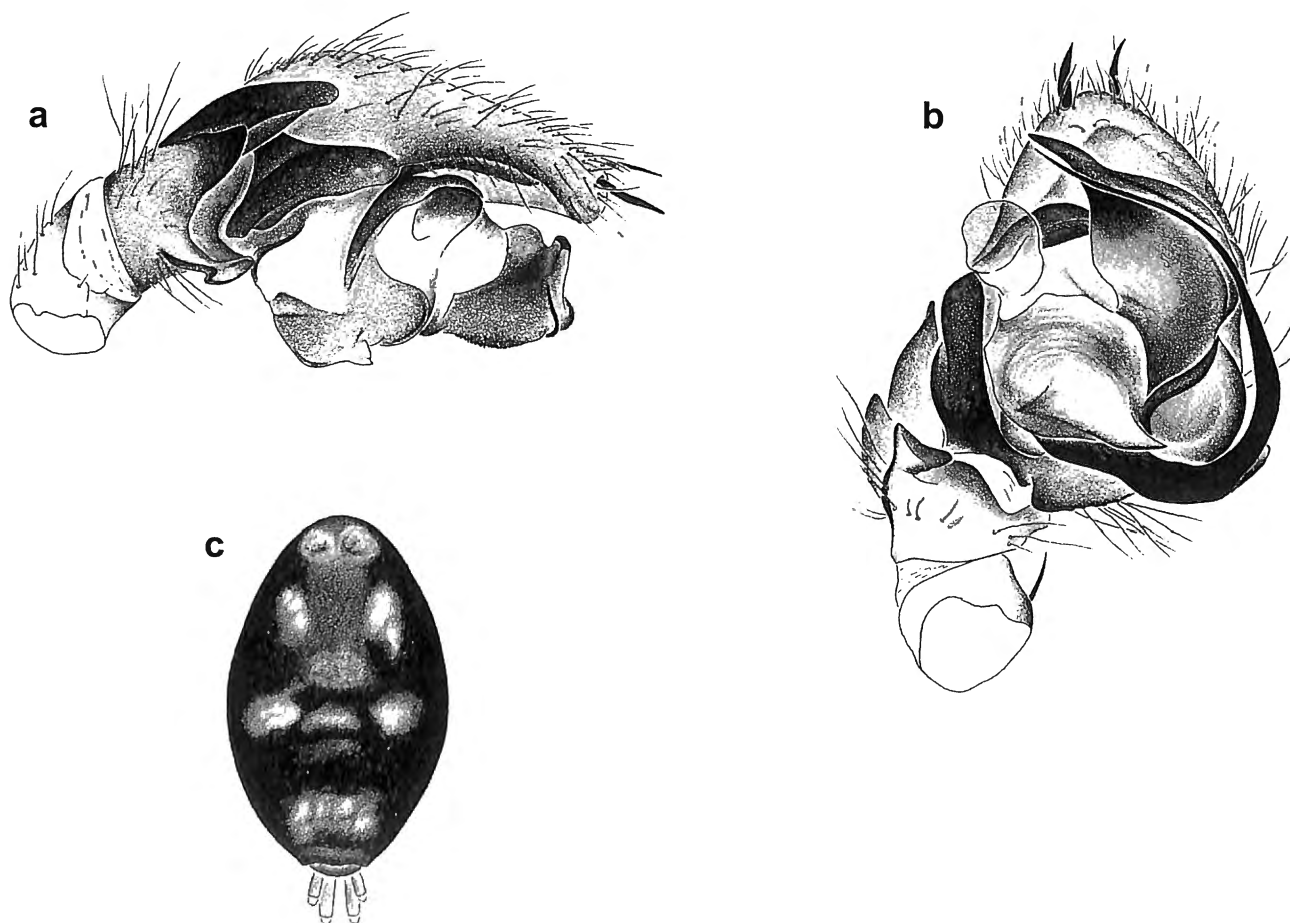
Carapace strongly reticulated.

Eyes: MOQ: AW = 0.86PW; AW = 0.72L.

Legs: Spination: femora I d3*pl1 II d3*pl1r1 III d0-2-2pl2* IV d2-1-3; patellae III-IV d2pl1r1; tibiae I d1fv2-2-2 II pl1v2(1)-1-2 III d3*pl2*v2-1-2rl2* IV d3*pl2*v2-2-2rl2*; metatarsi I pl1v2-1-2 II pl1v2-1-(1)-2 III d1-2-2pl3*v2-0-2rl1 IV d3*pl3*v2-1-1-2rl3*.

Measurements: Pa+Ti I 2.32 II 1.87 III 1.75 IV 2.29.

Male palp (Figs. 7a-b): Tibia with two retrolateral apophyses: one dorsolateral, appearing as double due to deep groove, the other ventrolateral with transverse, twisted tip. Cymbium with two apical spines. Cymbial flange strongly developed, extended backwards. Tegulum short, as wide as long, with a fin-like extension at base of embolus. Median apophysis spoon-shaped with membra-



Figs. 7a-c — *Tenedos andes*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern.

nous base. DTA broadly oval, grooved, with tip directed retrolaterad. Embolus long, slender, flexible; originates from tegulum in prolateral direction, bending forward to meet DTA, following it tightly to the tip.

Female: Unknown.

DISTRIBUTION: Only known from type locality (Map 1)

Tenedos asteronoides new species

Figs. 8a-e, 24a, Map 1

TYPE MATERIAL: Holotype: Male: ECUADOR: ORIENTE: Tropical forest Puyo, 800m, IV.1965 (J. and N. Leleup) (KBIN).

Paratypes: 2♀: together with holotype; 2♂: PASTAZA Prov.: 25 km N of Puyo, 1000m, cloud forest litter, 13.VII.1976 (S. Peck)(FMNH).

DIAGNOSIS: Males of this species are recognized by the large, strongly developed, dorsal tibial apophysis; the central part of the RTA has no basal excrescence. Females are characterized by the epigyne with deep indentation from which emerges a rectangular scape.

ETYMOLOGY: The shape of the distal tegular apophysis reminds the conformation of the male palp in many species of the Australian genus *Asteron* in which there is a similar but often larger distal tegular apophysis accompanying the embolus in opposite direction.

DESCRIPTION: *Male holotype*: Total length 3.68, carapace 1.84 long, 1.28 wide, 0.76 high.

Colour: Carapace orange; sternum orange with lighter center; legs pale with Fe and Ti faintly annulated; abdomen pale with dark sepia pattern (Fig. 8d).

Carapace reticulated.

Eyes: MOQ: AW = 0.71PW; AW = 0.71L.

Legs: Spination: femora I-II d3*pl1 III d2*pl2*rl1 IV d3*pl1rl1; patellae III-IV d1pl2rl1; tibiae I d1fpl1v2-1-2 II d1fpl2*v1-1-2 III d3*pl2*rl2*v2-0-2 IV d3*pl2*rl2*v2-1-2; metatarsi I pl1v1-1-2 II pl2*v2-0-2 III d1-2-2pl2*rl1v2-0-2 IV confused.

Measurements: Pa+Ti I 1.44 II 1.18 III 1.14 IV 1.48.

Male palp (Figs. 8a-b): Tibia with two strong apophyses: one frontal, broad; one dorsal, large, directed forward; two long spines on prolateral edge. Cymbium with one prolateral and two apical spines. Cymbial flange thick. Tegulum entirely sclerified, oval in shape, slightly oblique with distal tip directed retrolaterad. MA, a hook with membranous base. DTA bifid, prolaterally extended in opposite direction of embolus for about 1/4th of its length. Embolus long, slender and flexible; originates at posterior end of tegulum.

Female paratype: Total length 6.96 (2nd specimen 3.76), carapace 1.88 long, 1.20 wide, 0.84 high.

Colour: As in male.

Eyes: MOQ: AW = 0.65PW; AW = 0.61L.

Legs: Spination: femora I-II d3* III d2* IV d3*; pa-

tellae III-IV d1pl2rl1; tibiae I d1fv1-1-2 II d1fpl1v1-1-1 III d3*pl2*rl2*v1-1-2 IV d3*pl2*rl2*v1-1-2; metatarsi I pl1v1-0-2 II v1-0-2 III d1-2-2pl2*rl1v2-0-2 IV d1-2-2pl2*v2-0-2.

Measurements: Pa+Ti I 1.24 II 1.08 III 1.08 IV 1.42.

Epigyne (Figs. 8c,e, 24a): Fairly short; posterior margin with deep indentation from which originates a rectangular scape. Entrance ducts with two long curved loops ending in central spermathecae.

DISTRIBUTION: Only known from type locality (Map 1).

Tenedos banos new species

Figs. 9a-e, 24b, Map 1

TYPE MATERIAL: Holotype: Male: ECUADOR: Baños, Cave of Baños, 2300m, IV.1965 (J. and N. Leleup) (KBIN).

Paratypes: 2♀: together with holotype (tube also contains 2 sa♂, 1sa♀, 8 juv.).

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

DIAGNOSIS: Males of this species are recognized by the complex palpal tibia which has a large dorsolateral apophysis combined with a ventrolateral and a prolateral one; the MA is smoothly curved. Females are characterized by the small semicircular lip on the posterior margin of the epigyne.

DESCRIPTION: *Male holotype*: Total length 5.60, carapace 3.08 long, 1.88 wide, 1.20 high.

Colour: Carapace reddish brown; sternum brown; legs yellowish brown, coxae and proximal third of Fe white; abdomen (Fig. 9d) dark sepia with characteristic pattern of white patches: two frontal, kidney-shaped followed by set of three rows (15 in all); sides with four oblique white stripes (posterior two fused); venter pale sepia with two large, white, oval patches.

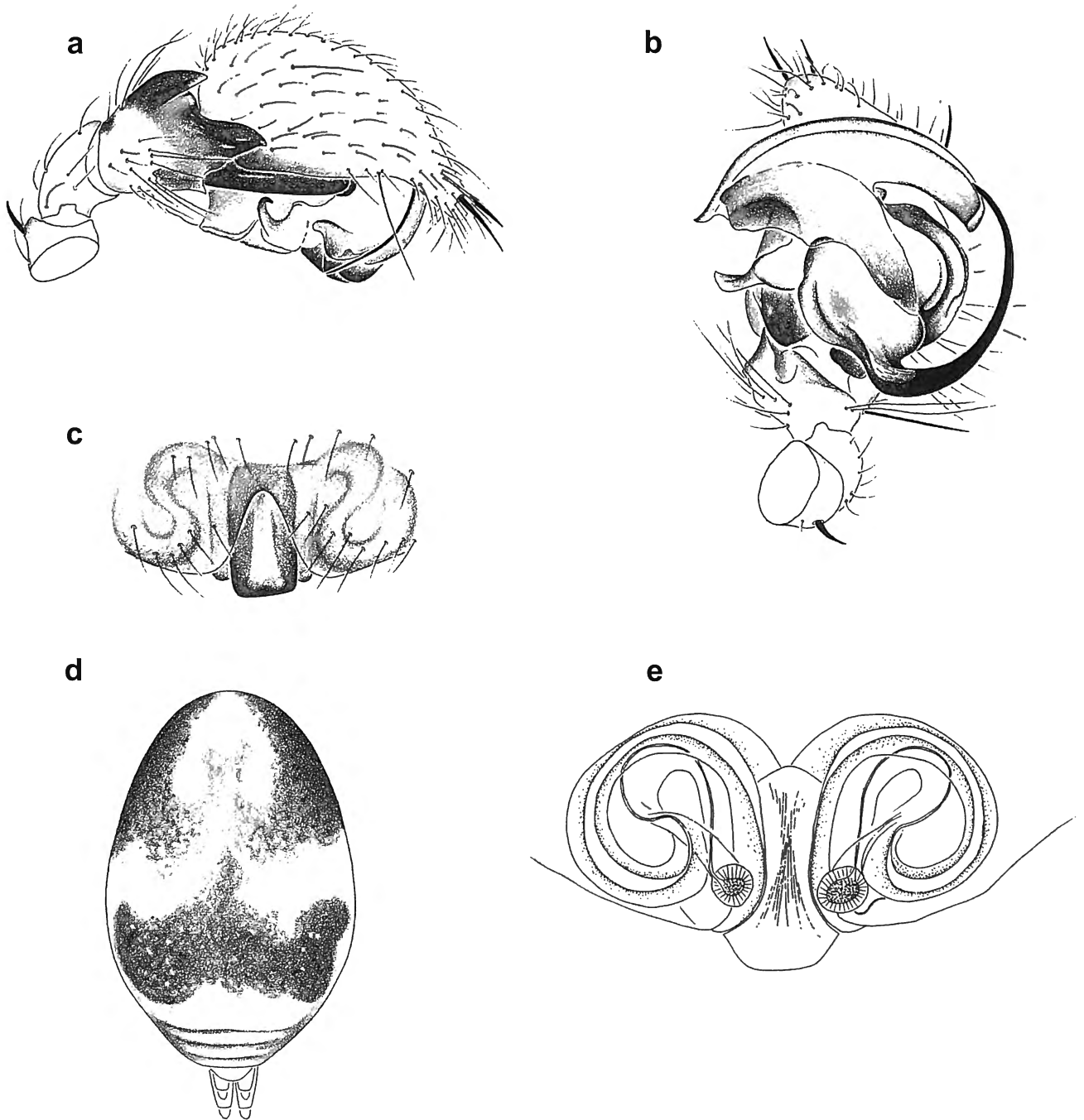
Carapace strongly reticulated.

Eyes: MOQ: AW = 0.70PW; AW = 0.58L.

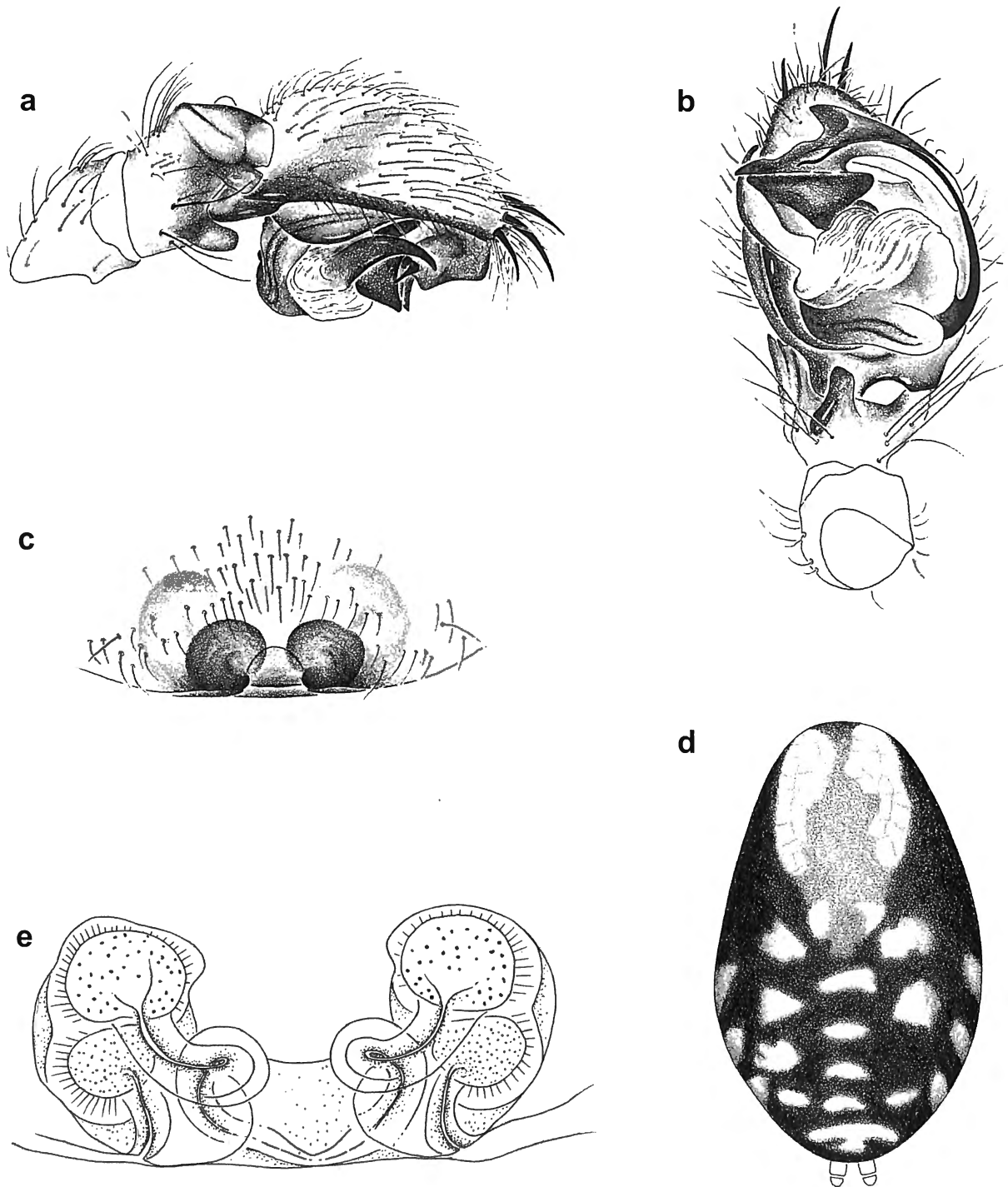
Legs: Spination: femora I d3*pl1 II d3*pl1rl1 III d1pl1rl1 IV d3*pl1rl1; patellae III-IV d1pl2rl1; tibiae I d2fpl1v2-1-2 II d2fpl1v1-1-1 III d2*pl2*rl2*v2-2-2 IV d3*pl2*rl2*v2-2-2; metatarsi I d1fpl1v2-1-2 II d1fv2-1-2 III d1-2-2pl3*rl1v2-2-2 IV d0-1-2pl3*rl3*v2-2-2.

Measurements: Pa+Ti I 2.32 II 1.92 III 1.84 IV 2.42.

Male palp (Figs. 9a-b): Tibia with three apophyses: one retrolateral on dorsal margin appearing double due to deep groove; one short, blunt ventral; one prolateral. Cymbium with one prolateral and three apical short spines. Cymbial flange strong and extended backwards. Tegulum nearly rectangular, posterior half with boss near base of embolus. MA fully and smoothly curved; DTA bifid: proximal part triangular, distal part harpoon-shaped with prolateral extension developed in opposite direction



Figs. 8a-e — *Tenedos asteronoides*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Abdomen, dorsal pattern. e. Epigyne, cleared, dorsal view.



Figs. 9a-e — *Tenedos banos*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Abdomen, dorsal pattern. e. Epigyne, cleared, dorsal view.

of embolus, covering half its length. Embolus long, slender and flexible; originating in posterior half of prolateral edge of tegulum, directed laterad.

Female: Total length 6.56 (2nd specimen 6.08), carapace 2.72 long, 1.72 wide, 1.36 high.

Colour: As in male but abdomen less dark.

Eyes: MOQ: A AW = 0.56PW; AW = 0.42L.

Legs: Spination: femora I-II d3* III d1 IV d2*r11; patellae III-IV d1pl2r11; tibiae I d2fv1-0-0 II d2fv1-1-0 III d2*pl2*r12*v2-2-2 IV d3*pl2*r12*v2-2-1; metatarsi I d1fp11v2-0-2 II d2fp11v2-1-2 III d1-2-2pl3*r11v2-1-2 IV d0-1-2pl3*r13*v2-2-1-2.

Measurements: Pa+Ti I 1.90 II 1.64 III 1.60 IV 2.12.

Epigyne (Figs. 9c,e, 24b): Fairly small with forward produced, semicircular lip near posterior margin.

DISTRIBUTION: Only known from type locality (Map 1).

Tenedos barronus (CHAMBERLIN, 1925)

Figs. 10a-d, 24c, Map 1

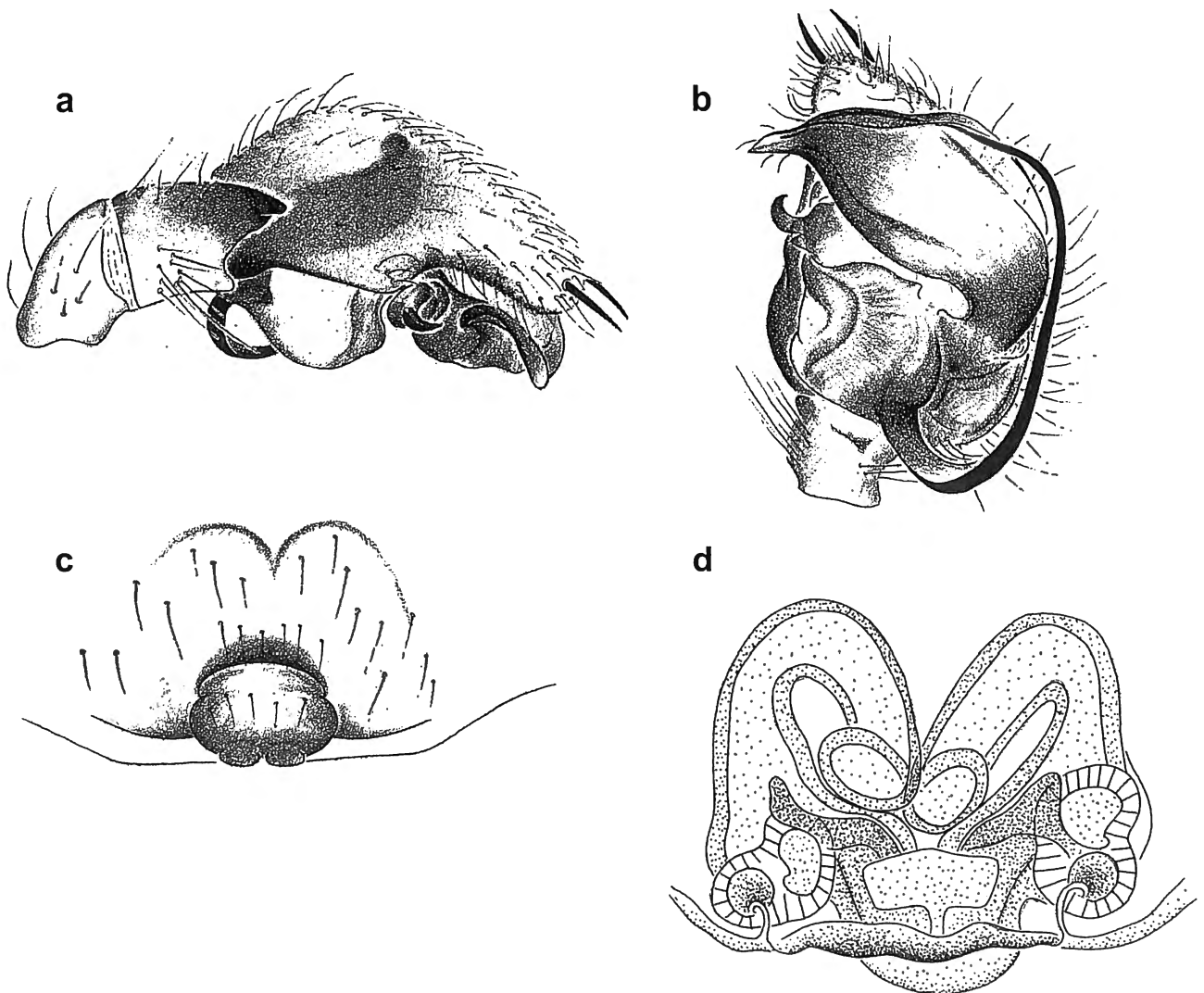
Naibena barrona CHAMBERLIN 1925: 214 (descr. immat.).

Storena barroana: BANKS 1929: 55 ; CHICKERING 1947: 133.

Tenedos barronus: JOCQUÉ 1991: 96 (descr. ♂♀).

TYPE MATERIAL: Holotype: immat.female: PANAMA: Barro Colorado island (MCZ 1267) (examined).

OTHER MATERIAL EXAMINED: PANAMA: 17 ♂, 97 ♀, 106 imm.: Barro Colorado island between 1934 and 1964, mostly without precise dates, independently collected by Chickering, Zetek and Banks (MCZ); 1♂, 1♀, 2 imm.: Canal Zone, Upper Gardens; V. 1964 (MCZ); 1♀: El Valle, VI. 1936, Chickering (MCZ).



Figs. 10a-d — *Tenedos barronus*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.

DIAGNOSIS: Males of this species are recognized by the simple male palpal tibia with blunt dorsolateral and ventrolateral apophyses and by the short, procurved MA on a thick basis. Females are characterized by the epigyne with central lip overhanging the posterior margin and the long recurved cul de sac ducts in the anterior part.

DESCRIPTION: Immature (Ht): total length 4.50; carapace 1.85 long, 1.17 wide.

Colour: carapace reddish brown, paler around fovea with dark margin. Chelicerae orange brown; legs pale orange; abdomen pale grey with white spots (JOCQUÉ 1991, Fig. 213); venter pale grey with faint median stripe and two stripes in front of the spinnerets joining the darker pattern on dorsum, thus delimiting an oval pale patch on posterior side.

Carapace (JOCQUÉ 1991, Fig. 213): smooth, cervical grooves poorly indicated; rather high.

Eyes: a: 1.00 (0.04); b: 1.62; c: 1.62; d: 1.62; e: 0.75; f: 0.75; g: 0.75; h: 3.00. MOQ: AW = 0.69 PW: AW = 0.65L.

Chilum double: two transversal triangular sclerites of 0.22 long and 0.06 wide. Chelicerae 0.68 long.

Legs short and stout. Tarsi slightly fusiform (a juvenile character of most Zodariidae), though slightly flattened laterally. three large tarsal claws, the paired ones with many (15) teeth. Spination: femora I-IV d1-1; patellae III d2 IV d3; tibiae I v1 II v1-1 III-IV d5v1-1-1; metatarsi II v2 III 5 disp v2-2 IV 7 disp v1-2. Measurements Pa + Ti I 1.29 II 1.12 III 0.98 IV 1.40.

Male: total length 4.58 (4.25-4.79); carapace 2.37 (2.13-2.62) long, 1.62 (1.50-1.67) wide.

Colour as in juvenile but carapace more reddish, cephalic area with broad dark margin on either side. Abdominal dorsal pattern as in juvenile but with narrow sepia scutum in anterior half.

Eye pattern as in juvenile.

Legs: tarsi not fusiform but slightly widened towards extremity. Spination: femora I-II d3*pl1 III-IV d3*pl1r11; patellae III-IV d1pl2r11; tibiae I v2-2-2 II pl2*v1-2-2 III d3*pl2*r12*v2-1-2 IV d3*pl3*r12*v2-2-2; metatarsi I v2-2-3 II v2-1-3 III 14disp IV 16 disp. Measurements: Pa + Ti I 2.01 II 1.66 III 1.52 IV 2.12.

Male palp (Figs. 10a-b): tibia with very small dorsal apophysis; dorsolateral one relatively long, tapering but blunt; ventrolateral one short and with rounded tip. Median apophysis short and hook-shaped. Distal tegular apophysis broadly arched outward.

Female: total length 6.00 (3.54-6.75); carapace 2.58 (1.67-3.00) long and 1.66 (1.08-2.04) wide.

Colour and eye pattern as immature.

Legs: Spination: femora I-II d3*pl1 III d2*pl1 IV d3*r11; patellae III d1pl2r11 IV d1pl1r11; tibiae I v2-1-2 II pl2*v1-1-1 III d3*pl2*r12*v2-1-2 IV d3*pl2*r12*v1-1-2; metatarsi I-II v2-1-3 III 14 disp IV 16 disp. Measurements: Pa + Ti I 1.98 II 1.68 III 1.52 IV 2.08.

Epigyne (Figs. 10c-d, 24c): with central subcircular plate, its posterior margin overhanging epigastric fold.

In dorsal view with two large dead end tubes running forward and back again.

DISTRIBUTION: Panama, Canal Zone (Map 1).

Tenedos brescoviti new species
Figs. 11a-c, Map 1

TYPE MATERIAL: Holotype: Female: BRAZIL: Bombas, Porto Belo, 14.II.1990 (A.D. Brescovit) (MCN).

DIAGNOSIS: Females of this species are easily recognized by the mushroom-shaped central area in the epigyne.

ETYMOLOGY: The name of this species is a patronym in honour of A. Brescovit who collected the type specimen.

DESCRIPTION: *Female holotype:* Total length 3.28; carapace 1.68 long, 0.94 wide, 0.64 high.

Colour: Carapace brown with blackly suffused striae; reticulated. Sternum orange, slightly suffused with black, very hairy. Legs yellow with orange tinge; FeI-IV nearly totally dark, PaIII-IV, TiIII-IV, MtIV strongly suffused with dark brown. Abdomen sepia grey with five white spots (Fig. 11b); sides and venter uniform sepia grey.

Eyes: MOQ: AW = 0.92PW; AW = 0.73L.

Legs: Spination: femora I-II d3* III d1r11 IV d3*r11; patellae III-IV d2pl3r11; tibiae I d1fpl2*v1-1-1 II d1fv1-1-1 III d2*pl2* r12*v0-1-2 IV d2*pl2*r12*v1-1-1; metatarsi I d1fpl1(distal)v2-0-2 II d1fpl2*v1-0-2 III d1-2-2pl2*r11v2-0-2 IV d1-2-2pl2*r11v1-1-2.

Measurements: Pa+Ti I 1.06 II 1.00 III 0.80 IV 1.08.

Epigyne (Figs. 11a,c): With large mushroom-shaped, central area, its lateral parts membranous. Entrance openings in front, far apart; entrance ducts short, sinuous, provided with glandular organ, entering large spermathecae mesally; fertilization ducts short.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 1).

Tenedos capote new species
Figs. 11d-e, Map 1

TYPE MATERIAL: Holotype: Female: COLOMBIA: Magdalena Valley, Carare-Opon region, Capote rain forest, 150m, 28.VII-4.VIII.1968 (leg H. Sturm) (MCZ). The tube also contains a sa ♂.

DIAGNOSIS: Females are recognized by the small epigyne composed of a small backward produced oval scape originating from a deep depression. The species is closely related with *T. quadrangulatus* but the epigyne of that species lacks the depression.

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

DESCRIPTION: *Female holotype*: Total length 7.36; carapace 3.76 long, 2.40 wide, 1.76 high.

Colour: Carapace reddish orange; clypeus and sternum yellowish orange; legs yellowish brown, slightly suffused with black. Abdomen sepia with seven white dorsal patches, venter white.

Carapace finely reticulated.

Eyes: MOQ: AW = 0.75 PW; AW = 0.70 L.

Legs: spination: femora I-II d3*pl1 III d2*pl2*rl1 IV d3*pl1rl1; patellae III-IV d1pl2rl1; tibiae I v2-1-2 II d1pl2*v2(1)-1(2)-2 III d3*pl2*rl2*v2-1-2 IV d3*pl2*(3)rl2*(4)v2-1-2(3); metatarsi I v2-2-3 II pl1v2-1-2 III pl1-1-2rl1-1-2v2-2-2 IV d2*pl1-1-2rl1-1-2v2-2-2.

Measurements: Pa+Ti I 2.64 II 2.22 III 2.10 IV 2.86.

Epigyne (Figs. 11d-e): A small oval scape in front of a poorly sclerotised area with entrance ducts showing through. Entrance openings caudal; provided with large cul de sac tubes in front of spermathecae

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 1).

Tenedos certus (JOCQUÉ & UBICK)

Ishania certa JOCQUÉ & UBICK 1991:243.

For description of this species see JOCQUÉ & UBICK (1991).

Tenedos convexus new species

Figs. 11f-g, Map 1

TYPE MATERIAL: Holotype: Female: VENEZUELA: Rancho Grande near Maracay, 25-28.VII.1946 (W. Beebe & others) (AMNH).

DIAGNOSIS: Females of this species are recognized by the semicircular indentation in the centre of the epigyne followed by a triangular plate.

ETYMOLOGY: The specific name is an adjective referring to the swollen epigyne (*convexus* is Latin for bulging).

DESCRIPTION: *Female holotype*: Total length 4.16; carapace 2.08 long, 1.28 wide, 0.88 high.

Colour: Carapace orange brown. Sternum orange, slightly suffused with black. Legs yellowish brown with orange tinge, coxae lighter. Abdomen black with five white spots (as in Fig. 18a); venter sepia with median white spot; sides black, with a small pale bar.

Carapace strongly reticulated.

Eyes: MOQ: AW = 0.73PW; AW = 0.65L.

Legs: Spination: femora I-II,IV d3* III d2*; patellae III-IV d1pl2rl1; tibiae I d1fv1-0-0 II d1fv1-1-0 III-IV d3*pl2*rl2*v1-1-1; metatarsi I-II v1-0-2 III d1-2 pl2*rl3*v2-0-2 IV d(1)-1-2pl3*rl3*v2-2(1)-2.

Measurements: Pa+Ti I 1.42 II 1.24 III 1.16 IV 1.52.

Epigyne (Figs. 11f-g): Fairly large, bulging; centre with

strongly delimited semicircular indentation overlying roughly triangular area. Entrance openings caudal; entrance ducts entering long, strongly constricted spermathecae from inside; fertilization ducts originating in posterior part of spermathecae.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 1).

Tenedos cufodontii (REIMOSER, 1939)

Figures 12a-e, Map 1

Storena cufodontii REIMOSER, 1939: 343 (descr. ♂).

Tenedos cufodontii: JOCQUÉ, 1991: 93.

TYPE MATERIAL: Holotype: Male: COSTA RICA: La Palma, 15.X.1938 (Moerman) (NHMW) (examined).

OTHER MATERIAL EXAMINED: PANAMA: 1♂, 1♀, 1juv.: Chiri, 1500m, 15km NW Hartmann finca, Chiriqui Volcán: 20-25.V.1977, (S. Peck)(AMNH); 1♀: Chiri, lagunas 5 Km SW Hato del Volcán, 1360m, 22.V-6.VI.1977, (S. Peck)(AMNH); 1♀: Chiriqui, Cerro Colorado mine site, 834'S 8150'W, 24 km NNE San Felix, 20.VI.1980, 1300m, Berlese buttress litter, J. Wagner (FMNH 80-38).

DIAGNOSIS: Males of this species are recognized by the sharp-tipped ventral palpal tibial apophysis in combination with the large retrolateral apophysis. The female has a typical heart-shaped plate in the epigyne.

DESCRIPTION: *Male holotype*: Total length 7.10, (Panama ♂ 7.36); carapace 3.22 long, 1.87 wide, 1.14 high.

Colour: Carapace medium brown, slightly reticulated with short white hairs; sternum light brown; legs pale yellow with orange femora; abdomen (Fig. 12d) dark grey with five dorsal pale spots, venter light grey with two parallel pale stripes. Spinnerets pale.

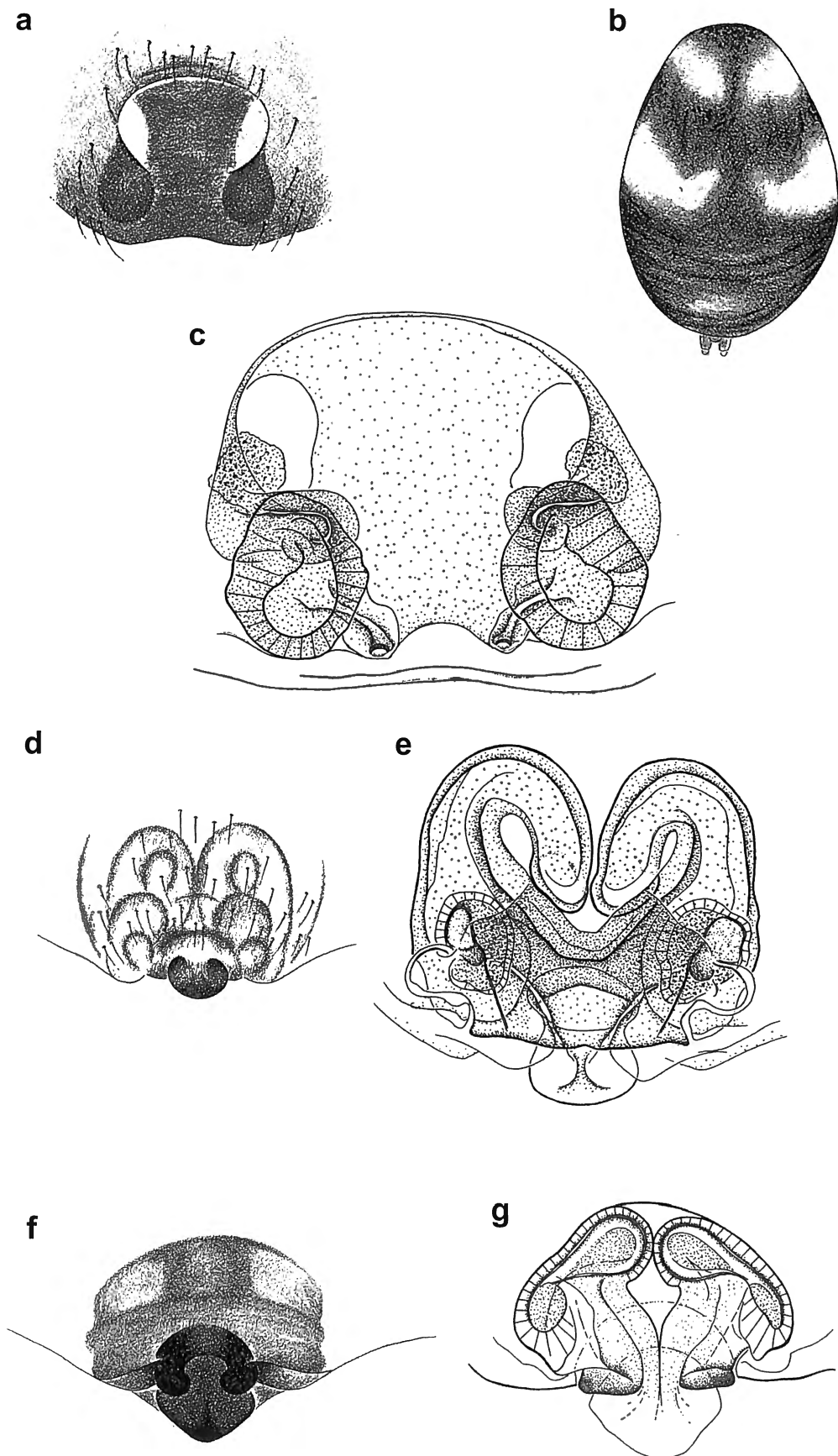
Eyes: MOQ: AW = 0.69 PW; AW = 0.54 L.

Legs: Spination: femora I d1 II d2*rl1 III d2* IV d2*; patellae III-IV d1pl2rl1; tibiae I v1 II v2* III d2*pl2*v2-2-2rl2 IV d3*pl2*v1-1(2)-2rl2*; metatarsi I v2* II v2-2 III d2*pl2*v2-1-2rl1 IV d1-2-2pl2*v2-1-1-2rl1.

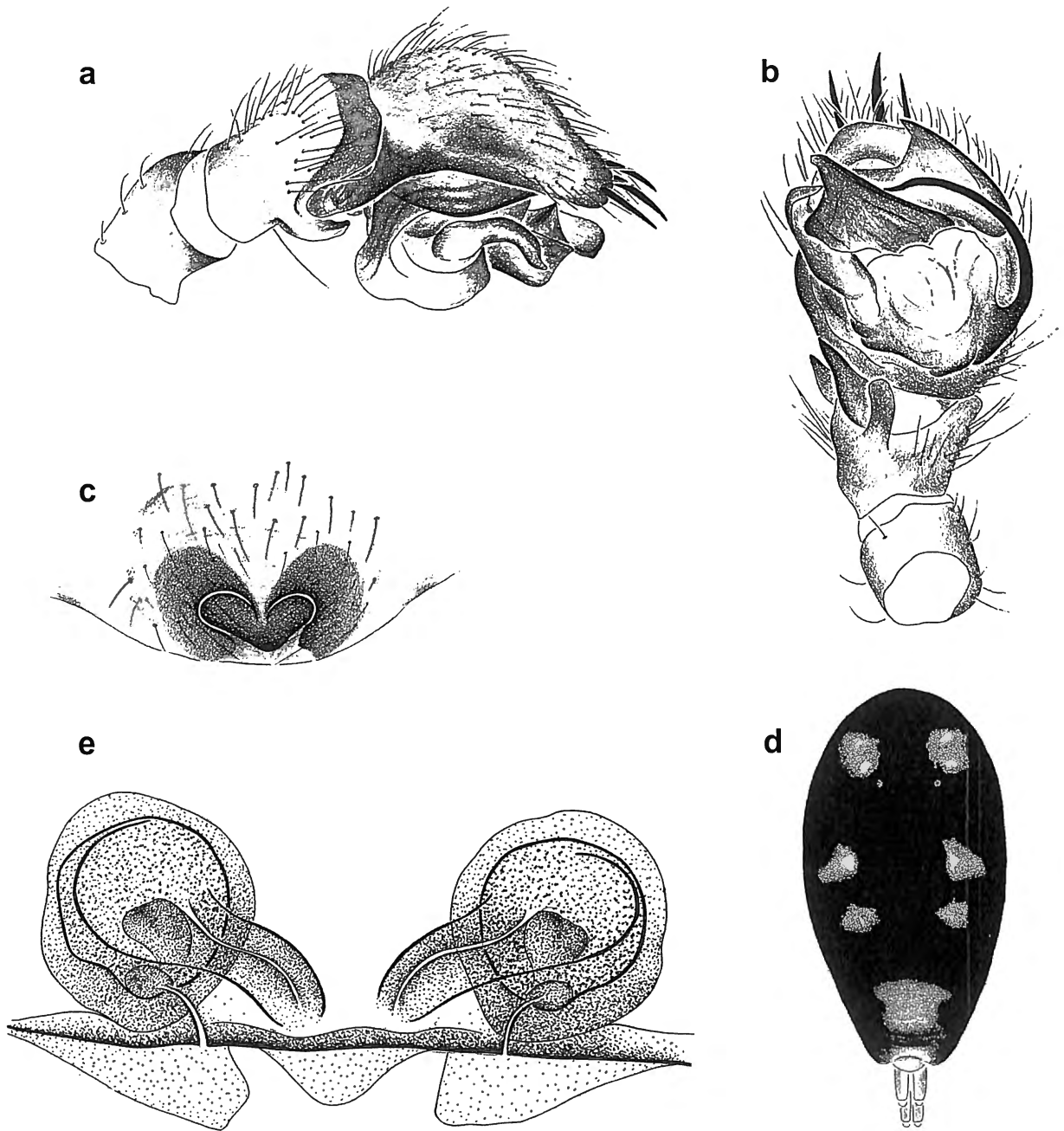
Measurements: Pa+Ti I 2.19 II 1.96 III 1.94 IV 2.54.

Male palp (Figs. 12a-b): Tibia with three apophyses: one retrolateral, broad, complex, one ventral with blunt tip, one poorly delimited prolateral. Cymbium with three apical spines. Cymbial flange elongate, inserted between tibial retrolateral apophyses. Tegulum as broad as long, anterior part membranous. Median apophysis hook-shaped, slender, curved downwards near tip. DTA in two parts: proximal part roughly triangular, distal part with groove accomodating embolus, extended in opposite direction over half embolus length. Embolus short and slender with base directed laterad.

Female: Total length 8.24; carapace 3.28 long, 1.84 wide and 1.52 high.



Figs. 11a-g — a-c. *Tenedos brescoviti*. a. Epigyne, ventral view. b. Abdomen, dorsal pattern. c. Epigyne, cleared, dorsal view. d-e. *Tenedos capote*. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view. f-g. *Tenedos convexus*. f. Epigyne, ventral view. g. Epigyne, cleared, dorsal view.



Figs. 12a-e — *Tenedos cufodontii*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Abdomen, dorsal pattern. e. Epigyne, cleared, dorsal view.

Colour: As in male but with legs brown except pale yellow femora and trochanters; spinnerets brownish.

Eyes: MOQ: AW = 0.77 PW: AW = 0.65L.

Legs: Spination: femora I d1-1-2 II d3* III d2* IV d3*; patellae III-IV d1pl2r1l1; tibiae I v2* II v2* III d2*pl2*r12*2-2-2 IV d3*pl2*v3*r12*; metatarsi I pl1v2-1-2r1l1 II pl1v2-1-2 III d2*pl2*v2-2-2r12* IV d1-2-2pl2*v2-2-2-2r12*.

Measurements: Pa+Ti I 2.08 II 1.88 III 1.84 IV 2.40.

Epigyne (Figs. 12c,e): Fairly small, with central heart-shaped plate. Entrance openings caudal, strong, short, entering globular spermathecae mesally; fertilization ducts short.

DISTRIBUTION: Costa Rica and Panama (Map 1).

Tenedos eduardoi (MELLO-LEITÃO, 1925)

Figs. 13a-b, Map 1

Tijuca eduardoi: MELLO-LEITÃO 1925: 462 (descr. n. sp. ♂); HOLT 1926: 85

Note: MELLO-LEITÃO proposed a new name for *Tijuca* (i. e. *Tijucaia*) in his key to the genera of Zodariidae but did not combine it with the name of the type species.

Tenedos eduardoi: JOCQUÉ 1991: 94 (descr. ♂).

TYPE MATERIAL: Holotype: Male: BRAZIL: Rio de Janeiro, Tijuca, E. de Moraes Mello (MNRJ) (examined).

DIAGNOSIS: Males of this species are recognized by the shape of the palpal tibia, mainly the rounded dorsolateral

apophysis, the short lateral tooth and the short, sharp dorsal apophysis.

DESCRIPTION: Male: total length 6.85; carapace 3.54 long, 2.04 wide.

Colour: carapace reddish brown; legs uniform brown; chelicerae and sternum reddish brown. Abdomen pale grey with two rows of white spots, the posterior two anastomosing (as in Fig. 61c).

Eyes: a: 1.00 (0.10); b: 1.14; c: 1.05; d: 1.24; e: 0.38; f: 0.38; g: 0.57; h: 1.24. MOQ: AW = 0.89 PW: AW = 0.78L.

Spination: femora I-II d3*pl1 III d1-2-2pl2* IV d1-1-2pl1; patellae III d3*pl2-2-1r1l1 IV d3*pl1-1-2-2r1l1; tibiae I pl1v14 II pl2-1v2-2-2-1 III d3*pl4*r13*v2-2-2 IV d4*pl4*r13*v2-2-2; metatarsi I-II v2-2-2 III-IV d1pl1-1-2r13*v2-2-2.

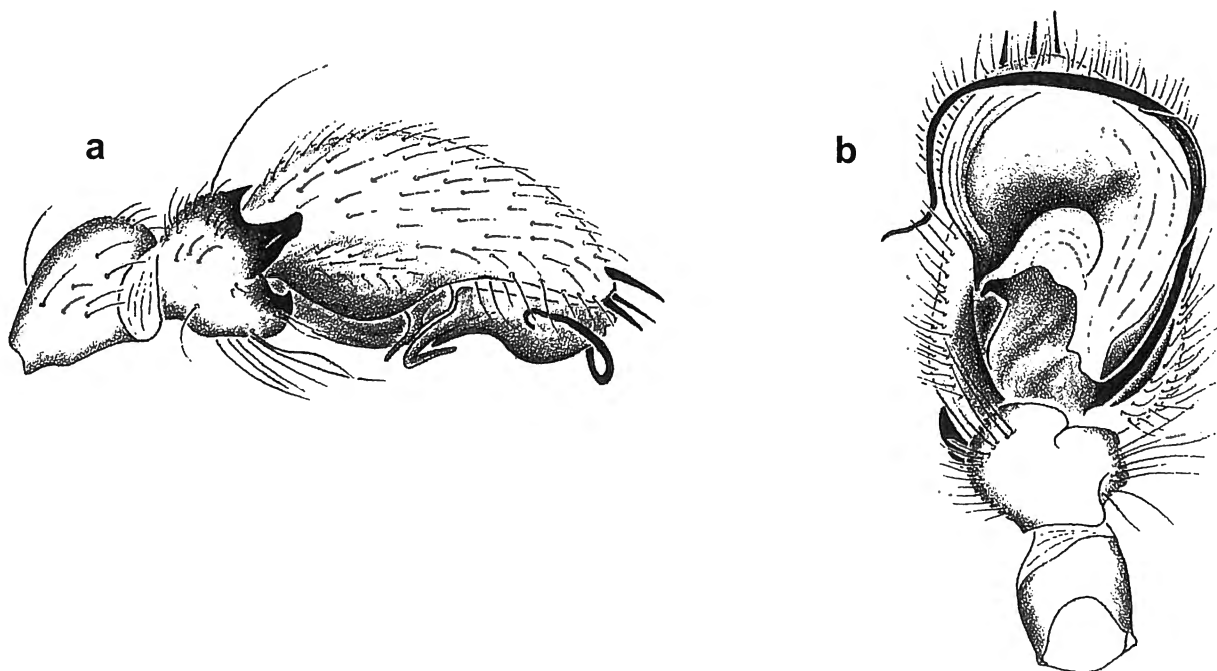
Measurements: Pa + Ti I 2.55 II 2.26 III 2.10 IV 2.67.

Scopulae on t and distal third of Mt.

Male palp (Figs. 13a-b): Tibia with small RTA; dorsal apophysis small, pointed; ventral apophysis with expanded tip. Cymbium with three apical spines. Tegulum small, concave, sclerotised. Median apophysis slightly curved with sharp tip pointing backward; DTA: large shell-shaped plate, with distal extremity pointing backward, parallel with tip of MA. Embolus long, slender, flexible, base originating on posterior part of tegulum, directed prolaterad, resting in lateral groove of overhanging margin of DTA.

Female: Unknown.

DISTRIBUTION: Only known from type locality (Map 1).



Figs. 13a-b — *Tenedos eduardoi*. a. Right male palp, retrolateral view. b. Male palp, ventral view.

Tenedos equatorialis new species

Figs. 14a-b, Map 1

TYPE MATERIAL: Holotype: Male: ECUADOR: Colonche A., 1941 (R.W.Landes leg.) (CAS).

DIAGNOSIS: Males are recognized by the broad and flat retrolateral tibial apophysis and by the trifid DTA.

ETYMOLOGY: the species name is an adjective evidently referring to the type locality.

DESCRIPTION: *Male holotype*: Total length 4.8; carapace 2.32 long, 1.48 wide, 0.88 high.

Colour: Prosoma, light orange brown. Sternum yellowish brown with orange tinge. Legs pale with orange tinge, coxae whitish, Fe orange. Abdomen: dorsum sepia with 11 white spots (as in Fig. 61c); venter white.

Carapace reticulated.

Eyes: MOQ: AW = 0.68PW; AW = 0.62L.

Legs: Spination: femora I-II d3* III d1pl1 IV d3*pl1r1l1; patellae III-IV d1pl2r1l1; tibiae I-II v1-1-1 III d2*pl2*r12*v2-2-2 IV d3*pl2*r12*v2-2-2; metatarsi I-II pl1v2-1-2 III d1-2-2pl3*r1l1v2-2-2 IV d1-2-2pl3*r1l1v2(1)-2-2.

Measurements: Pa+Ti I 1.76 II 1.42 III 1.32 IV 1.80.

Male palp (Figs. 14a-b): Tibia with broad and complex, flat retrolateral apophysis; ventral apophysis with sharp tip; prolateral apophysis present. Cymbium with four apical spines; cymbial flange extended backwards. Tegulum nearly circular with swelling near base of embolus. Median apophysis hook-shaped. DTA trifid, retrolateral part extended in opposite direction of embolus, over 1/2 of its length; prolateral part with two sharp, curved, converging tips. Embolus long, slender, flexible, base directed laterad.

Female: Unknown.

DISTRIBUTION: Only known from type locality (Map 1).

Tenedos estari new species

Figs. 14c-d, Map 1

TYPE MATERIAL: Holotype : Female: PERU: MADRE DE DIOS : Rio Estari, La Salvacion, 21.IX.1984, (P. Chevarria) (MUSM).

DIAGNOSIS: Females of this species are recognized by the tiny scape at the base of which there are two small swellings.

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

DESCRIPTION: *Female holotype*: Total length 4.96; carapace 2.16 long, 1.28 wide, 1.04 high.

Colour: Carapace chestnut brown; sternum yellowish orange; legs yellowish orange, coxae white, Fe with

greenish tinge. Abdomen (Fig. 14c) sepia with five white patches arranged as follows: two small apical spots followed by two transverse bars extended to venter and one large caudal patch; venter pale except some sepia in front of spinnerets. Carapace reticulated.

Eyes: MOQ: AW = 0.88PW; AW = 0.65L.

Legs: Spination: femora I-II d3* III d2* IV d3*; patellae III-IV d1pl2r1l1; tibiae I v1-1-0 II pl2*v1-1-0 III d3*pl2*r12*v1-1-2 IV d3*pl2*r12*v1-1-2; metatarsi I-II v1-0-2 III d0-1-2pl2*r13*v2-0-2 IV d0-1-2pl3*r12*v1-1-2.

Measurements: Pa+Ti I 1.48 II 1.26 III 1.18 IV 1.54.

Epigyne (Figs. 14d-e): With small scape, rounded at extremity, provided with swelling at either side of base. Entrance openings caudal, entering spermathecae mesally. Spermathecae complex, with three compartments.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 1).

Tenedos fertilis new species

Figs. 4a, 5a, 15a-e, Map 1

TYPE MATERIAL: Holotype: Male: ECUADOR: PICHINCHA: Los Rios, Centro científico, Rio Palenque, 220m (S. Sandoval) (PUCE).

Paratypes: 4♂ together with holotype; ECUADOR: PICHINCHA: 1♂: Los Rios, Centro científico, Rio palenque, 220m, various plantations, 7.VII.1980; 12♂ 1♀ SA♂: 21-30.XII.1980; 8♂ 1SA♂: 1-11.I.1981; 12♂ 2♀ 2j: 1-28.II.1981; 14♂: 7-14.III.1981; 15♂ 2♀: 18-21.II.1983 (S. Sandoval) (PUCE/KBIN); 2♂: Pto Chaito, XII.1984, (A. Cordova) (PUCE/KBIN); 5♂: 47km S of Sto Domingo, Rio Palenque, 250m, rainforest, 5.V-25.VII.1985, (S. and J. Peck) (AMNH).

DIAGNOSIS: Males are recognized by the well developed cymbial flange prominent above the retrolateral side of the tibia. Females are characterized by the small epigyne with small central depression provided with obvious entrance openings near its anterior margin.

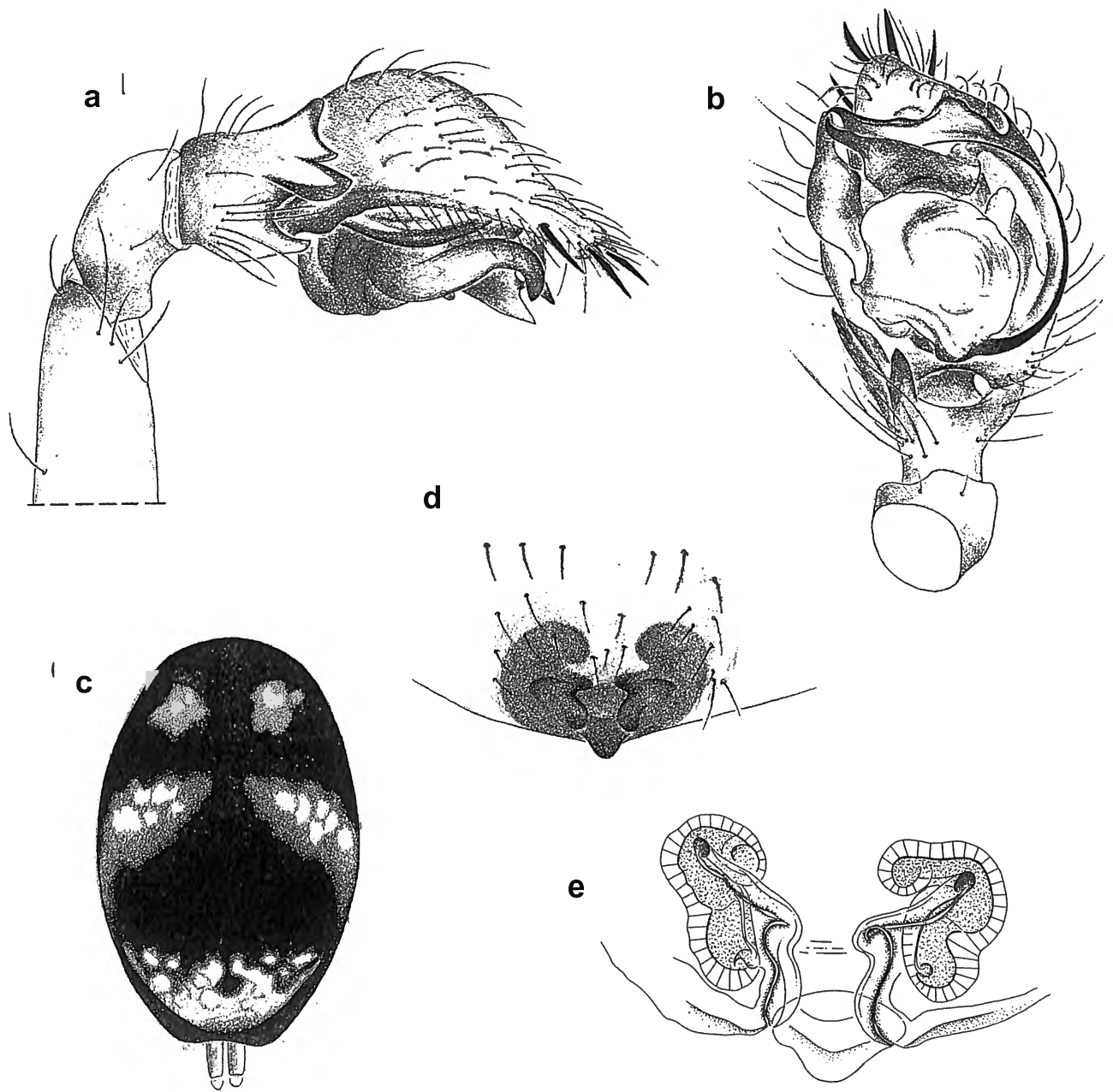
ETYMOLOGY: *fertilis* is Latin for swollen and refers to the swollen tegulum.

DESCRIPTION: *Male holotype*: Total length 5.76 (range: 4.40-6.08); carapace 2.68 long, 1.66 wide, 1.04 high.

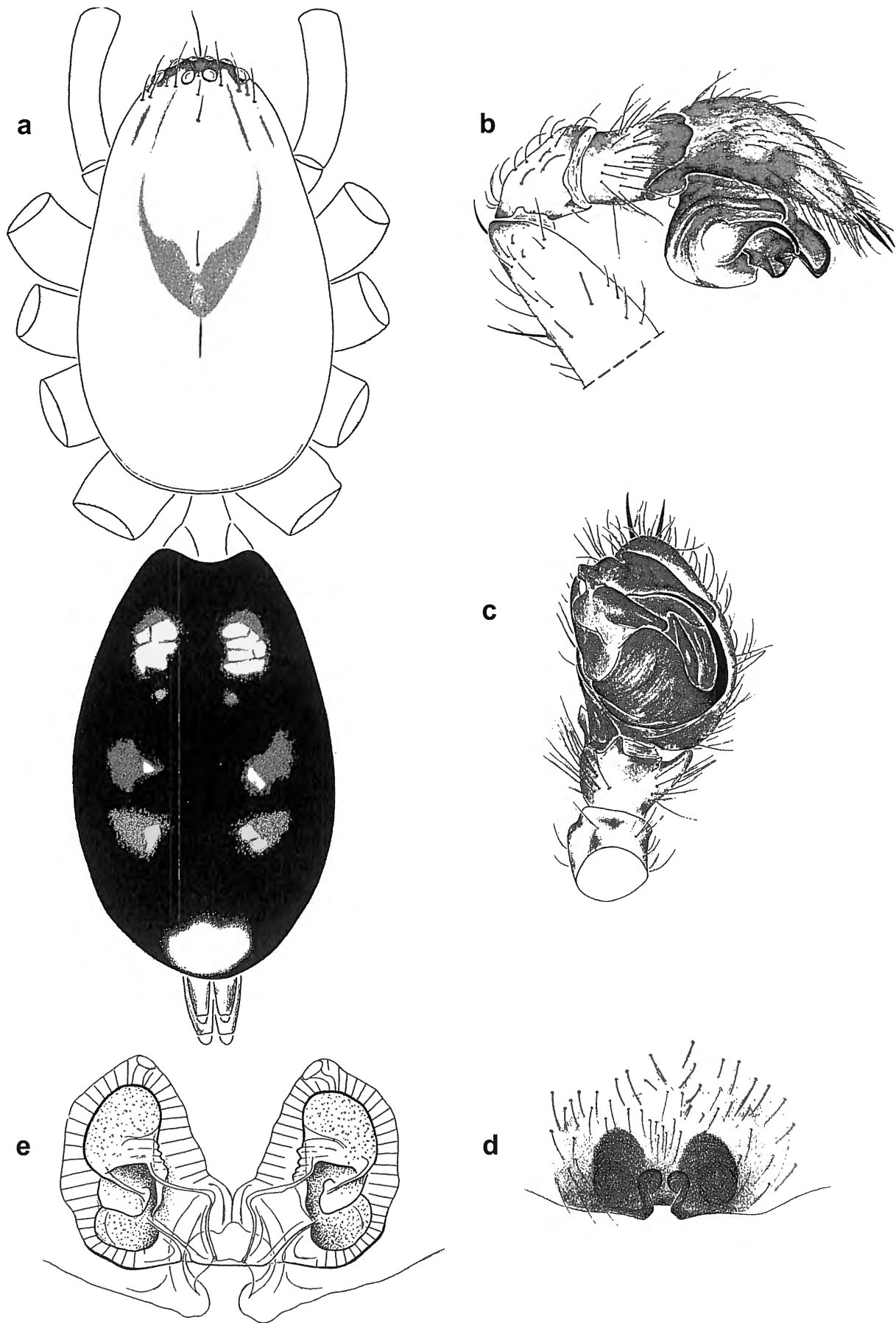
Colour: Carapace (Fig. 15a) brown with blackish V-mark and faint blackish striae. Sternum yellowish orange. Legs: coxae and Fe I white; distal tip of Ta pale; Fe, Ti brownish orange, faintly suffused with black; remainder yellowish orange. Abdomen (Fig. 15a) pale sepia; dorsum with seven white patches and two impressed dots; sides with white oval spot, venter white. Carapace with small depression just in front of fovea.

Eyes: MOQ: AW = 0.79PW; AW = 0.68L.

Legs: Spination: femora I d3*pl1 II d3*pl1r1l1 III d2*pl1r1l2 IV d3*r1l1; patellae III-IV d1pl2r1l1; tibiae I



Figs. 14a-e — **a-b.** *Tenedos equatorialis*. **a.** Right male palp, retrolateral view. **b.** Male palp, ventral view. **c-e.** *Tenedos estari*. **c.** Abdomen, dorsal pattern. **d.** Epigyne, ventral view. **e.** Epigyne, cleared, dorsal view.



Figs. 15a-e — *Tenedos fertilis*. a. Habitus. b. Right male palp, retrolateral view. c. Male palp, ventral view. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.

d2fv2-2-2 II d2fpl1v1-1-2 III-IV d2*pl2*rl2*v2-2-2; metatarsi I v2-0-2 II pl1v2-0-2 III d1-2-2pl2*rl1v2-2-2 IV d2-1-2pl2*rl2*v2-2-1-2.

Measurements: Pa+Ti I 2.22 II 1.84 III 1.72 IV 2.40.

Male palp (Figs. 15b-c): Tibia with two apophyses: broad and complex, flat retrolateral apophysis and small, simple, blunt ventral apophysis. Cymbium with three apical short spines, (apex broadly truncated); small membranous ovoid extension of cymbial flange fits in retrolateral concavity between tibial apophyses. Tegulum roughly triangular, taking more or less central position. MA long, with base, long curled sclerotised tip. DTA one piece, proximal part small, inverted triangle; retrolateral half of distal part with notched apical edge, prolateral wing developed in opposite direction of embolus over about half its length. Embolus short and slender, originating on prolateral, apical part of tegulum, directed laterad.

Female paratype: Total length 5.52 (range: 5.50-7.04); carapace 2.40 long, 1.36 wide, 1.16 high.

Colour: Carapace brown with blackish V-mark and faint blackish striae. Sternum light brown suffused with black. Legs: yellowish orange, Ti I yellow, coxae pale; femora suffused with black. Abdomen pale sepia; dorsum with seven white patches, sides with one white stripe, venter with two longitudinal, oval, white patches. Carapace with small depression just in front of fovea.

Eyes: MOQ: AW = 0.67PW; AW = 0.52L.

Legs: Spination: femora I-II d3*pl1 III d1(pl1)rl1 IV d3*rl1; patellae III-IV d1pl2rl1; tibiae I d1fv2-0-0 II d1fv*2 III d2*pl2*rl1v2-2-2 IV d3*pl2*rl2*v1-1-2; metatarsi I v2-0-1 II v2-1-2 III d2pl3*rl3*v2-2-2 IV d1-2-2pl3*rl1v2-2-1-2.

Measurements: Pa+Ti I 1.64 II 1.42 III 1.36 IV 1.74.

Epigyne (Figs. 15e-d): With small central depression; entrance ducts starting near anterior margin of depression; spermathecae shine through.

DISTRIBUTION: Ecuador (Map 1).

Tenedos figaro new species

Figs. 1a-c, 2a-c, 3a-d, 4a-b, 5a-b, 16a-e, 24d, Map 2

TYPE MATERIAL: Holotype: Male: ECUADOR: PICHINCHA: Los Rios, Centro científico, Rio Palenque, 220m (S. Sandoval) (PUCE).

Paratypes: 8♂ 5♀ (tube also contains 5 juv.) together with holotype: ECUADOR: PICHINCHA: 1♂: Los Rios, Centro científico Rio Palenque, 220m, various plantations, 7.VII.1980; 22♂16♀ 2 sa♂ 2j.: 20-30.XII.1980; 29♂ 12♀ 1sa♂ 3j.: 1-12.I.1981; 22♂ 23♀ 7j.: 1-28.II.1981; 11♂ 4♀: 7-14.III.1981; 22♂ 8♀: 16-21.II.1983 (S. Sandoval) (PUCE/KBIN); 5♂, 4♀, juv.: Rio Palenque Station, 47km S of Sto Domingo, 250m, 19-30.V.1975, (S. Peck)(AMNH); 3♂3♀: Rio Palenque, 47km S of Sto Domingo, 20.VII.1979 (T.Ray) (MCZ); 2♂ 6♀: 47 km SE of Santo Domingo, Rio Palenque, 700m (FMNH); 5♂ 1♀: Pto Chaito, XII.1984, (A.Cordova) (PUCE/KBIN); 8♂, 4♀: Tinalandia, 16km E of Sto Dom-

ingo, 680m, 4.V-25.VII.1985, (S. Peck) (AMNH); 1♀: Tinalandia, 680m, 4 km SE of Santo Domingo, 500m, 8.VI.1976; 6 km SE of Santo Domingo, 15.VI.1975 (FMNH); 3♂:18-30.V.1975, 260m, 21-25.II.1976 (S. Peck)(FMNH).

DIAGNOSIS: Males of this species are recognized by the remarkable group of parallel hairs on the margin of the cymbium and the triple retrolateral apophysis on the palpal tibia. Females are characterized by the small epigyneal scape with almost straight converging sides and the wound entrance ducts.

ETYMOLOGY: The specific name is a noun in apposition; it refers to the reknown hair-dresser in Puccini's opera as a connotation with the fancy group of hairs on the cymbial margin.

DESCRIPTION: *Male holotype*: Total length 3.68 (range: 3.04-3.70); carapace 1.84 long, 1.20 wide, 0.80 high.

Colour: Carapace orange, margins and broad striae suffused with black, sternum orange, margins broadly suffused with black. Legs: coxae and proximal half of Fe III and IV pale yellow, Ti I white, remainder yellowish orange. Abdomen (Fig. 16d): pale sepia with two white spots in front, one near posterior end, two median spots connected with white venter. Carapace reticulated.

Eyes: MOQ: AW = 0.81PW; AW = 0.74L.

Legs: Spination: femora I-II d3*pl1 III d2*pl1 IV d3*rl1; patellae III-IV d1pl2rl1; tibiae I d1fpl1v2(1)-2-2 II d1fpl2v1-1-2 III d2*pl2*rl2*v1-1-2 IV d3*pl2*rl2*v1-1-2; metatarsi I pl1v2-2-2 II pl1v2-0-2 III d1-2-2pl2*rl1v2-1-2 IV d1-2-2pl3*rl1v2-2-2.

Measurements: Pa+Ti I 1.40 II 1.16 III 1.14 IV 1.54.

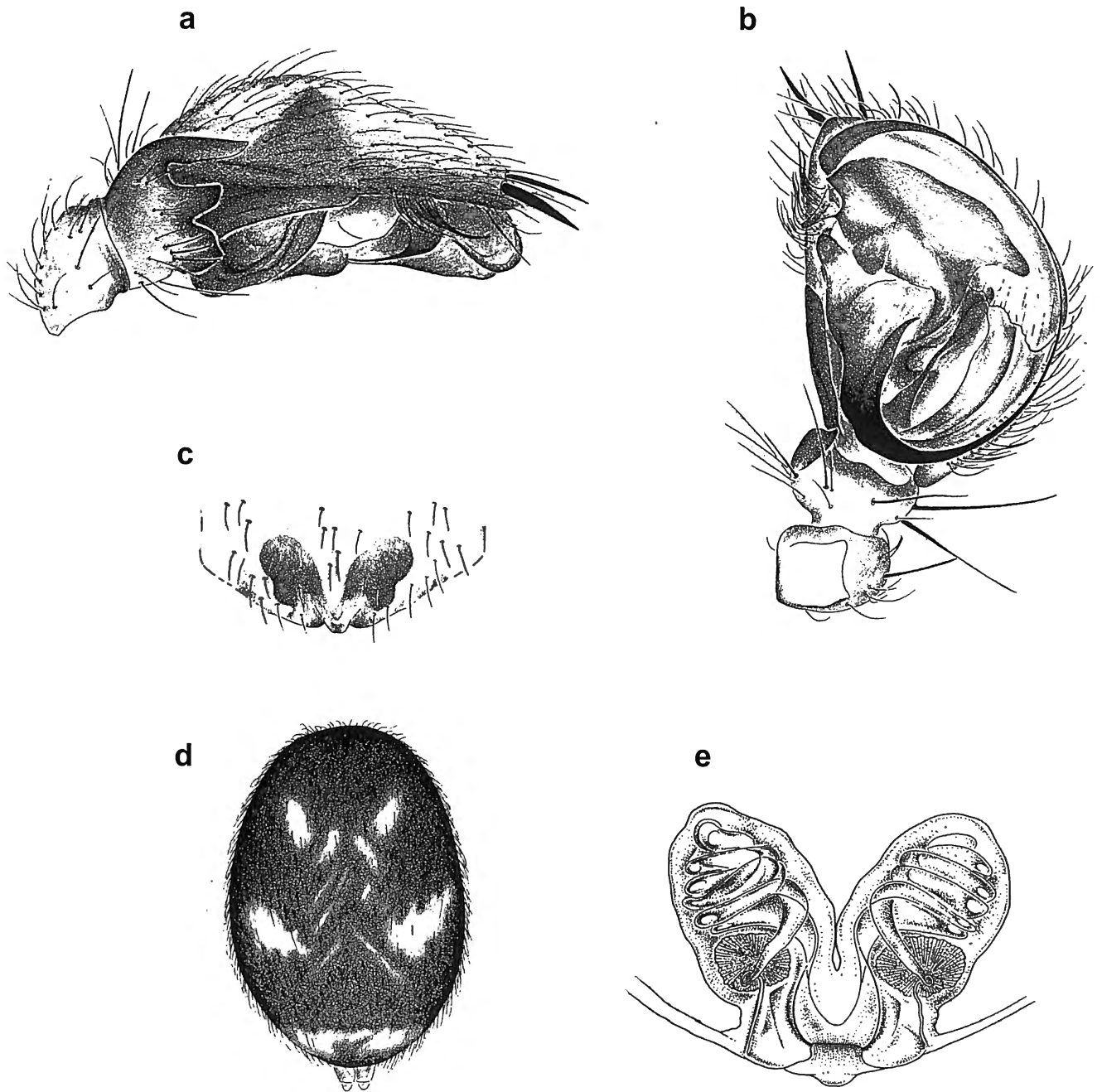
Male palp (Figs. 4a-b, 5a-b, 16a-b): Tibia with three frontal, retrolateral apophyses: one large, fingerlike on top, one smaller with sharp tip in the middle, one ventral, smaller again with blunt tip; with two prolateral spines. Cymbium with two apical short spines, ventro-retrolateral edge with a group of curled, parallel hairs at level where MTA and DTA meet. Tegulum in retrolateral position. MA membranous at base, with sclerotised twisted tip. DTA grooved, broad ovoid plate covering nearly entire apical ventral half of bulb, sclerotised at base and along outer edge where embolus joins; with short, rounded retrolateral extension. Embolus long, slender, flexible, with long base, originating on posterior retrolateral end of tegulum, directed backwards, running anticlockwise on right palp to meet sclerotised outer edge of DTA.

Female paratype: Total length 3.36 (range: 2.80-4.24); carapace 1.68 long, 1.12 wide, 0.80 high.

Colour: As in male but carapace brownish orange, sternum yellowish orange, legs yellowish orange. Abdomen: median spots not continuing onto white venter; sides with white oblique bar.

Eyes: MOQ: AW = 0.80PW; AW = 0.71L.

Legs: Spination: femora I d3*pl1 II d3* III d2* IV d3*; patellae III-IV d1pl2rl1; tibiae I d1fv1-1-1 II d1fpl1v1-1-



Figs. 16a-e — *Tenedos figaro*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Abdomen, dorsal pattern. e. Epigyne, cleared, dorsal view.

2 III d3*pl2*rl2*(1)v1-1-2 IV d3*pl2*rl2*v1-1-2; metatarsi I pl1v1-1-2 II v2-0-2 III d1-2pl2*rl3*v2-0-2 IV d1-2pl3*rl3*v2-2-2.

Measurements: Pa+Ti I 1.16 II 1.00 III 0.96 IV 1.28.

Epigyne (Figs. 16c and e, 24d): With fairly small scape with straight converging sides. Entrance openings near posterior margin; entrance ducts strongly wound, leading to caudal spermathecae.

DISTRIBUTION: Ecuador (Map 2).

Tenedos grandis new species

Figs. 1c-d, 17a-c, Map 2

TYPE MATERIAL: Holotype: Male: ECUADOR: PICHINCHA: 16km E Santo Domingo, Tinalandia, rainforest, 680m, 4.V-25.VII.1985 (S. and J. Peck) (AMN).

Paratypes: 5♂ together with holotype: (1♂ in KBIN); PANAMA: 2♂: Chiriqui, 1360m, Lagunas 5km SW Hato del Volcán, 6.VI.1977 (S. Peck)(AMNH).

DIAGNOSIS: Males of this species are easily recognized by their size and by the tiny dorsal hook on the palpal tibia.

ETYMOLOGY: *grandis* (Latin for large) obviously refers to the size of the species.

DESCRIPTION: *Male holotype*: Total length 8.32 (range: 5.92-9.04); carapace 4.16 long, 2.32 wide, 1.76 high.

Colour: Carapace chestnut brown. Sternum light brown. Legs: coxae I-II and all ventral femoral bases white, coxae III-IV white ventrally, brown dorsally; Fe, Tr, Ti and proximal base of Mt brown, remainder pale yellow to yellowish orange. Abdomen (Fig. 17c) pale sepia with faint dorsal pattern of seven white spots and faint median stripe.

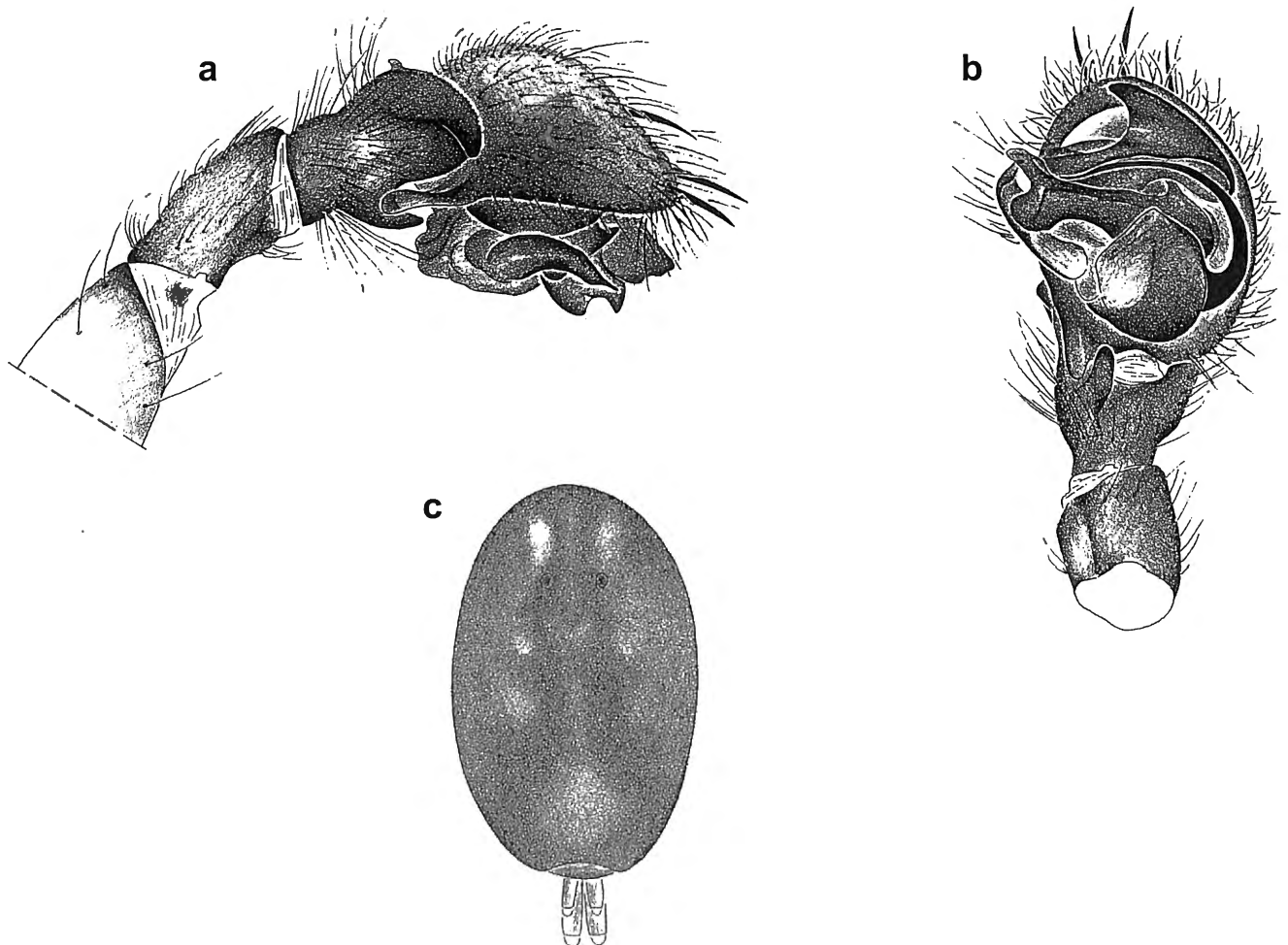
Carapace reticulated, sparsely covered with short white hairs.

Eyes: MOQ: AW = 0.57PW; AW = 0.50L.

Legs: Spination: femora I-II d3*pl1 III-IV d3*pl1rl1; patellae III-IV d1pl2rl1; tibiae I d1fpl1v2-2-2 II d1fpl2*v2(1)-2(1)-2 III d2*pl2*rl2*v2-2-2 IV d3*pl2*rl2*v2-2-2; metatarsi I-II d1fpl1v2-2-2 III-IV d1-2pl3*rl3*v2-2-1-2.

Measurements: Pa+Ti I 3.24 II 2.72 III 2.76 IV 3.60.

Male palp (Figs. 17a-b): Tibia very hairy; with three apophyses: one retrolateral, broad, flat, complex with short tooth and distal edge with tiny sawteeth; one ventral



Figs. 17a-c — *Tenedos grandis*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern.

with sharp tip; one prolateral, short and blunt. Cymbium with four short spines. Cymbial flange extended backwards. Tegulum small, subcircular. Large MA strongly sclerotised, with distal hook. DTA in two pieces: proximal one transverse, with trifid tip; distal one with apical extension and extended in opposite direction of embolus over half its length. Embolus short and slender; originating in centre of prolateral tegular margin; turns sharply inward and joins DTA over 2/3 its length.

Female: Unknown.

DISTRIBUTION: Ecuador and Panama (Map 2).

Tenedos hoeferi new species

Figs. 18a-e, Map 1

TYPE MATERIAL: Holotype: Male: BRAZIL: Mato Grosso, Sinop., X.1976, (M. Alvares) (MCN).

Paratypes: 1♀: together with holotype; 5♂ 15♀: Reserva Ducke, 26 Km of Manaus, spread over 1991-92, (H. Höfer and T. Gasnier)(SMNK).

DIAGNOSIS: Males of this species are recognized by the huge distal tegular apophysis combined with the very long flexible embolus. Females can be recognized by the small scape with central depression.

ETYMOLOGY: The specific name is a patronym in honour of H. Höfer as an esteem for his arachnological work in Amazonia.

DESCRIPTION: *Male holotype*: Total length 4.24; carapace 2.16 long, 1.44 wide, 0.92 high.

Colour: Carapace (Fig. 18a) reddish brown, suffused with black except small central area paler in color; sternum pale yellow, margins with orange tinge; legs pale yellow with Fe I-IV and Ti II-IV suffused with black; abdomen (Fig. 18a) with median dorsal sepia band, flanked on either side by three small, circular, white spots; one pale spot in front of spinnerets; venter white with dark sepia area in front of spinnerets; sides with oblique sepia bar.

Eyes: MOQ: AW = 0.80PW; AW = 0.63L.

Legs: Spination: femora I-II d3*pl1 III-IV d3*pl1r1l1; patellae III-IV d1pl2r1l1; tibiae I d1fpl1v2-2-2 II d1fpl2*v1-1-2 III d3*pl2*rl2*v1(2)-1-2 IV d3*pl2*rl*v2-1-2; metatarsi I v2-2-2 II pl2*v2-1-2 III d2-1-2pl2*rl2*v2-2-2 IV d2-2-2pl2*rl2*v2-2-2.

Measurements: Pa+Ti I 1.50 II 1.28 III 1.24 IV 1.66.

Male palp (Figs. 18b-c): Tibia with two frontal apophyses: retrolateral one extending dorsal margin; ventral one small, blunt. Cymbium with two apical short spines; cymbial flange broad, thickly sclerotised, extended backwards. Tegulum small, subcircular. Median apophysis small, hooked, sclerotised. DTA broad, grooved, directed retrolaterad. Embolus long, slender, flexible, originating on posterior, prolateral part of tegulum, curves back 270°, joining DTA in distal half.

Female paratype: Total length 4.40; carapace 2.24 long, 1.48 wide, 0.96 high.

Colour: As in male but with brown carapace, less strongly suffused with black.

Eyes: MOQ: AW = 0.65PW; AW = 0.58L.

Legs: Spination: femora I d3*pl1 II-IV d3*; patellae III-IV d1pl2r1l1; tibiae I v1(p)-1(p)-1(r) II pl1v1-1-1 III-IV d3*pl2*rl2*v1-1-2; metatarsi I v1-0-2 II v2-0-2 III d1-2-2pl3*rl1v2-0-2 IV d2-1-2pl2*rl2*v2-2-2.

Measurements: Pa+Ti I 1.60 II 1.40 III 1.30 IV 1.80.

Epigyne (Figs 18d-e): Fairly simple, with small scape, depressed in the centre. Entrance openings central; entrance ducts running forwards and provided with large "cul de sac" tubes. Spermathecae large, two-lobed.

DISTRIBUTION: Only known from type locality (Map 1).

Tenedos honduras new species

Figs. 19a-b, Map 2

TYPE MATERIAL: Holotype: Female: HONDURAS: Caves Branch, high canopy forest, 4-14.VIII.1972 (S. & J. Peck) (FMNH).

DIAGNOSIS: The female of *T. honduras* is recognized by the horse-shoe shaped epigyne with the large entrance openings on each side near the posterior lateral margin.

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

Female: Total length 3.25, carapace 1.65 long, 1.10 wide, 0.65 high.

Colour: Prosoma orange brown with fine reticulation; sternum orange; legs orange; abdomen: dorsum sepia with a pattern of five white patches, venter whitish.

Eyes: MOQ: AW = 0.80PW; AW = 0.75L.

Legs: Spination: femora I d3*pl1 II d3* III d2* IV d3*rl1 patellae III-IV d1pl2r1l1; tibiae I d1fpl2v1-1-1 II d1fpl1v1-1-0 III,IV d2*pl2*rl2*v1-1-1; metatarsi I,II v2-0-2 III d1-2-2pl2r1l1v1-1-2 IV d2-2-2pl3*rl1v1-1-2.

Measurements: Pa+Ti I 1.20 II 1.00 III 0.92 IV 1.30.

Epigyne (Figs. 19a-b): Large horse-shoe shaped plate with faint but large entrance openings near posterior lateral margin. Entrance ducts run forward, turn back to meet in centre ending in large posterior adjacent spermathecae.

Male: Unknown.

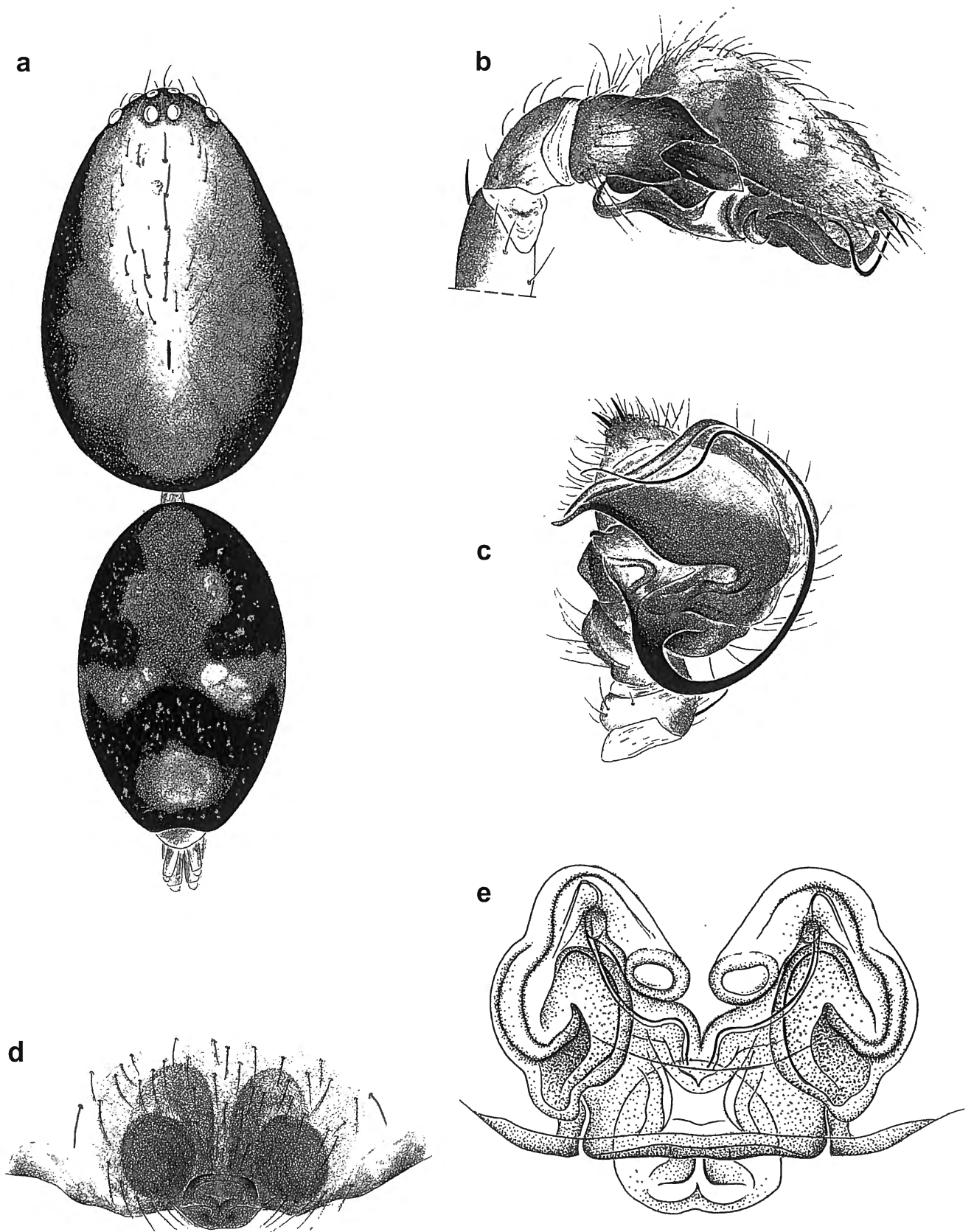
DISTRIBUTION: Only known from the type locality (Map 1).

Tenedos inca new species

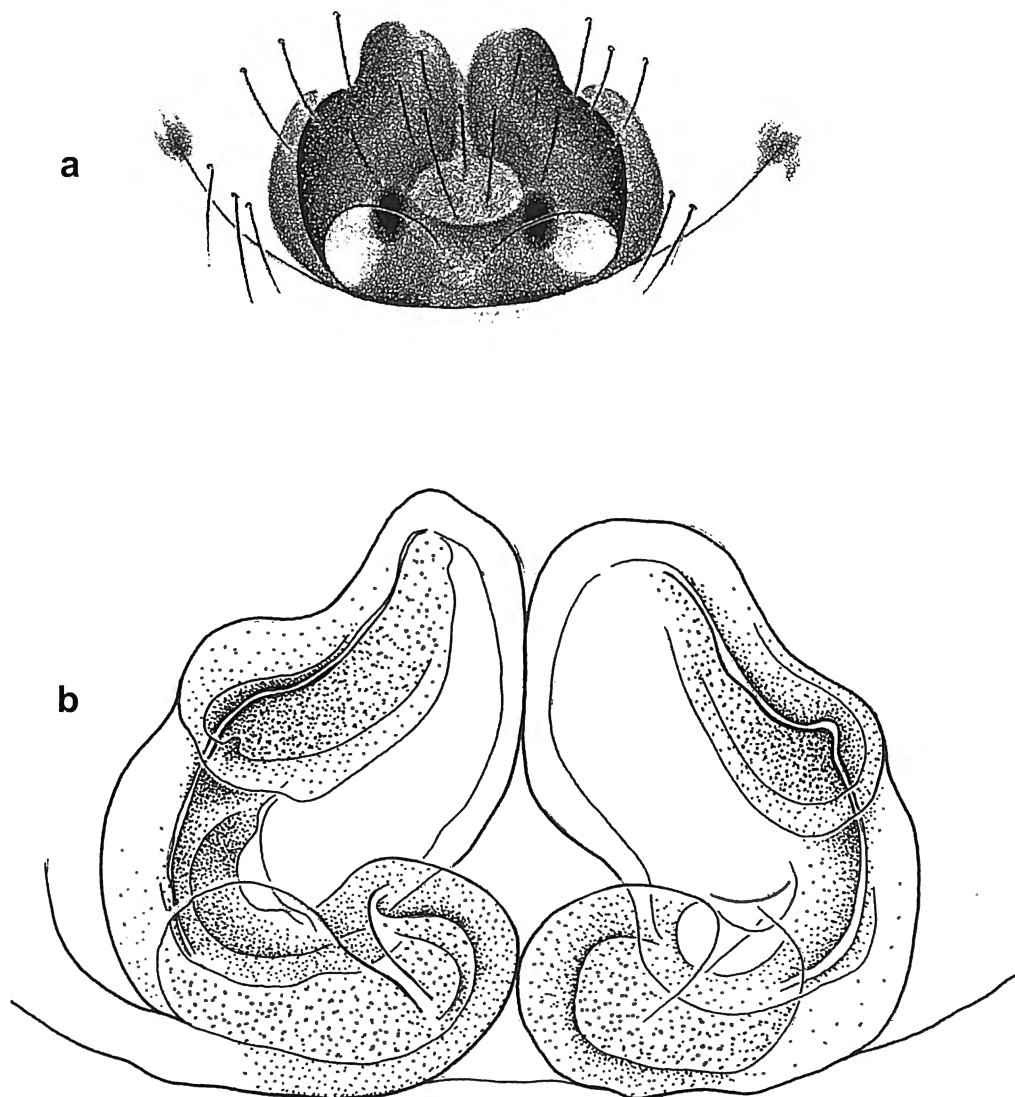
Figs. 20a-b, 29a, Map 1

TYPE MATERIAL: Holotype: Male: PERU: LA LIBERTAD: between Chagual y Patataz, ca. 1500m, 27.III.1988 (D. Silva) (MUSM);

Paratypes: 2sa♂: Tambopata, 28.X.1982 (L.E. Watrous & G. Mazurek).



Figs. 18a-e — *Tenedos hoeferi*. a. Habitus. b. Right male palp, retrolateral view. c. Male palp, ventral view. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.



Figs. 19a-b — *Tenedos honduras*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

DIAGNOSIS: Males of this species are recognized by the complex palpal tibia with four short apophyses and the long excrescence of the DTA.

ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadors.

DESCRIPTION: *Male holotype:* Total length 5.68; carapace 2.68 long, 1.68 wide, 1.08 high.

Colour: Carapace chestnut brown; sternum orange brown; legs yellow orange with greenish tinge. Abdomen black with dorsal pattern of white patches and spots: a frontal arched patch, a caudal patch and in between a series of 14 white spots arranged in three parallel rows; venter sepia with pale margin.

Carapace reticulated.

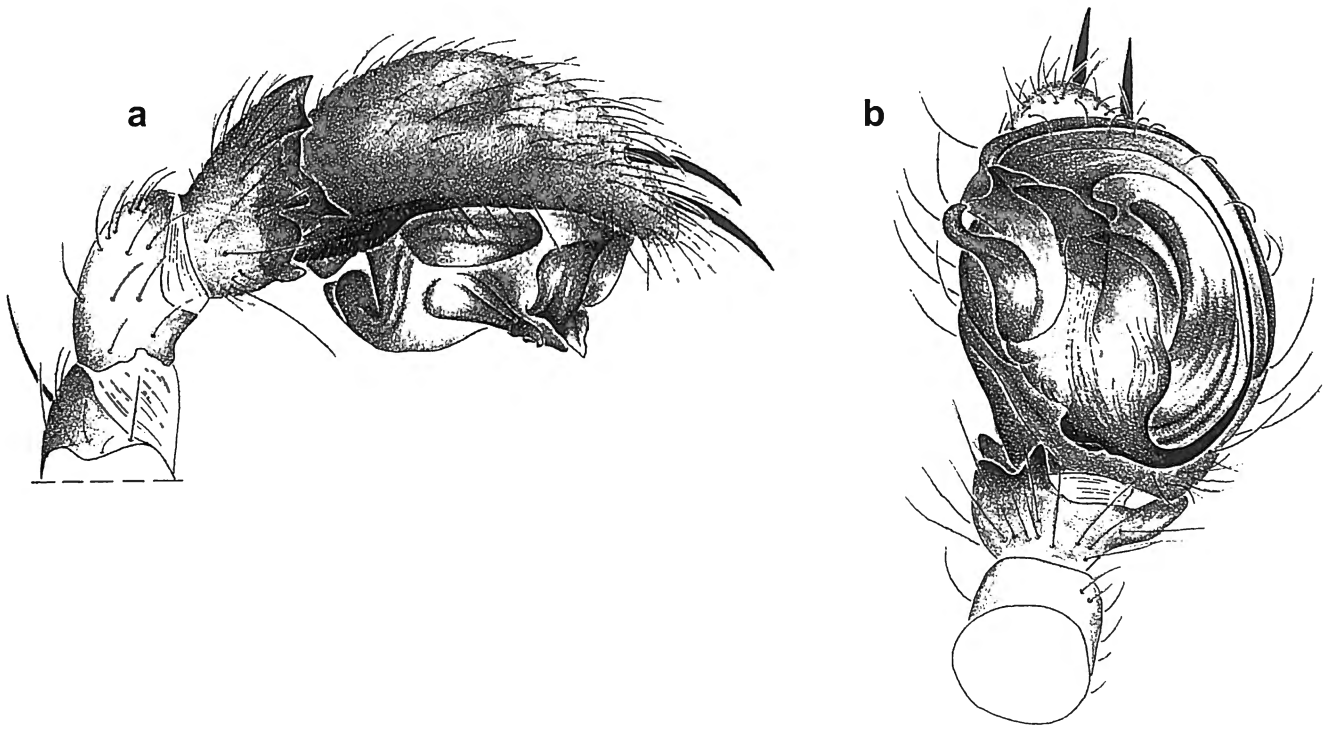
Eyes: MOQ: AW = 0.72 PW; AW = 0.58 L.

Legs: Spination: femora I d3* II d3* III d(1)2*pl2* IV d3*pl1rl(1)2*; patellae III-IV d1pl2rl1; tibiae I d2fpl1v2-2-2 II d2fpl1v1-1-2 III d3*pl3*r12*v2-2-2 IV d3*pl4*r12*v2-2-2; metatarsi I-II d1fpl1v2-2-2 III d0-1-2pl3*r13*v2-2-2 IV d0-1-2pl4*r13*v2-1-1-1-2.

Measurements: Pa+Ti I 1.90 II 1.64 III 1.54 IV 2.00.

Male palp (Figs. 20a-b): Tibia with four apophyses: one small retrolateral, one large, modified, dorsal with retrolateral tooth at tip, one small, unmodified, ventral and one prolateral. Cymbium with two apical spines. Cymbial flange directed backwards. Tegulum elongate, membranous. Median apophysis fully sclerotised hook-shaped. DTA bifid with apical tip extended in opposite direction of embolus over 3/4 its length. Embolus long, slender, flexible, with base directed backwards.

DISTRIBUTION: Peru (Map 1 shows type locality only).



Figs. 20a-b — *Tenedos inca*. a. Right male palp, retrolateral view. b. Male palp, ventral view.

***Tenedos inflatus* new species**

Figs. 21a-f, Map 2

TYPE MATERIAL: Holotype: Male: PERU: CUZCO: Consuelo, Manu Road km 165, 4.X.1982: (L.E. Watrous & G. Mazurek) (FMNH).

Paratypes: 17♂, 18♀ together with the holotype (FMNH).

DIAGNOSIS: males of this species are easily recognized by the swollen posterior part of the tegulum. Females are characterized by the posterior epigynal plate with sinuous posterior margin.

ETYMOLOGY: The species name refers to the swollen tegulum in the male palp.

DESCRIPTION: *Male holotype*: Total length 4.35, carapace 2.30 long, 1.45 wide, 0.70 high.

Colour: Prosoma orange with margins suffused with black, strongly reticulated, small impression just in front of fovea; sternum light orange; legs orange with TiI white, Ta and Mt I suffused with black; abdomen (Fig; 21d) sepia with a pattern of seven white patches, venter white.

Eyes: MOQ: AW = 0.78PW; AW = 0.70L.

Legs: Spination: femora I d3*pl1 II d3* III d0-0-1pl1 IV d3*pl1; patellae III-IV d1pl2r11; tibiae I d1fv0-0-1 II d1fv0-1-1 III d2*pl2*r12*v2-2-1 IV d3*pl2*r12*v2-2-2; metatarsi II v2-0-2 III d2-2-2pl2*r11v2-0(1)-2 IV d2-2-2pl2*r11v2-2-1-2.

Measurements: Pa+Ti I 1.76 II 1.46 III 1.38 IV 1.84.

Male palp (Figs. 21a-c): Cymbium with three apical spines and a prolateral basal tooth-shaped extension. Cymbial flange unmodified. Tibia with a retrolateral concavity facing forwards, delimited by dorsal, inner lateral and retrolateral apophysis; dorsal one truncated slightly widened distally, inner lateral one tooth-shaped, retrolateral ridge-shaped; ventral apophysis blunt; prolateral apophysis roughly quadrangular. Proximal part of tegulum slightly sclerotised, strongly swollen, transversally oval, showing sperm duct in transparency; in front with wide membranous flange. Distal part of tegulum folded over distal tip of embolus extended into prolateral pointed outgrowth. Median apophysis, hook-shaped. Distal tegular apophysis simple, bifid, with proximal part grooved. Embolus long, slender, originating in front of tegulum in prolateral position.

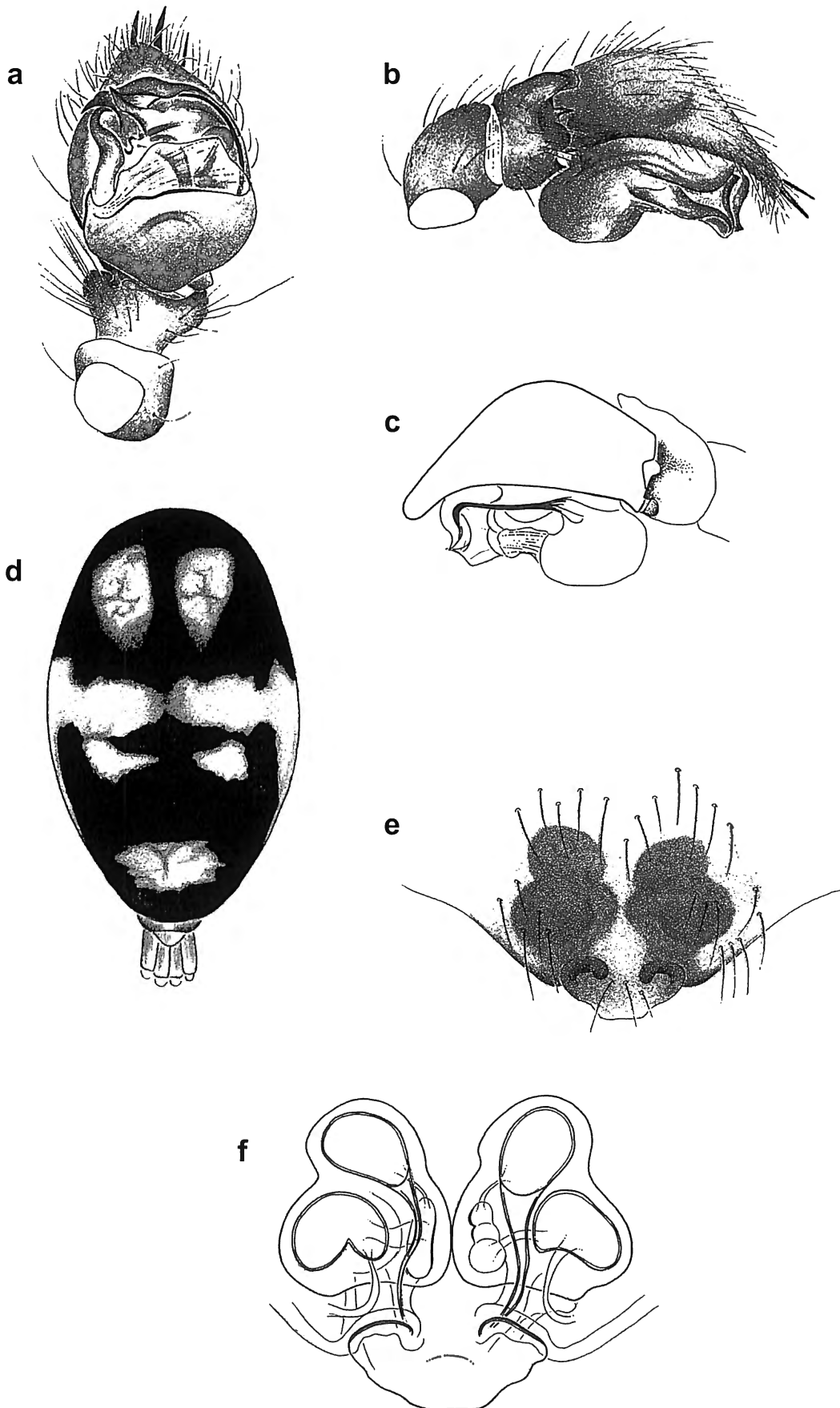
Female: Total length 5.10, carapace 2.45 long, 1.50 wide, 1.15 high.

Colour: Prosoma orange brown with fine reticulation; sternum light orange; legs orange, femora with greenish tinge; dorsum of abdomen sepia with a pattern of five clear (+ two faint) patches, sides whitish, venter sepia with lighter median region.

Eyes: MOQ: AW = 0.75PW; AW = 0.68L.

Legs: Spination: femora I-II d3* III d1 IV d3*; patellae III-IV d1pl2r11; tibiae I d1fv0-0-1 II d1fv0-1-1 III d2*pl2*r11v1-1-1 IV d3*pl2*r12*v1-1-1; metatarsi III d2-2-2pl2*r11v2-1-2 IV d2-2-2pl2*r11v2-2-1-2.

Measurements: Pa+Ti I 1.70 II 1.46 III 1.42 IV 1.86.



Figs. 21a-f — *Tenedos inflatus*. a. Right male palp, ventral view. b. Male palp, retrolateral view. c. Male palp, prolateral view. d. Abdomen, dorsal pattern. e. Epigyne, ventral view. f. Epigyne, cleared, dorsal view.

Epigyne (Figs. 21e-f): With well delimited, small posterior plate, its posterior margin sinuous, frontal margin darkened, hiding entrance openings. Entrance ducts short, running forward directly into complex, three-lobed spermathecae.

DISTRIBUTION: Only known from the type locality (Map 2).

Tenedos infrarmatus new species

Figs. 22a-b, Map 1

TYPE MATERIAL: Holotype: Male: BRAZIL: Gandu, Bahia (J.S.Santos) (MCN).

DIAGNOSIS: Males of this species are recognized by the simple palpal tibia with only one short prolateral apophysis and the short embolus.

ETYMOLOGY: The specific name *infrarmatus* (Latin for underarmed) refers to the simple male palp with few apophyses.

DESCRIPTION: *Male holotype*: Total length 5.52; carapace 3.28 long, 1.84 wide, 1.28 high.

Colour: Carapace reddish brown; sternum yellowish orange; legs yellow with orange tinge, coxae and distal half of Ti white. Abdomen sepia with dorsal pattern of white patches and chevrons (as in Fig. 17c); venter white with median sepia bar; sides sepia, speckled with white. Carapace reticulated.

Eyes: MOQ: AW = 0.67 PW; AW = 0.64 L.

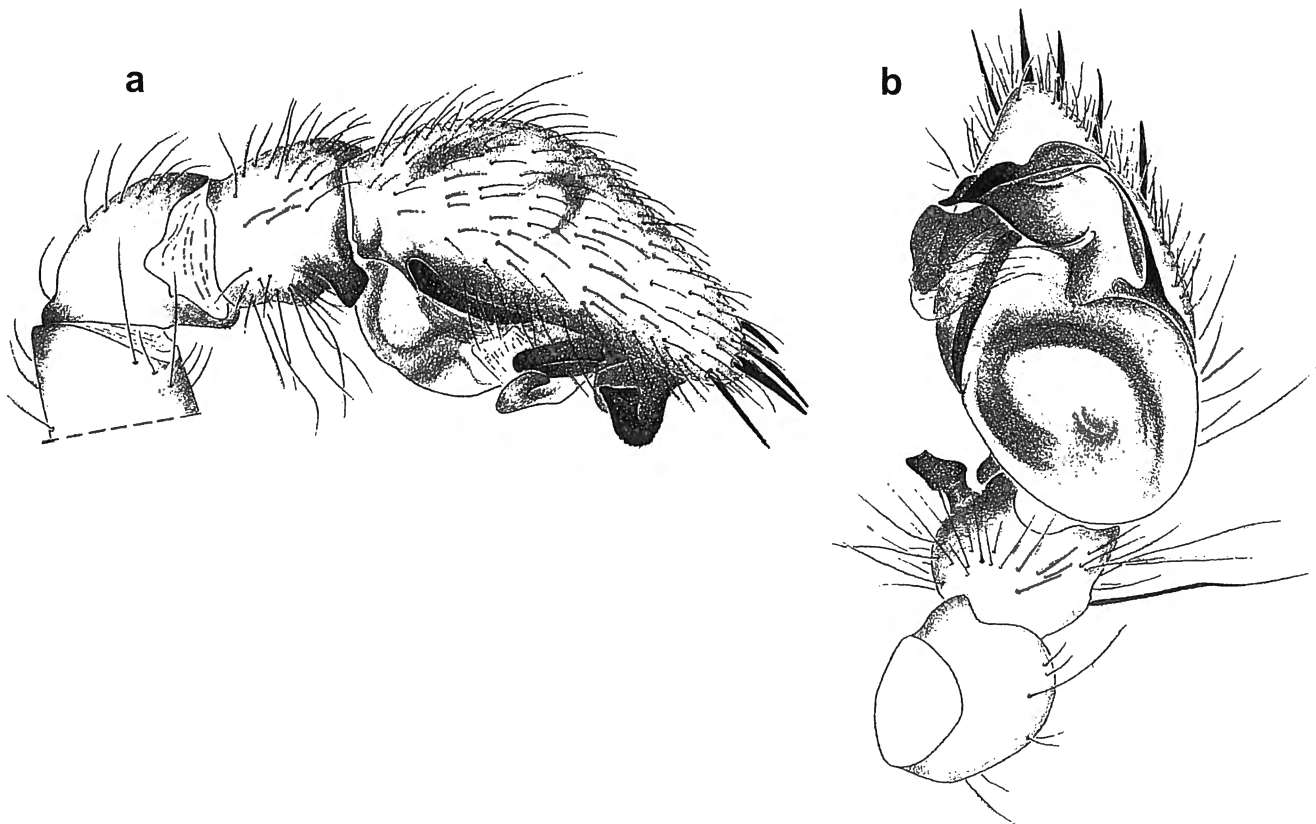
Legs: spination: femora I d3*pl1 II d3* III-IV d3(2)*rl1 ; patellae III d3pl4rl()1 IV d4pl5rl1; tibiae I d1fv1-0-0 II d1fv1-1-0 III d3*pl4*rl1v2-2(1)-0 IV d4*pl4*rl2*v2-2-0; metatarsi I-II d1fv2-0-2 III d1pl1-1-2rl1-1-2v2-0-2 IV d1pl1-1-2rl1-1-2v2-1-2.

Measurements: Pa+Ti I 2.50 II 2.10 III 1.84 IV 2.44.

Male palp (Figs. 22a-b): Tibia with one retrolateral apophysis with blunt tip, situated near ventral margin. Cymbium with five apical spines, cymbial flange very small. Tegulum large, spherical, strongly sclerotised with dorsal, fan-shaped extension pointing outwards. Median apophysis strongly developed, flat, membranous. DTA broad, directed retrolaterad and grooved. Embolus short, slender, originating on anterior part of tegulum.

Female: Unknown.

DISTRIBUTION: Only known from type locality (Map 1).



Figs. 22a-b — *Tenedos infrarmatus*. a. Right male palp, retrolateral view. b. Male palp, ventral view.

Tenedos juninus new species

Figs. 23a-b, Map 1

TYPE MATERIAL: Holotype: Female: PERU: Junin dpt., San Ramon de Pangoa, 40km SE of Satipo, 750m, 7.VI.1972 (R.T. Schuch) (AMNH).

DIAGNOSIS: Females of this species are recognized by the simple epigyne with protruding, broadly sclerotised posterior rim.

ETYMOLOGY: The specific name is an adjective referring to the type locality and the month the holotype was caught in.

DESCRIPTION: *Female holotype*: Total length 4.24; carapace 1.80 long, 1.04 wide, 0.84 high.

Colour: Carapace orange; Sternum yellow with orange

tinge. Legs orange, coxae and femora yellowish with orange tinge. Abdomen uniform creamy white.

Carapace reticulated.

Eyes: MOQ: AW = 0.60PW; AW = 0.50L.

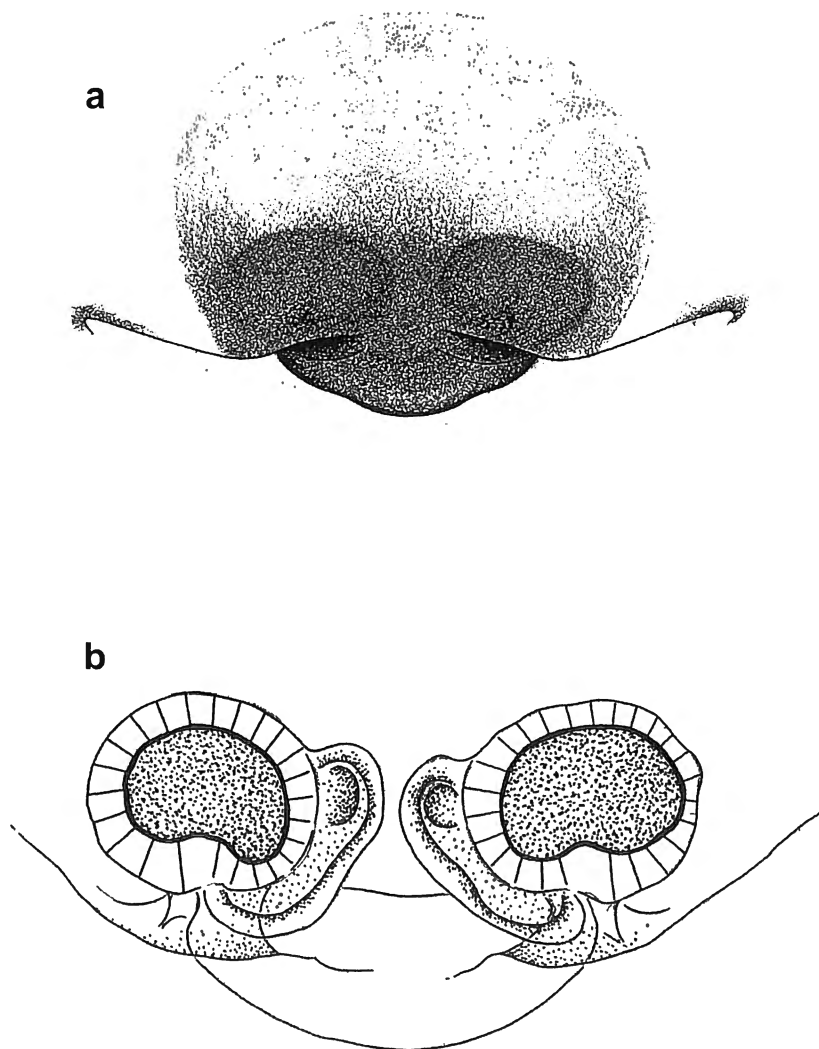
Legs: Spination: femora I-II d3* III d1 IV d2*; patellae III-IV d1pl2r1l1; tibiae I d1fv1-0-0 II d1fv1-1-0 III d2*pl2*(3)r1l1v2(0)-2(0)-2 IV d3*pl2*r12*v1-1-1; metatarsi II v1-0-1 III d1-2-2pl1-1 r1l1v2-0-2 IV d2-2-2pl1-1r1l1v2-1-2.

Measurements: Pa+Ti I 1.26 II 1.12 III 1.02 IV 1.38.

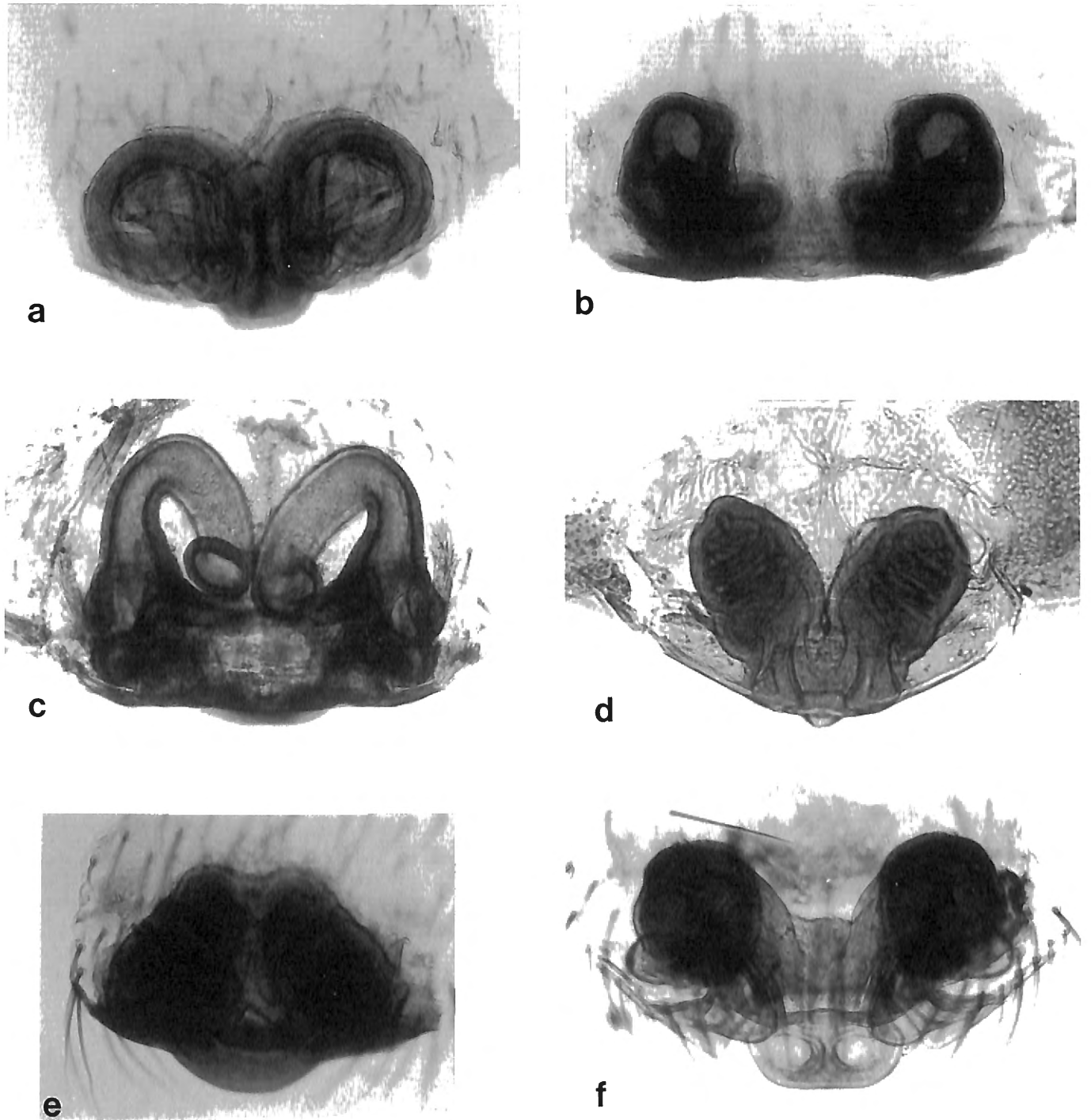
Epigyne (Figs. 23a-b): Poorly sclerotised area with broad, protruding, sinuous posterior rim. Entrance openings central; entrance ducts very short; spermathecae with three compartments; fertilization ducts short.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 1).



Figs. 23a-b — *Tenedos juninus*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.



Figs. 24a-f — Cleared epigynes, dorsal view. **a.** *Tenedos asteronoides*. **b.** *Tenedos banos*. **c.** *Tenedos barronus*. **d.** *Tenedos figaro*. **e.** *Tenedos quadrangulatus*. **f.** *Tenedos venezolanus*.

Tenedos lautus O.P.-CAMBRIDGE, 1897
Figs. 25a-b, Map 1

Tenedos lautus O.P.-CAMBRIDGE 1897: 226 (descr. ♂);
JOCQUÉ 1991: 93.

Storena lauta: F. O.P.-CAMBRIDGE 1899: 54.

TYPE MATERIAL: Holotype: Male: GUATEMALA: Antigua (Stoll leg.) (BMNH) (examined).

DIAGNOSIS: Males are recognized by the large rounded lateral and the hook-shaped dorsolateral apophyses.

DESCRIPTION: *Male*: Total length 5.42; carapce 2.91 long, 1.95 wide.

Colour: Prosoma including legs orange brown; abdomen dark grey with pale dorsal pattern; anterior part with two large reniform patches followed by series of chevrons, the first two interrupted in the middle (as in Fig. 77c). Venter pale with longitudinal black stripe in the middle and a black ring around spinnerets.

Eyes: MOQ: AW = 0.71 PW: AW = 0.71L.

Legs: Spination femora I-II d1-1-2 III-IV d1-1-1-2; patellae III d3*pl2 IV d3*pl2r11; tibiae I-II v1-1-2 III-IV d3*pl3*r12*v2-2; metatarsi I pl1v2-2-2 II pl2*v2-2-2 III w4w4w4 IV?.

Measurements : Pa + Ti I 2.18 II 1.94 III 1.76 IV 2.35.

Male palp (Figs. 25a-b): Tibia with two retrolateral apophyses: dorsal one short, pointed, curved down, ventrolateral one broad, rounded. Cymbium with eight apical spines. Cymbial flange simple, hidden by tibial apophyses. Tegulum fairly large, partly sclerotised. Median apophysis stout with blunt slightly downcurved tip. DTA broad, membranous in proximal 1/2, sclerotised sharp tip

directed outwards. Embolus long, slender, flexible, originating on posterior part of tegulum, directed laterad.

Female: Unknown.

DISTRIBUTION: only known from type locality (Map 1).

Tenedos ligulatus new species
Figs. 26a-e, Map 1

TYPE MATERIAL: Holotype: Male: COLOMBIA: Paramo de Monserrate, 1968-69 (H. Sturm) (AMNH).

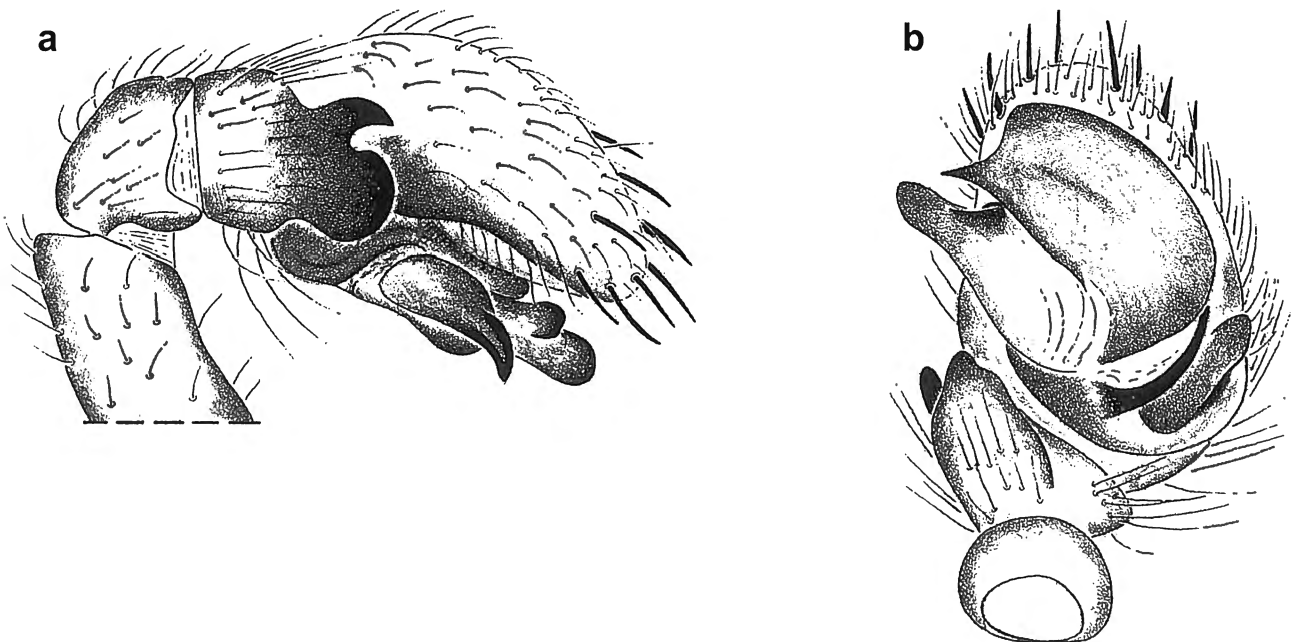
Paratype: COLOMBIA: 1♂: Paramo de Monserrate, IV-XI 1968, (H. Sturm) (AMNH); 1♀: Paramo de Guaca, ca. 40km NE of Bogota, 2920m, 23.VII.1968 (H. Sturm)(MCZ).

DIAGNOSIS: Males of this species are easily recognized by the long curved prolateral apophysis on the palpal tibia and the tongue-shaped appendage at the base of the embolus.

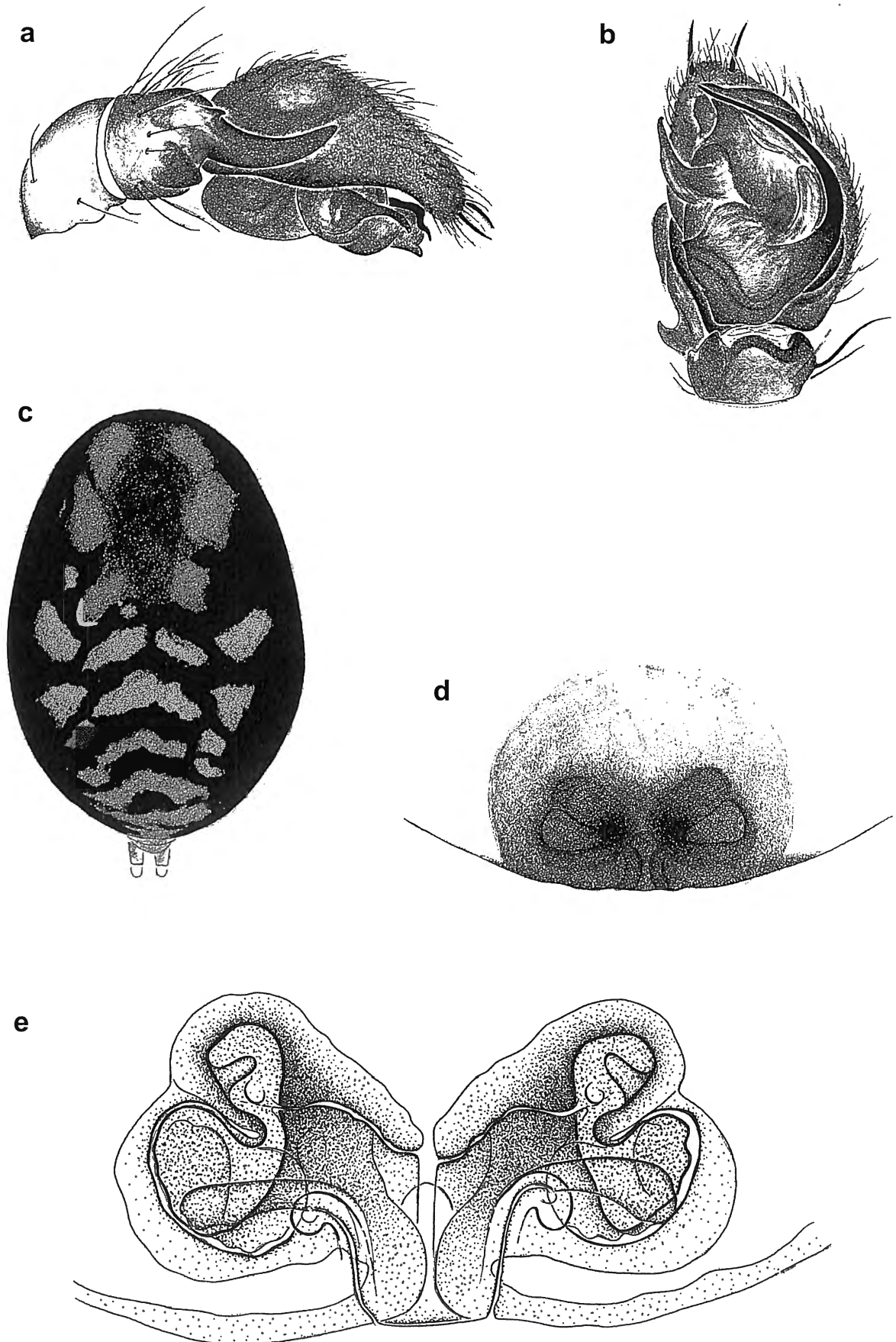
ETYMOLOGY: The specific name *ligulatus* (Latin: provided with a tongue) refers to the presence of a tongue-shaped excrescence at the base of the embolus. The female has a typical epigyne with a narrow key-hole-shaped indentation.

DESCRIPTION: *Male holotype*: Total length 4.00 (4.96); carapace 2.20 long, 1.44 wide, 0.84 high.

Colour: Carapace reddish brown, strongly reticulated; sternum orange brown; legs orange brown, femora slightly suffused with black; abdomen sepia grey with a pattern of white spots: three pairs followed by three



Figs. 25a-b — *Tenedos lautus*. a. Right male palp, retrolateral view. b. Male palp, ventral view.



Figs. 26a-e — *Tenedos ligulatus*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.

transverse broken chevrons and two caudal bars (Fig. 26c); venter sepia flanked by a white longitudinal bar, sides with two white spots in the caudal half.

Eyes: MOQ: AW = 0.88PW; AW = 0.71L.

Legs: Spination: femora I d2*pl1 II d3* III d1 IV d3*; patellae III-IV d1pl2r11; tibiae I v1-1-1 II d2fv3* III d2*pl2*rl2v2-1-2 IV d2*pl2*rl2*v1-1-2; metatarsi I pl1v1-0-2 II pl2*v1-1-2 III d1-2-2pl2(3)*rl1v2-0-2 IV d3-1-2pl2*rl2*v2-1-1-(2)-2.

Measurements: Pa+Ti I 1.60 II 1.30 III 1.28 IV 1.68.

Male palp (Figs. 26a-b): Cymbium with four apical short spines. Tibia with two apophyses: a retrolateral apophysis as an elongate sabre-like outgrowth of dorsal margin with a tooth at base and a small unmodified blunt ventral apophysis. Tegulum U-shaped, sclerotised in proximal part with a prolateral membranous tong-like extension near the embolus. Median apophysis slightly curved and unmodified. DTA broad, grooved and directed retrolaterad. Embolus short, slender, originating prolaterally in front of tegulum, bent, tip resting against and protected by the tooth-shaped terminal part of DTA.

Female: Total length 5.52; carapace 2.40 long, 1.52 wide, 1.22 high.

Colour: Carapace orange. Sternum orange. Legs yellowish orange, femora with black suffusion. Abdomen sepia with complex pale dorsal pattern of four frontal spots followed by three broken and two complete chevrons; sides sepia with four pale spots; venter pale with median longitudinal sepia bar.

Carapace reticulated.

Eyes: MOQ: AW = 0.78PW; AW = 0.74L.

Legs: Spination: femora I d1(proximal) II d2 III d1(distal) IV d3*; patellae III-IV d1pl2r11; tibiae I d1fv1-0-0 II d1fv1-1-0 III-IV d3*pl2*rl2*v1-1-1; metatarsi I v0-0-2 II v1-0-2 III d1-1-2 pl2*rl2*v2-0-2 IV d1-2pl3*rl3*v2-2-2.

Measurements: Pa+Ti I 1.62 II 1.36 III 1.22 IV 1.78.

Epigyne (Figs. 26d-e): External structure restricted to narrow posterior indentation in the shape of a key-hole. Entrance openings central; entrance ducts running obliquely sideways entering large spermathecae mesally. Fertilization ducts long.

DISTRIBUTION: Colombia (Map 1).

Tenedos microlaminatus new species

Figs. 27a-b, Map 2

TYPE MATERIAL: Holotype: Female: PERU: Junin Dpt., San Ramon de Pangoa, 40km SE of Satipo, 750m, 7.VI.1972 (R.T. Schuh) (AMNH).

Paratypes: 1♀ together with holotype (tube also contains 4 juv.).

DIAGNOSIS: Females of this species are recognized by the tiny convex plate situated in an indentation of the posterior margin.

ETYMOLOGY: The specific name is an adjective referring

to the small diagnostic plate in the epigyne.

DESCRIPTION: *Female holotype*: Total length 4.24 (paratype 4.64); carapace 2.08 long, 1.28 wide, 0.92 high.

Colour: Carapace red brown with lighter area in front of fovea; Sternum orange. Legs yellow with orange tinge, coxae lighter. Abdomen dark sepia; dorsum with seven white spots (only five in paratype) two rounded in front, followed by two oblique bars, two tiny spots (absent in paratype) and one rounded in front of spinnerets; sides sepia with one bar followed by one round spot; venter white with faint sepia median longitudinal bar.

Carapace reticulated; chelicerae setose.

Eyes: MOQ: AW = 0.80PW; AW = 0.63L.

Legs: Spination: femora I-II,IV d3* III d1; patellae III-IV d1pl2r11; tibiae I d1fv1-0-0 II d1fv1-1-0 III d2*pl2*rl1v1-1-1 IV d3*pl2*rl2*(1)v1-1-1; metatarsi I v1-0-0 II v1-0-2 III d1-2-2 pl1-0-1rl0-0-1v2-1-2 IV d1-2pl3*rl3*v2-1-1-2.

Measurements: Pa+Ti I 1.38 II 1.20 III 1.14 IV 1.60.

Epigyne (Figs. 27a-b): Poorly sclerotised area; indentation of posterior margin provided with tiny plate with rounded posterior margin. Entrance openings caudal; entrance ducts short, semicircular, opening into simple, globular spermathecae from back. Fertilization ducts fairly long.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 2).

Tenedos parinca new species

Figs. 28a-d, Map 2

TYPE MATERIAL: Holotype Male: PERU: CUZCO: Consuelo, Manu Road km 165, 4.X.1982 (L.E. Watrous & G. Mazurek) (FMNH).

Paratypes: 16♂, 18♀ together with holotype (FMNH).

DIAGNOSIS: Males of this species are easily recognized by the double RTA. Females have an epigyne with a typical lock-shaped posterior opening.

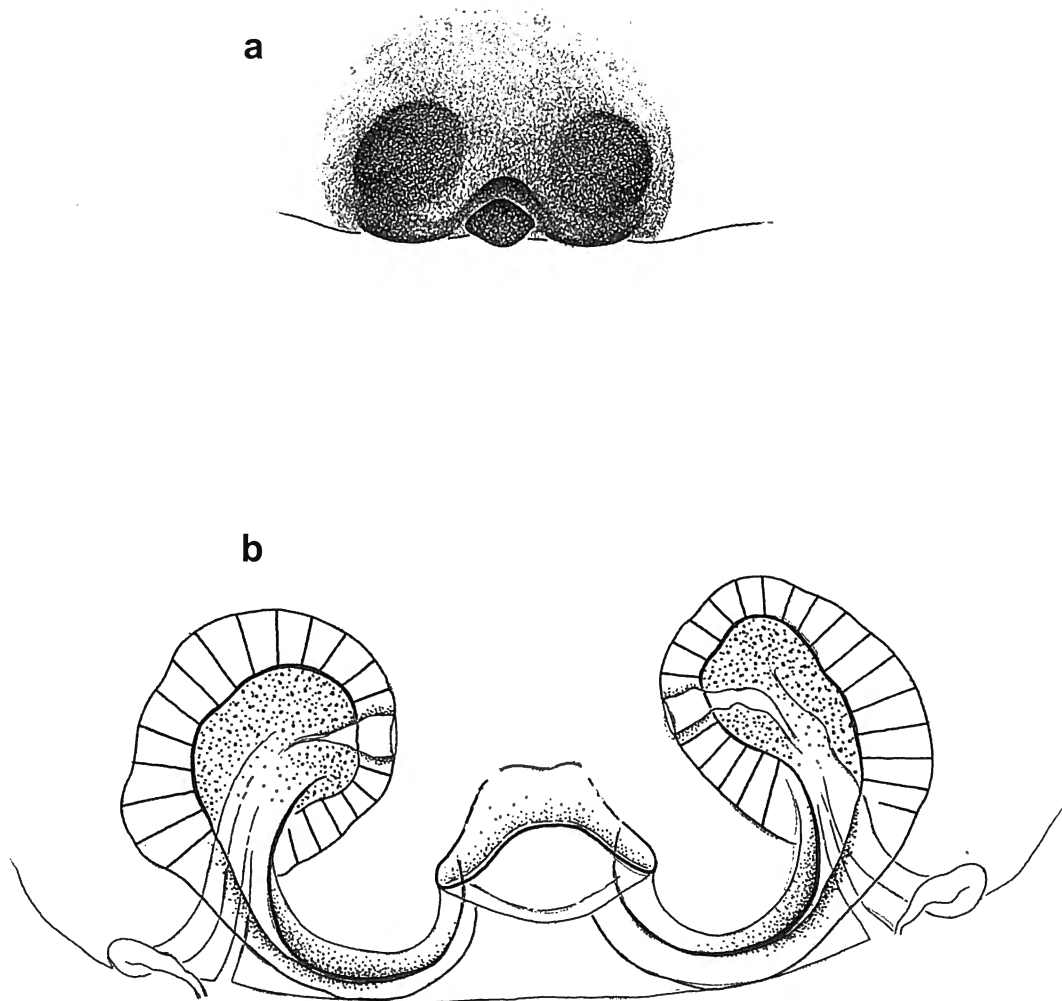
ETYMOLOGY: the species name evidently refers to the close relationship of the species with *T. inca*.

DESCRIPTION: *Male holotype*: Total length 3.65, carapace 1.85 long, 1.15 wide, 0.70 high.

Colour: Prosoma orange with margins suffused with black, reticulated, small impression just in front of fovea; sternum orange with lighter center; legs orange with paler coxae and TiI, Fe with greenish tinge; abdomen sepia with a pattern of five white patches, venter greyish with light brown patch in front of spinnerets.

Eyes: MOQ: AW = 0.81PW; AW = 0.88L.

Legs: Spination: femora I d2*pl1 II d3* III d2*(1) IV d3*rl1(-); patellae III-IV d1pl2r11; tibiae I d1fv1-0-0 II d1fv1-1-1 III d3*pl2*rl1v0(1)-1(0)-1 IV d3*pl2*rl2*v2-1-2; metatarsi I,II v1-0-2 III d1-2-2pl1rl1v2-0-2 IV d1-2-



Figs. 27a-b — *Tenedos microlaminatus*. a. Epigyne, ventral view. b. Abdomen, dorsal pattern.

2pl2_{*}rl1v2-2-(0)1-2.

Measurements: Pa+Ti I 1.34 II 1.16 III 1.06 IV 1.42.

Male palp (Figs. 28a-b): Cymbium with two apical spines. Cymbial flange extending slightly backwards. Tibia with three sharp retrolateral apophyses: dorsal and lateral ones adjacent, ventral one short; prolateral apophysis tiny, blunt. Tegulum membranous. Median apophysis bifid, a flat branch and a hooked branch. DTA grooved, broad and directed retrolaterad. Embolus short and slender, base directed prolaterad.

Female: Total length 4.10, carapace 1.95 long, 1.25 wide, 0.85 high.

Colour: Prosoma orange brown with fine reticulation; sternum light orange; legs orange, coxae paler, Fe with greenish tinge; abdomen as in male.

Eyes: MOQ: AW = 0.75PW; AW = 0.85L.

Legs: Spination: femora I d2_{*}pl1 II d3_{*} III d2_{*} IV d3_{*}; patellae III-IV d1pl2r11; tibiae I d1fv1-0-0 II d1fv1-1-1 III d3_{*}pl2_{*}rl2_{*}v1-1-2 IV d3_{*}pl2_{*}rl2_{*}v1-1-2; metatarsi I,II v1-0-2 III d1-2-2pl1rl1v2-0-2 IV d1-2-2pl3_{*}rl1v2-0-2.

Measurements: Pa+Ti I 1.30 II 1.14 III 1.12 IV 1.44.

Epigyne (Figs. 28c-d): with posterior lock-shaped depression; entrance openings near centre, ducts running forward and turning back sideward into poorly delimited lateral spermathecae.

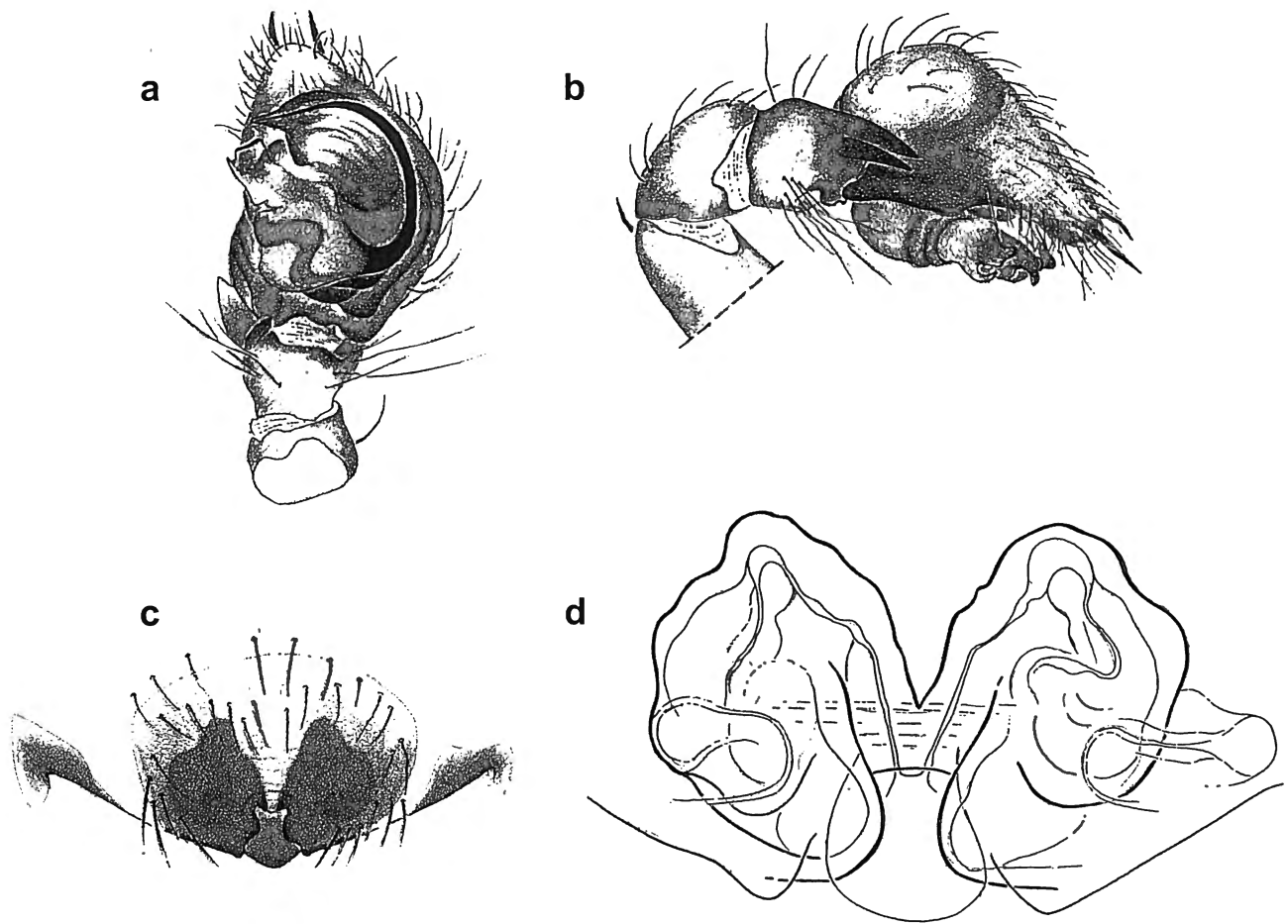
DISTRIBUTION: Only known from the type locality (Map 2).

Tenedos peckorum new species

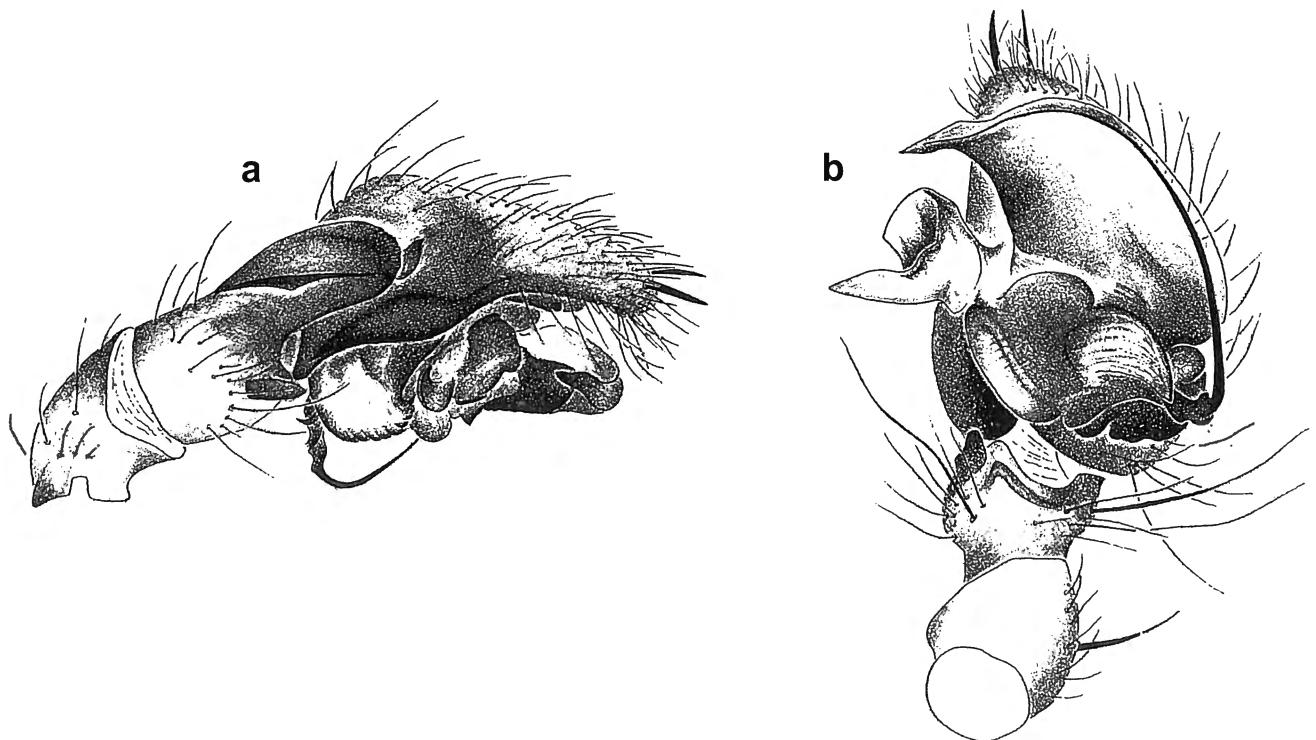
Figs. 29a-b, Map 2

TYPE MATERIAL: Holotype: Male: COLOMBIA: Amazon, 18 km N of Leticia, 24-28.II.1974 (S. and J. Peck) (AMNH).

DIAGNOSIS: Males of this species are easily recognized by the shape of the palpal tibial apophysis of which the large dorsal one is ridged and serrated at the margin and by the enormous DTA.



Figs. 28a-d — *Tenedos parinca*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.



Figs. 29a-b — *Tenedos peckorum*. a. Right male palp, retrolateral view. b. Male palp, ventral view.

ETYMOLOGY: The specific name is a patronym in honour of S. and J. Peck as an esteem for their marvelous collections of many species of *Tenedos*.

DESCRIPTION: *Male holotype*: Total length 7.2; carapace 3.44 long, 2.08 wide and 1.44 high.

Colour: Carapace reddish brown; sternum lighter; legs yellowish brown. Abdomen uniform grey; dorsum with faint median white chevron, preceded and followed by faint white patch.

Carapace reticulated.

Eyes: MOQ: AW = 0.82 PW; AW = 0.77 L.

Legs: Spination: femora I-II d3*pl1 III d2*pl3(2)rl2(1) IV d3*pl1rl1(2); patellae III-IV d1pl2rl1; tibiae I d1fv2-1-2 II d1fpl2*v1-1-2 III d2*pl2*rl2*v2-1-2 IV d3*pl2*rl2*v2-1-2; metatarsi I pl1v1-2-2 II pl1v2-1-2 III d0-1-2pl2*rl3*v2-2-2 IV d1-1-2pl3*rl3*v2-2-2.

Measurements: Pa+Ti I 2.92 II 2.36 III 2.12 IV 2.84.

Male palp (Figs. 29a-b): Tibia with three apophyses: one retrolateral, long, broad, complex, with longitudinal ridge and serrated distal margin; one ventral, small, unmodified, blunt; one prolateral, small. Cymbium with two apical spines, cymbial flange directed backwards. Tegulum small with sclerotised retrolateral half and membranous prolateral half; with apophysis near base of embolus. Median apophysis well developed, bifid, posterior part slender; anterior part broad, spoonlike. DTA broad plate with extension directed outwards. Embolus long, very thin, flexible, originating ventral posterior part of tegulum, directed prolaterad, bent over 90°.

Female: Unknown.

DISTRIBUTION: Only known from type locality (Map 2).

Tenedos perfidus new species

Figs. 30a-d, Map 2

TYPE MATERIAL: Holotype: Male: BRAZIL: Sto Antonio de Levergere, 13.X.1981 (H. Duarte) (MCP).

Paratypes: 1♂ together with holotype; 1♂: 16.XII.1981, further as previous; 1♂ 1♀: 3.II.1982, further as previous.

DIAGNOSIS: Males of this species are easily recognized by the simple palp: the tibia has a dorsolateral apophysis with split tip and a haired ventrolateral swelling; the sharp median apophysis at the base of the embolus is also characteristic. The female has an epigyne with a broad, swollen central plate; the entrance ducts are very simple and with only one loop.

ETYMOLOGY: The specific name of this species (*perfidus*: Latin for untrustworthy) refers to the doubtful generic affiliation of the species.

DESCRIPTION: *Male paratype*: Total length 5.92 (range 5.6-6.0); carapace 3.00 long, 2.04 wide, 1.24 high.

Colour: Carapace red brown; sternum orange; legs: Fe orange, other segments white with faint orange tinge.

Abdomen sepia with dorsal pattern of white patches, a dorsal more or less sclerotised orange stain (as in Fig. 77c); venter white, sides sepia with white bars.

Carapace strongly reticulated.

Eyes: MOQ: AW = 0.84 PW; AW = 0.53 L.

Legs: spination: femora I-II d3*pl1 III-IV d4*pl2rl1; patellae III-IV d1pl1rl1; tibiae I d1fpl1v1-1-1 II d1fv1-1-2 III d2*pl2*rl2*v2-2-2 IV d2*pl2*rl2*v1-2(1)-2; metatarsi I pl1v1-0-2 II pl1v2-1-2 III d1pl1-1-2rl1-1-2v2-2-2 IV d1pl1-1-2rl1-1-2v2-3-2.

Measurements: Pa+Ti I 2.20 II 1.88 III 1.76 IV 2.36.

Male palp (Figs. 30a-b): Tibia with one retrolateral apophysis which appears double due to deep groove; dorsal bunch of setae; prolateral haired swelling. Cymbium with five apical spicules. Tegulum small, sclerotised, with needle-like apophysis near base of embolus. Median apophysis inconspicuous, membranous. DTA with strong sclerotised stalk-like basal part and broad, grooved distal part, both halves with sclerotised extension pointing forward, slightly twisted around each other; directed outwards. Embolus short and slender, originating on anterior part of tegulum.

Female: Total length 8.80; carapace 3.60 long, 2.28 wide, 1.64 high.

Colour: As in male, but legs more or less uniform orange brown. Abdomen greyish, speckled with white and with dorsal pattern of white patches; venter white with median grey bar; sides with white bars.

Eyes: MOQ: AW = 0.75 PW; AW = 0.55 L.

Legs: spination: femora I-II d2*pl1 III d3*pl2rl1 IV d4*pl1rl1; patellae III-IV d1pl1rl1; tibiae I d1fpl1v1-1-2 II d1fr11v1-1-2 III d2*pl2*rl2*v2-2-2 IV d2*pl2*rl2*v2-1-2; metatarsi I-II pl1v2-1-2 III d1pl1-1-2rl1-1-2v2-2-2 IV d1pl1-1-2rl1-1-2v2-3-2.

Measurements: Pa+Ti I 2.46 II 2.08 III 2.00 IV 2.84.

Epigyne (Figs. 30c-d): With large, swollen plate with curved sides, much narrower in front than at back; posterior margin procurved with lateral posterior corners protruding. Spermathecae showing through. Entrance openings in front; entrance ducts simple: running parallel in centre, returning to front where they enter large spermathecae.

DISTRIBUTION: Only known from type locality (Map 2).

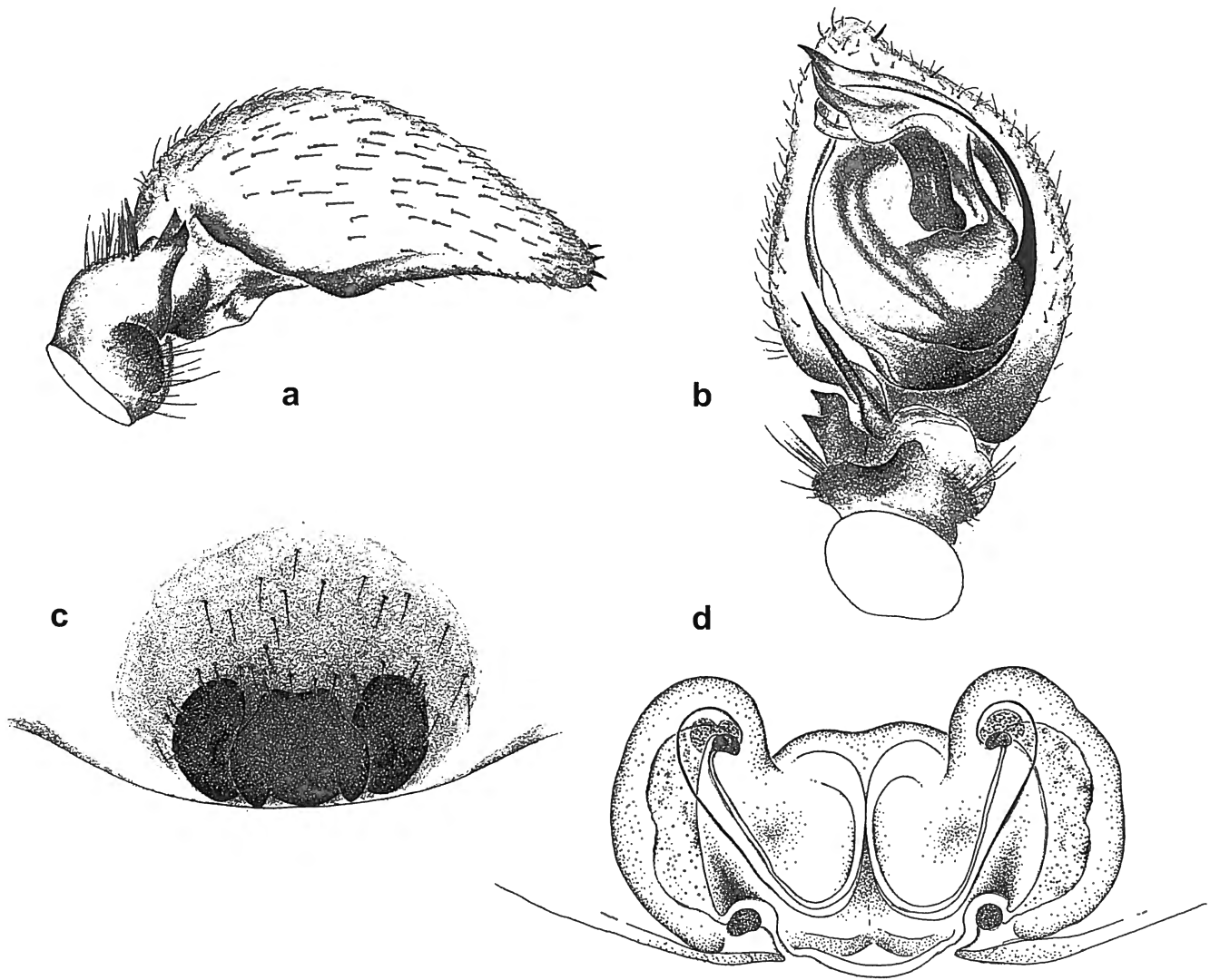
Tenedos persulcatus new species

Figs. 31a-c, Map 2

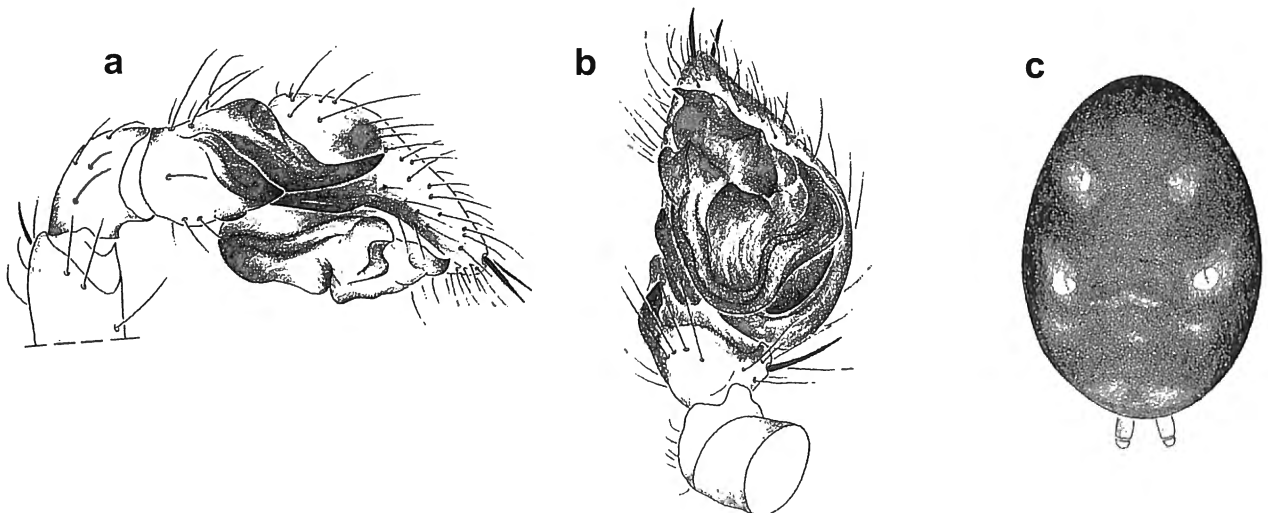
TYPE MATERIAL: Holotype: Male: ECUADOR: ORIENTE: Rio Negro, Transition forest, 1600m, IV.1965 (J.& N. Leleup) (KBIN).

DIAGNOSIS: Males of this species are easily recognized by the single, large, retrolateral tibial palpal apophysis which is grooved over most of its length.

ETYMOLOGY: The name (*persulcatus*, Latin for "with deep groove") evidently refers the grooved retrolateral



Figs. 30a-d — *Tenedos perfidus*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.



Figs. 31a-c — *Tenedos persulcatus*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern.

tibial apophysis.

DESCRIPTION: *Male holotype*: Total length 3.36, carapace 1.68 long, 1.16 wide, 0.76 high.

Colour: Carapace very slightly suffused with black; sternum orange; legs: Fe yellow with orange tinge, other segments pale; abdomen (Fig. 31c) pale sepia with dorsal pattern of small white patches, venter pale.

Chelicerae with few hairs.

Eyes: MOQ: AW = 0.73PW; AW = 0.65L.

Legs: Spination: femora I-II d3*pl1 III d2*pl1r11 IV d3*r11; patellae III-IV d1pl2r11; tibiae I d1fv2* II d1fp11v3* III d3*pl2*r12*v1-2-2 IV d3*pl2*r12*v2-2-2; metatarsi I v0-0-2 II v0-0-2 III d1-2-2pl2*r11v2-0-2 IV d1-1-2pl3*r13*v2-2-2.

Measurements: Pa+Ti I 1.38 II 1.16 III 1.06 IV 1.46.

Male palp (Figs. 31a-b): Tibia with one retrolateral apophysis with two grooves; two long hairs on prolateral edge. Cymbium with one prolateral and two apical short spines. Tegulum mostly sclerotised, oval, in slightly oblique position, directed outwards. Median apophysis semi-membranous, well developed, with median groove. DTA massive, sclerotised, with small apical extension. Embolus very short, slender, originating on anterior part of tegulum.

Female: Unknown.

DISTRIBUTION: Only known from type locality (Map 2).

Tenedos procreator new species

Figs. 32a-e, Map 2

TYPE MATERIAL: Holotype: Male: BRAZIL: Riberao Estreito Pinhao (Usina Hidrelétrica Segredo), 21.XI.1991 (R. Pinto-da-Rocha and A.P. Barreto)(MCN).

Paratypes: 2♀: II.1992, further as holotype.

DIAGNOSIS: Males of this species are easily recognised by the simple palp with short dorsolateral apophysis. Females are characterised by the epigyne with lateral lips overhanging the central plate which is narrowed towards the back.

ETYMOLOGY: The specific name refers to the very primitive character of this species which is highlighted by the very simple structure of the genitalia.

DESCRIPTION: *Male holotype*: Total length 5.60, carapace 3.00 long, 1.96 wide, 1.20 high.

Colour: Carapace brown; sternum yellow, margin with orange tinge. Legs yellowish green, coxae white. Abdomen (Fig. 32e) sepia with dorsal pattern of white patches and chevrons; venter, white with two median sepia patches; sides sepia with three caudal white bars in front of spinnerets.

Carapace reticulated.

Eyes: MOQ: AW = 0.90 PW; AW = 0.72 L.

Legs: spination: femora I-II d2*pl1 III d3*pl2*r11 IV

d3*r11; patellae III d2pl5r11 IV d3pl5-6r11; tibiae (ventrally with long fine hairy spines) I d1f II d1f III d3*pl4*r12*v2f-2f-2 IV d4*pl4*r12*v2f-2f-2; metatarsi (Mt I and II ventrally with long fine hairy spines) I-II d1fv2 III d1pl1-1-2r11-1-2v2-1-2-2 IV d1pl1-1-1-2r11-1-2v2-2-1-2.

Measurements: Pa+Ti I 2.44 II 2.12 III 1.84 IV 2.34.

Male palp (Figs. 32a-b): Tibia with small, flat, retrolateral apophysis, extending dorsal margin. Cymbium with five short apical spines; cymbial flange small. Tegulum large, slightly sclerotised in caudal half. Median apophysis triangular, gutter-shaped, well sclerotised. DTA poorly sclerotised with slender retrolateral, strongly sclerotised extension, fitting in gutter-shaped median apophysis. Embolus short, very slender, originating far in front along prolateral side of tegulum, running along apical edge of DTA.

Female: Total length 8.00 (6.64); carapace 3.64 long, 2.16 wide, 1.80 high.

Colour: Carapace chestnut brown, lighter towards the back; sternum yellowish orange; legs: coxae pale; Fe, Pa, Ti yellowish green, Mt, Ta orange brown. Abdomen as in male.

Carapace finely reticulated, with few small, black setae.

Eyes: MOQ: AW = 0.77 PW; AW = 0.68L.

Legs: spination: All ventral spines are fine hairy. Femora I d3*pl1 II d3* III d2*r11 IV d3*r11; patellae III-IV d3pl5r11; tibiae I d1fv1-1-2 II d1fv1-1-1-2 III d3*pl4*r12*v2-2-2 IV d4*pl4*r12*v2-2(1)-2; metatarsi I d1fv2-2-2 II d1fv2-1-2-2 III d1pl1-1-2r11-1-2v2-1-1-2 IV d1pl1-1-1-2r11-1-1-2v2-1-1-2.

Measurements: Pa+Ti I 2.44 II 2.18 III 2.04 IV 2.64.

Epigyne (Figs. 32c-d): With simple central plate, narrowed towards the back; with lateral lips overhanging near posterior margin. Entrance openings in front; entrance ducts strongly sinuous ending in tiny spermathecae situated near posterior margin and far apart.

DISTRIBUTION: Only known from type locality (Map 2).

Tenedos quadrangulatus new species

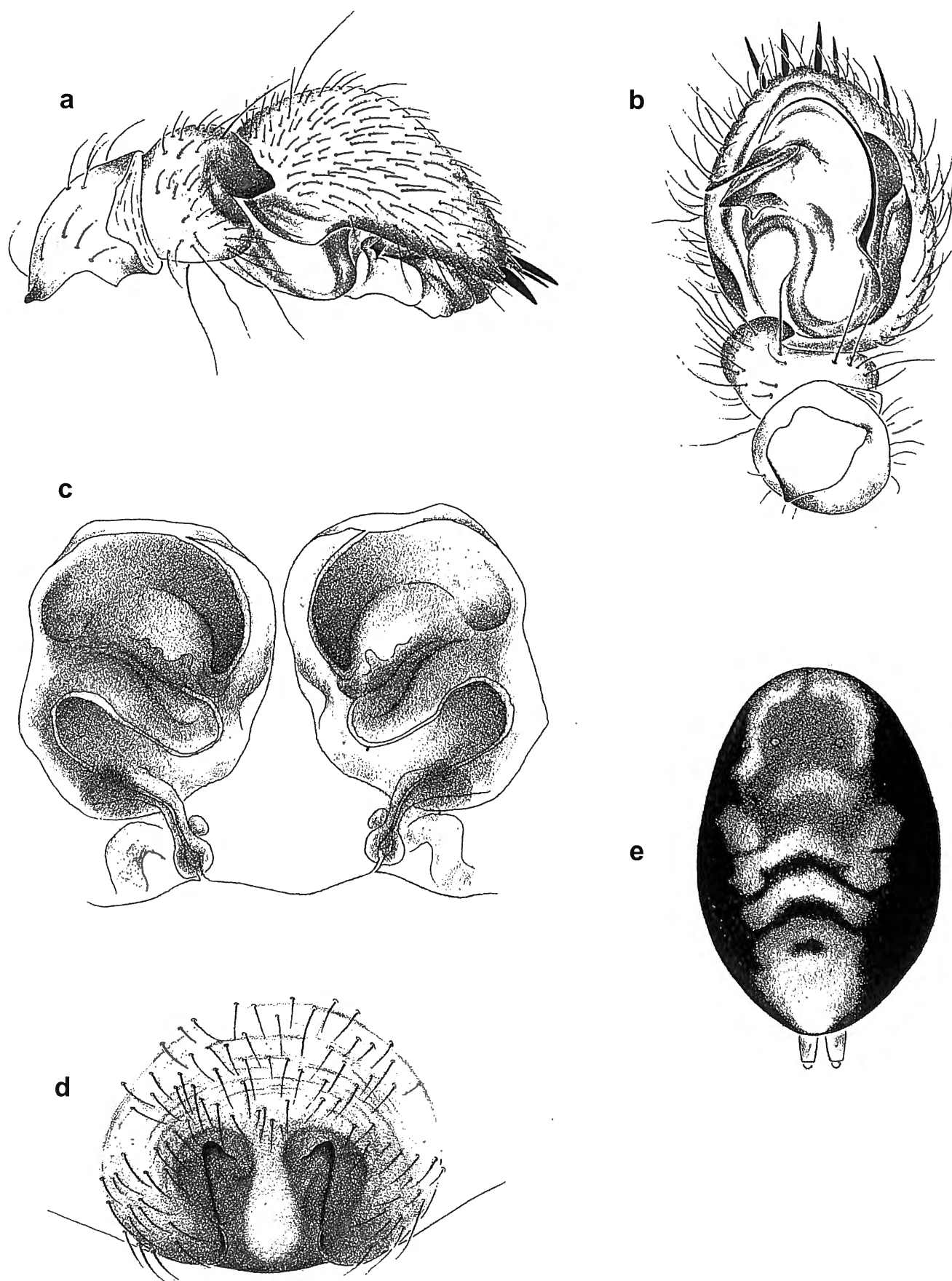
Figs. 24e, 33a-c, Map 2

TYPE MATERIAL: Holotype: Female: PERU: San Martin, Ekin, E of Tarapoto, 9-21.III.1947 (F. Woytkowski) (AMNH).

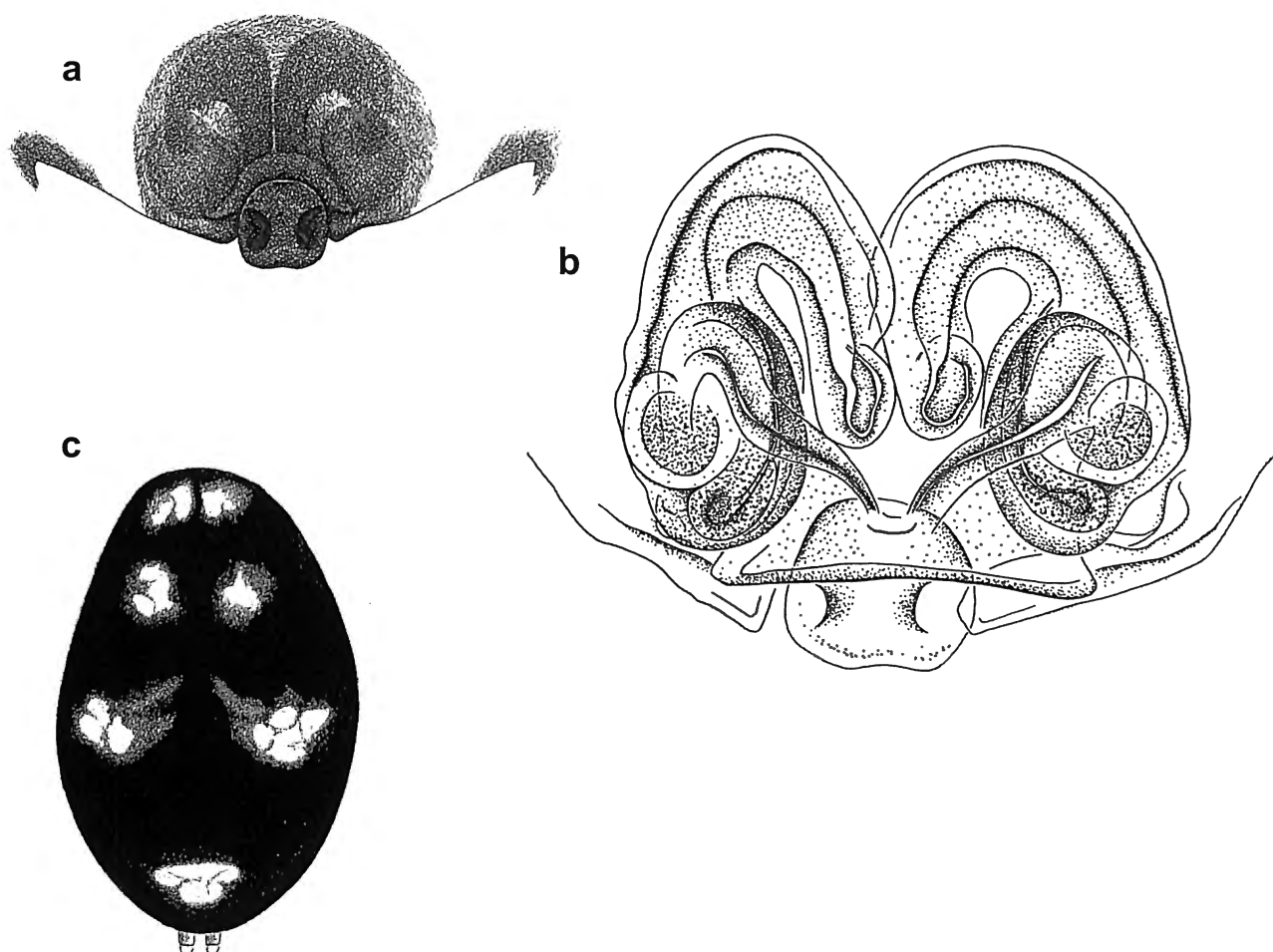
DIAGNOSIS: The female of this large species is easily recognized by the prominent roughly quadrangular plate in the epigyne.

ETYMOLOGY: The specific name is an adjective referring to the shape of the epigynal plate (*quadrangulatus* is Latin for quadrangular).

DESCRIPTION: *Female holotype*: Total length 8.48; carapace 3.76 long, 2.36 wide, 1.84 high.



Figs. 32a-e — *Tenedos procreator*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, cleared, dorsal view. d. Epigyne, ventral view. e. Abdomen, dorsal pattern.



Figs. 33a-c — *Tenedos quadrangulatus*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view. c. Abdomen, dorsal pattern.

Colour: Carapace red brown; reticulated. Sternum orange. Legs yellow brown with orange tinge. Abdomen (Fig. 33c) black with seven white spots; venter white, sides sepia with a large caudal white spot.

Eyes: MOQ: AW = 0.70PW; AW = 0.64L.

Legs: Spination: femora I-II d3*pl1 III-IV d3*rl1; patellae III-IV d1pl2rl1; tibiae I v1-1-1 II pl2*v1-2-2 III d3*pl2*rl2*v2-2-2 IV d3*pl2*rl2*v2-1-2; metatarsi I v1-1-2 II v2-1-2 III d1-2 pl2*rl3*v2-2-2 IV d1-1-2pl3*rl3*v2-3-2.

Measurements: Pa+Ti I 2.64 II 2.12 III 2.16 IV 2.88.

Epigyne (Figs. 24e, 33a-b): With prominent quadrangular plate with rounded corners. Entrance openings caudal. Entrance ducts short, entering spermathecae mesally, provided with large cul de sac tubes. Spermathecae large and globular, lateral. Fertilization ducts short.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 2).

Tenedos quinquangulatus new species

Figs. 34a-b, Map 2

TYPE MATERIAL: Holotype: Female: PERU: Mishqui-

yacu, 20km NE of Moyobamba, 1600m, VIII.1947 (F. Woytkowski) (AMNH).

DIAGNOSIS: Females of this species are easily recognized by the roughly pentagonal plate in the epigyne.

ETYMOLOGY: The specific name is an adjective referring to the shape of the epigynal plate (*quinquangulatus* is Latin for pentagonal).

DESCRIPTION: *Female holotype*: Total length 5.28; carapace 2.40 long, 1.44 wide, 1.16 high.

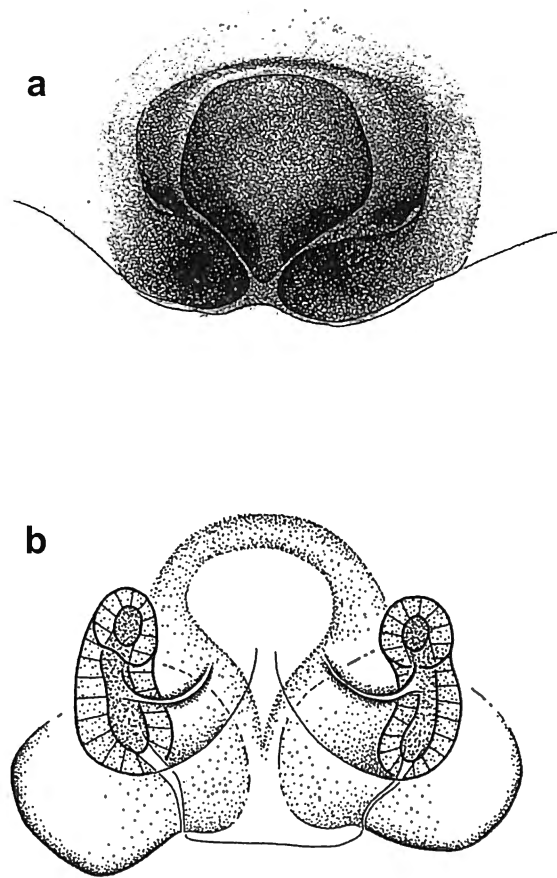
Colour: Carapace orange with lighter area in front of fovea. Sternum orange. Legs yellow with orange tinge. Abdomen (cfr. *estari*, Fig. 14c) sepia with five white spots; venter white, sides sepia with large caudal white spot.

Carapace reticulated.

Eyes: MOQ: AW = 0.94PW; AW = 0.94L.

Legs: Spination: femora I d3* II d3*pl1 III d2* IV d3*; patellae III-IV d1pl2rl1; tibiae I v1-0-0 II rl1(proximal)v1-1-0 III-IV d3*pl2*rl2*v1-1-2; metatarsi I v0-0-2 II v1-0-2 III d1-2pl2*rl3*v2-0-2 IV d1-2pl2*rl3*v2-2-2.

Measurements: Pa+Ti I 1.64 II 1.36 III 1.24 IV 1.64.



Figs. 34a-e — *Tenedos quinquangulatus*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

Epigyne (Figs. 34a-b): Strongly sclerotised with well defined, roughly pentagonal, central plate; strongly bulging area behind plate on either side of centre. Entrance openings central. Entrance ducts short, entering small, two-lobed, kidney-shaped spermathecae mesally. Fertilization ducts long.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 2).

Tenedos reygeli new species
Figs. 35a-c, Map 2

TYPE MATERIAL: Holotype: Male: BRAZIL: Minas Gerais, Lavras, 20.XI.1987 (W. Don Fronk) (MCZ).

DIAGNOSIS: Males of this species are easily recognized by the shape of the male palpal tibia with split dorsolateral apophysis and swollen ventrolateral part; the very large DTA is also characteristic for the species.

ETYMOLOGY: The specific name is a patronym in honour of Alain Reygel who aptly illustrated many spider species from all over the world.

DESCRIPTION: *Male holotype*: Total length 6.72; carapace 3.52 long, 2.00 wide, 1.40 high.

Colour: Carapace brown. Sternum orange brown. Legs brown with orange tinge, Fe I yellowish. Abdomen (Fig. 35c) sepia grey with faint white dorsal pattern of one large anterior spot, four chevrons and one caudal spot.

Carapace rugose due to strong reticulation.

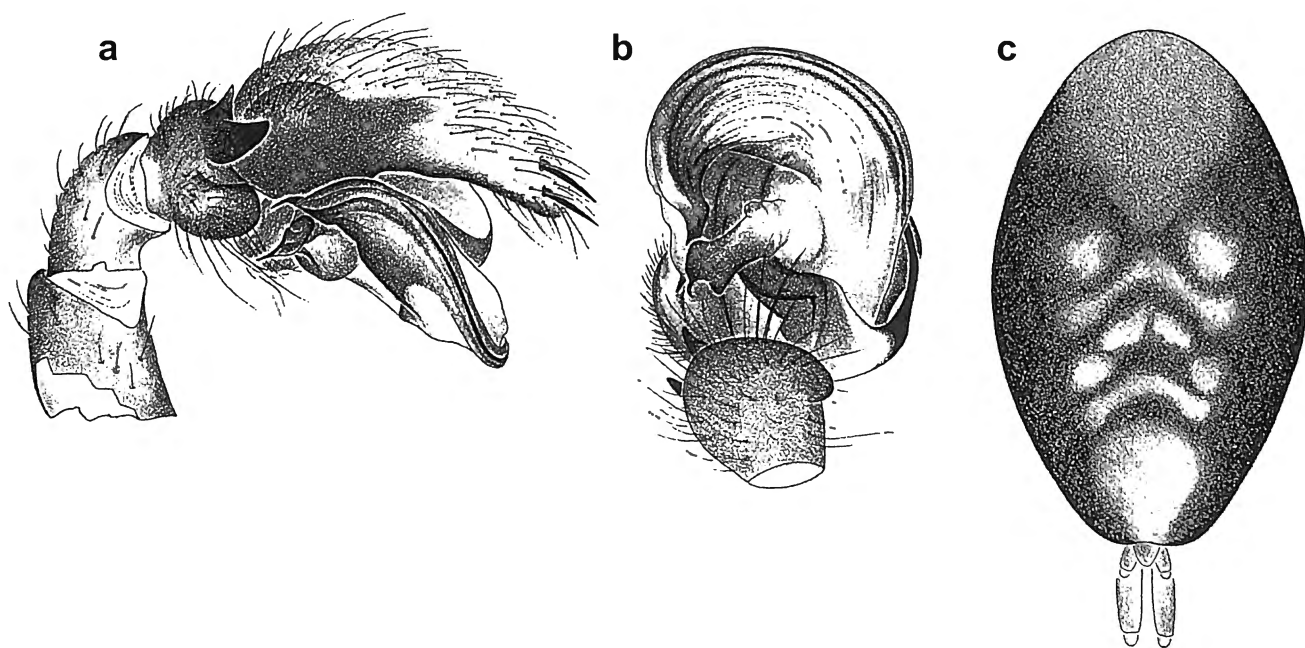
Eyes: MOQ: AW = 0.80PW; AW = 0.77L.

Legs: Spination: femora I-II d3*pl1 III d3*pl1rl2* IV d3*rl1; patellae III-IV d3pl5rl1; tibiae I d1fv2-2-1 II d1fpl2*v1-2-2 III d3*pl4*rl2*v2-2-2 IV d4*pl4*rl2*v2-2-2; metatarsi I-II pl1 v2-2-2 III d1-2pl3*rl1v2-2-2 IV d1-2pl4*rl3*v2-2-2.

Measurements: Pa+Ti I 2.56 II 2.24 III 2.10 IV 2.56.

Male palp (Figs. 35a-b): Tibia with bifid dorsoretrolateral apophysis, sharp dorsoprolateral apophysis and ventrolateral hairy swelling. Cymbium with four short apical spines. Tegulum small, sclerotised. Median apophysis stout, membranous, tip sclerotised, hooked. DTA broad, membranous in proximal 3/4, strongly sclerotised sharp tip directed backwards. Embolus long, slender, flexible, originating on posterior part of tegulum, directed laterad.

Female: Unknown.



Figs. 35a-c — *Tenedos reygei*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern.

DISTRIBUTION: Only known from type locality (Map 2).

Tenedos serrulatus new species

Figs. 36a-d, Map 3

TYPE MATERIAL: Holotype ♂: ECUADOR: PICHINCHA: 20-30 km ENE from Alluriquin along Chiriboga road, 1380-1740m, 19.VI.1975 (S. Peck) (FMNH).

Paratypes: 6♀: ECUADOR, PICHINCHA: 20-30 km ENE from Alluriquin along Chiriboga road, 1380-1740m, 19.VI.1975 (S. Peck) (FMNH).

OTHER MATERIAL EXAMINED: ECUADOR: 1♂:1989, B.57 (no further data)(HMNH); 1♀: 1989, B25, no further data (HMNH).

DIAGNOSIS: Males of this species are easily recognized by the RTA with finely serrulate dorsal margin. Females are characterized by the short and broad epigyne with two dark well separated areas provided with facing tooth-like structures.

ETYMOLOGY: The species name evidently refers to the characteristic serrulate RTA.

DESCRIPTION: *Male*: Total length 4.10, carapace 2.00 long, 1.20 wide, 0.80 high.

Colour: Prosoma red orange with hind margins suffused with black, more or less smooth; sternum orange; legs orange with Ta I whitish; abdomen creamy with a pattern of transversal sepia bars, two frontal and one caudal white patches.

Eyes: MOQ: AW = 0.85PW; AW = 0.65L.

Legs: Spination: femora I, II d3*, III d1(pl1) IV d2*r11; patellae III-IV d1pl2r11; tibiae I d1fv1-0-1 II d1fv1-1-0 III d2*pl2*r11v1-2-2 IV d2*pl2*r12*v1(2)-1-2; metatarsi I v0-0-2 II v1-0-2 III d0-1-2pl3*r1*v2-0-2 IV d0-1-2pl3*r13*v2-1(2)-2.

Measurements: Pa+Ti I 1.56 II 1.30 III 1.22 IV 1.60.

Male palp (Figs. 36a-b): Cymbium with three apical spines. Cymbial flange sclerotised and extended backwards. Tibia with three apophyses, one retrolateral appearing double due to a deep groove, dorsal part serrulate; a short blunt ventral one and a prolateral one. Tegulum oval, membranous, posterior half. Median apophysis fully, hook-shaped. DTA bifid: proximal part triangular, distal part with slightly curved retrolateral hook; prolateral extension developed in opposite direction of embolus, covering half its length (cfr *T. banos*); frontal margin with triangular extension. Embolus long, slender, originating in posterior half of prolateral edge of tegulum, directed laterad.

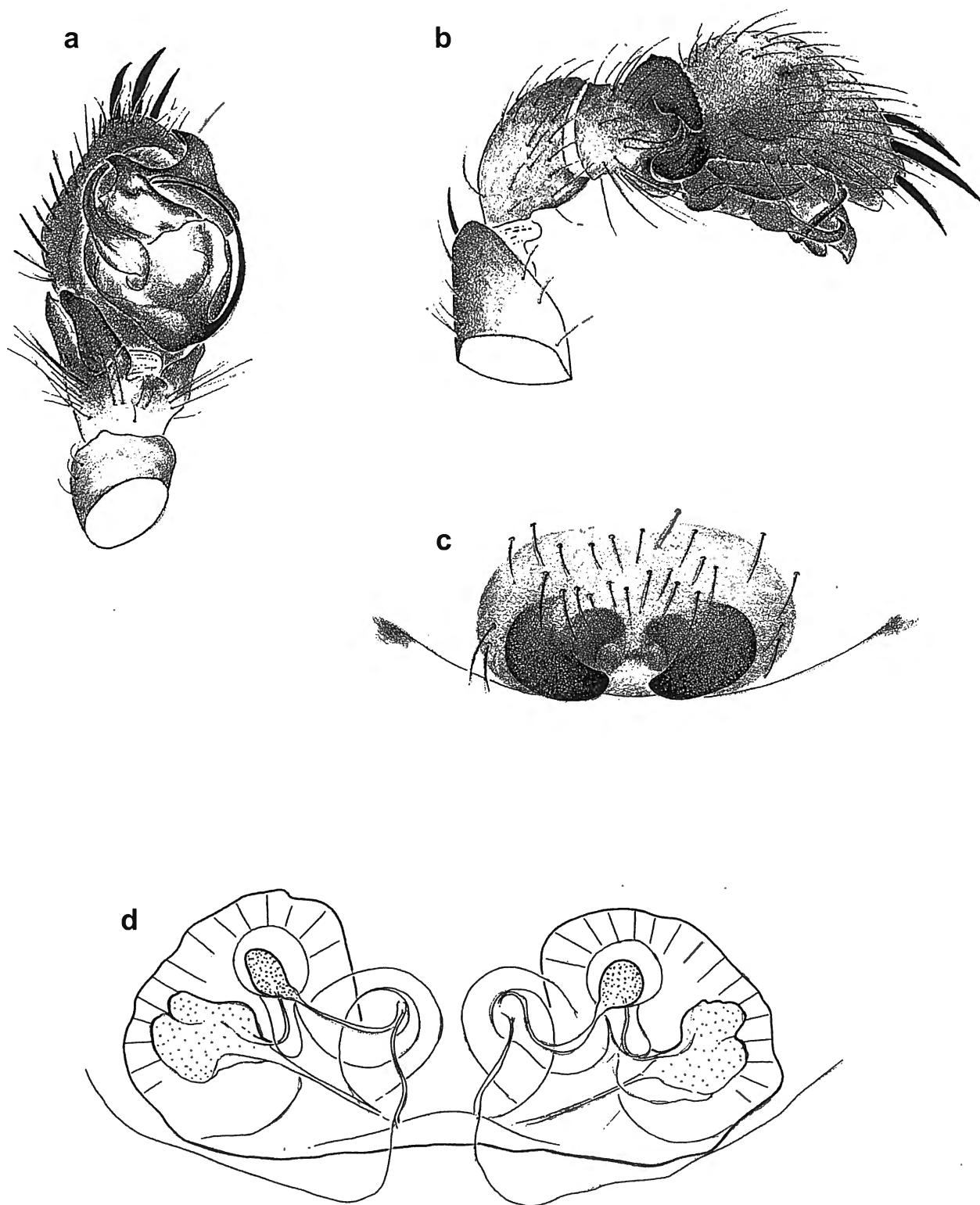
Female: Total length 3.75, carapace 1.70 long, 1.00 wide, 0.65 high.

Colour: Prosoma red brown, smooth, a row of five spines followed by a pair of spines just in front of fovea; sternum yellow orange; legs orange, Fe with greenish tinge; abdomen sepia with a pattern of five white patches, venter white.

Eyes: MOQ: AW = 0.75PW; AW = 0.56L.

Legs: Spination: femora I, II d3* III d1 IV d2*; patellae III-IV d1pl2r11; tibiae III d2*pl2*r11v1-1-1 IV d3*pl2*r12*v1-1-1; metatarsi II v0-0-1 III d1-1-2pl2*r12*v1-0-2 IV d1-2-2 pl3*r12*v2-1-2.

Measurements: Pa+Ti I 1.04 II 0.90 III 0.88 IV 1.22.



Figs. 36a-d — *Tenedos serrulatus*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.

Epigyne (Figs. 36c-d): Short and broad with two dark, well separated areas, each provided with a tooth-shaped structure facing the other one.

DISTRIBUTION: Only known from type locality (Map 3) and unspecified localities in Ecuador.

Tenedos sumaco new species

Figs. 37a-c, Map 3

TYPE MATERIAL: Holotype: Male: ECUADOR: Prov. HUAHUA: Sumaco, km 4.5 on Hollin-Loreto Road, 19.XII.1989 (M. Wasbauer & H. Real leg.) (CAS).

DIAGNOSIS: Males of this species are recognized by the large dorsal tibial apophysis and the central RTA which has a parallel-sided prong at its base.

ETYMOLOGY: The species name is a noun in apposition referring to the type locality.

DESCRIPTION: *Male holotype*: Total length 3.68; carapace 2.00 long, 1.36 wide, 1.12 high.

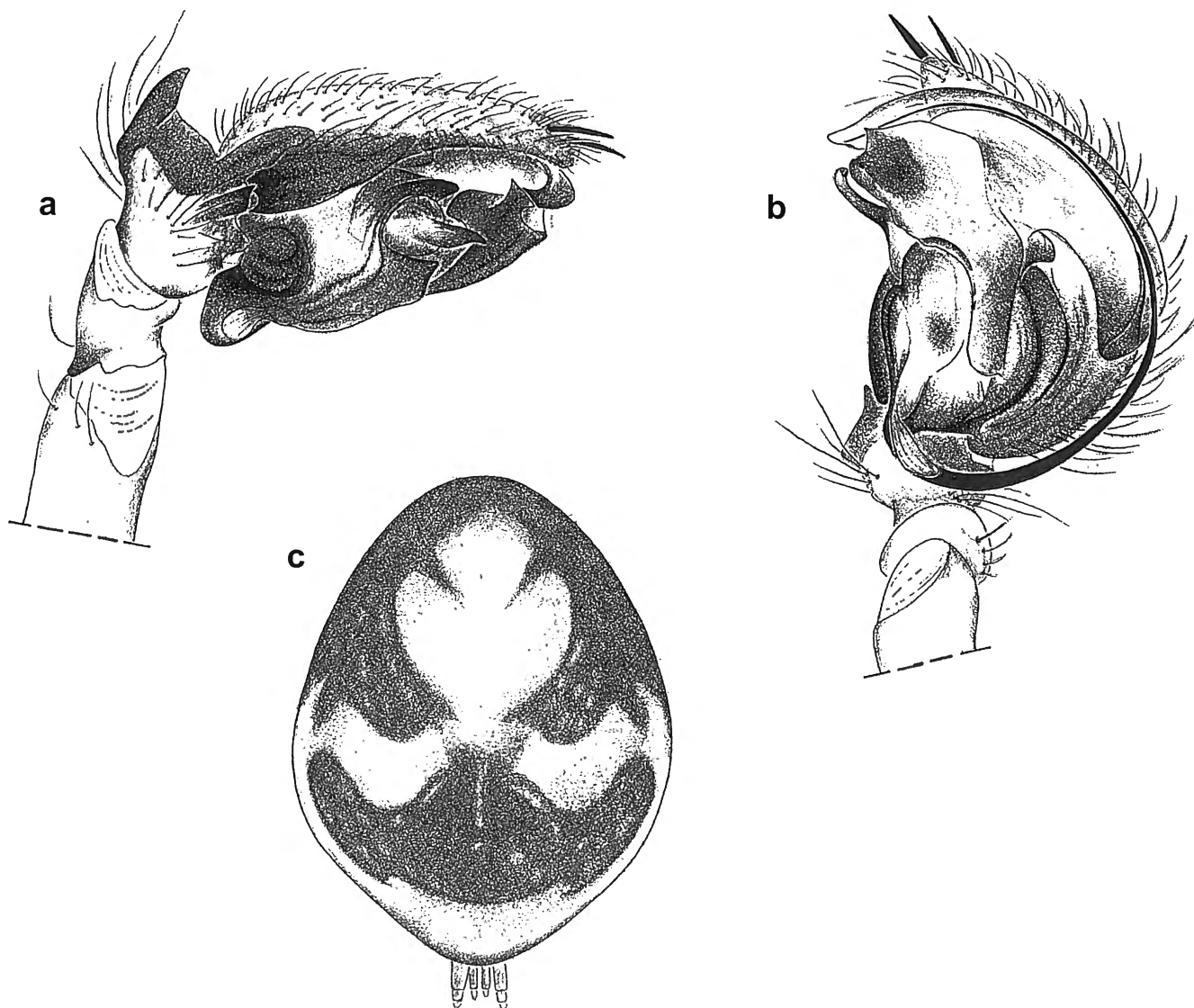
Colour: Carapace orange with black margin and fovea. Sternum brown with light centre. Legs whitish, Fe with distal, ventral and dorsal orange markings, Ti and Mt pale yellow. Abdomen sepia with simple pattern of white patches (Fig. 37c); venter white.

Carapace reticulated.

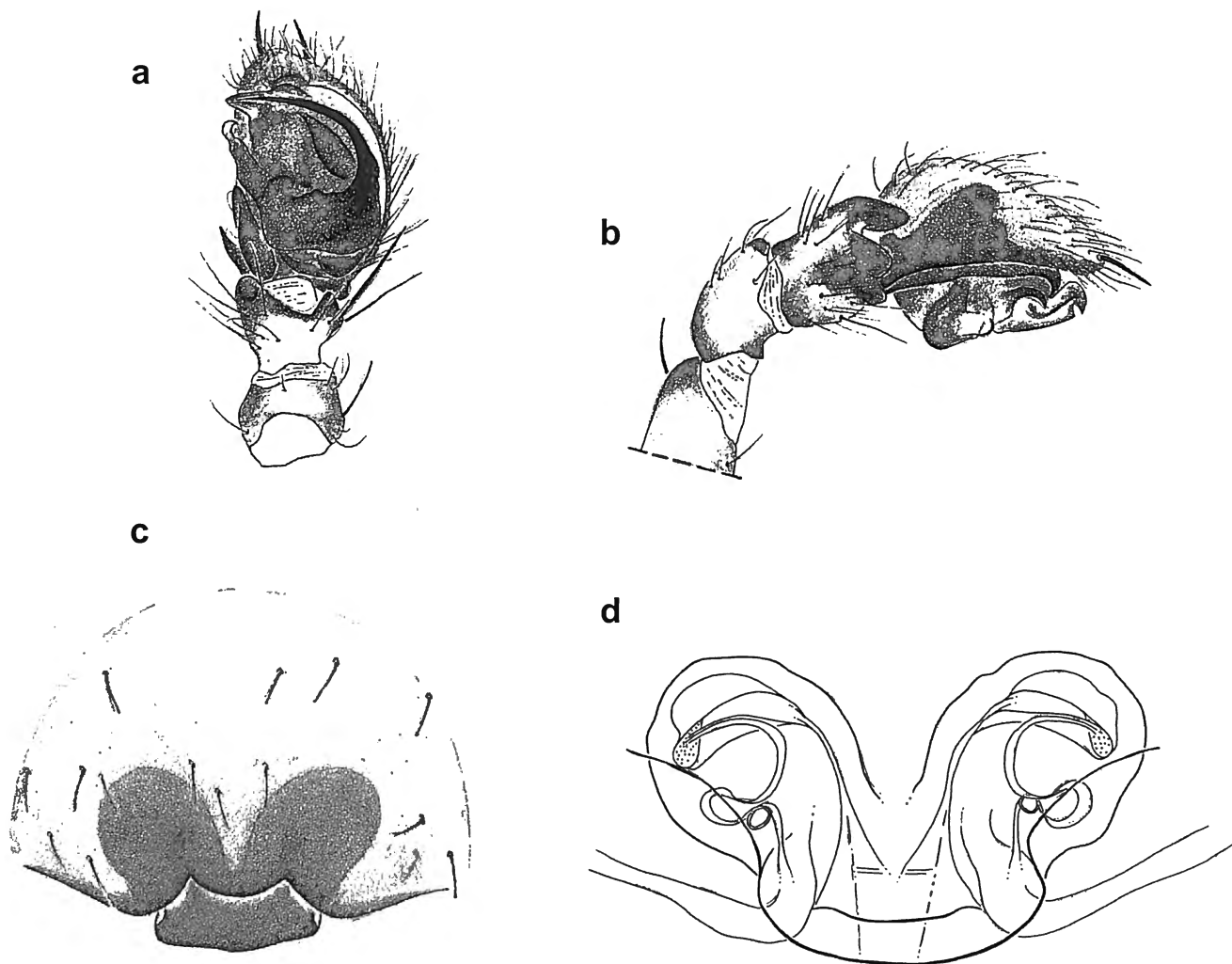
Eyes: MOQ: AW = 0.75PW; AW = 0.71L

Legs: Spination: femora I-III d3*pl1 IV d3*pl1r1l1; patellae III-IV d1pl2r1l1; tibiae I d1f pl1(0)v1-2-2 II difpl2v1-1-2 III d3*pl4*r12*v1-2-2 IV d3*pl3(2)*r12*v2-2-2; metatarsi I v1-0-2 II pl1v1-0-2 III d1(0)-2-2pl1v2-0-2 IV d1-2-2pl1v2-2(1)-2.

Measurements: Pa+Ti I 1.66 II 1.40 III 1.36 IV 1.64.



Figs. 37a-c — *Tenedos sumaco*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern.



Figs. 38a-d — *Tenedos trilobatus*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.

Male palp (Figs. 37a-b): Tibia with bifid retrolateral apophysis and large, strong dorsal apophysis directed forward; unmodified blunt ventral apophysis; prolateral apophysis present. Cymbium with two short apical spines; flange unmodified. Tegulum pear-shaped. Median apophysis hook-shaped. DTA bifid, extended in opposite direction of embolus over 1/2 its length. Embolus long, slender, flexible with base directed backwards.

Female: Unknown.

DISTRIBUTION: Only known from type locality (Map 3).

Tenedos trilobatus new species

Figs. 38a-d, Map 3

TYPE MATERIAL: Holotype: Male: COLOMBIA: QUINDI: 11-23 km E of Calarca, 3000m, 5-10.III.1994 (S. Peck) (FMNH).

Paratypes: COLOMBIA, QUINDI: 1♂1♀: 1 km S of Calarca, 1670m, 8.III.1994 (S. Peck) (FMNH).

DIAGNOSIS: Males of this species are easily recognized by the trilobate RTA. Females are characterized by the epigyne with broad posterior plate partly covered by the lateral epigynal lobes.

ETYMOLOGY: The species name refers to the trilobate RTA.

DESCRIPTION: *Male*: Total length 3.70, carapace 1.90 long, 1.20 wide, 0.85 high.

Colour: Prosoma orange, reticulated, sternum lighter; legs orange, distal half of Ti I white, Fe IV with proximal white ring; abdomen sepia with a pattern of seven white patches.

Eyes: MOQ: AW = 0.73PW; AW = 0.69L.

Legs: Spination: femora I d3*pl1 II-IV d3*; patellae III-IV d1pl2r1l; tibiae I d1fv1-1-1 II d1fpl1v1-1-1 III d3*pl2*r12v1-2-2 IV d3*pl2*r12*v2-2-2; metatarsi I v1-0-2 II v2-1-2 III d3*pl2*r13*v1-0-2 IV d3*pl3*r12*v2-2-2.

Measurements: Pa+Ti I 1.62 II 1.46 III 1.42 IV 1.96.

Male palp (Figs. 38a-b): Cymbium with two apical spines. Long unmodified cymbial flange. Tibia with three apophyses, a dorsal, a retrolateral and a ventral. Tegulum small, rectangular, fully sclerotised. Median apophysis hook-shaped. DTA small and grooved. Embolus more or less rigid, base as broad as tegulum, directed prolaterad.

Female: Total length 4.70, carapace 1.85 long, 1.10 wide, 0.70 high.

Colour: As in male but legs totally orange.

Eyes: MOQ: AW = 0.80PW; AW = 0.71L.

Legs: Spination: femora I d3_{*}pl1 II d3_{*} III d2_{*}pl1 IV d3_{*}; patellae III-IV d1pl2rl1; tibiae I d1fv1-0-0 II d1fv1-1-1 III, IV d3_{*}pl2_{*}rl2_{*}v1-1-2; metatarsi I,II v1-0-2 III d1-0-2pl2rl2v2-0-2 IV d1-1-2pl2_{*}rl2_{*}v1-1-2.

Measurements: Pa+Ti I 1.24 II 1.08 III 1.00 IV 1.32.

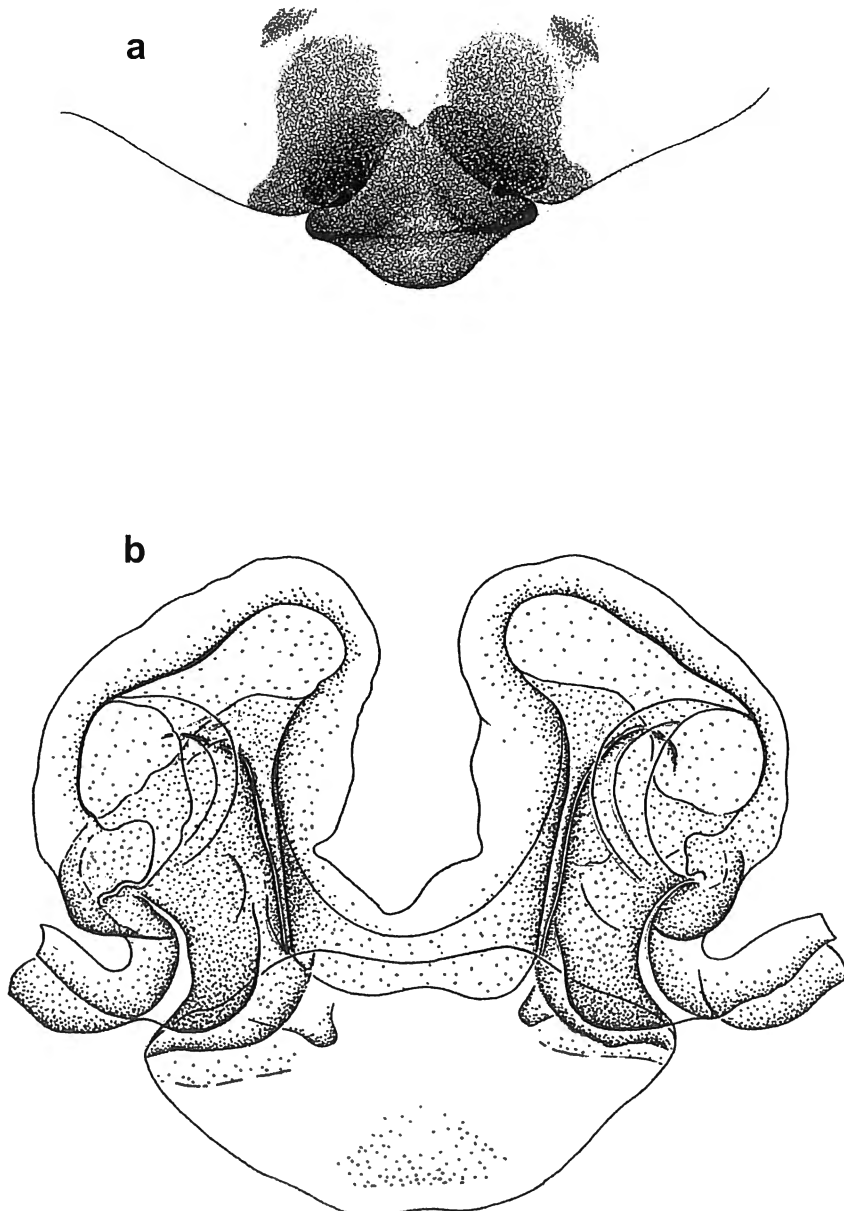
Epigyne (Figs. 38c-d): With lateral lobes largely apart, partly covering large posterior plate. Entrance openings near posterior centre, ducts running forwards, turning back, ending in poorly defined spermathecae.

DISTRIBUTION: Only known from the type locality and vicinity (Map 3).

Tenedos ufoides new species

Figs. 39a-b, Map 3

TYPE MATERIAL: Holotype: Female: VENEZUELA: Edo Aragua, Rancho Grande, 15km N of Maracay, 9-27.II.1971 (S.B. Peck) (MCZ).



Figs. 39a-e — *Tenedos ufoides*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

DIAGNOSIS: Females of this species are recognized by the shape of the posterior plate on the epigyne which is comparable to a "flattened bowl or saucer".

ETYMOLOGY: The specific name is an arbitrary combination of letters.

DESCRIPTION: *Female holotype*: Total length 3.84; carapace 1.80 long, 1.20 wide, 0.92 high.

Colour: Carapace orange brown, suffused with black in front of fovea and on clypeus. Sternum and legs yellow with orange tinge. Abdomen sepia with two small frontal, two median and one caudal white spot (as in Fig. 18a); venter white with faint sepia markings.

Carapace reticulated.

Eyes: MOQ: AW = 0.63PW; AW = 0.53L.

Legs: Spination: femora I d2* II d3* III d1 IV d3*; patellae III-IV d1pl2r1l; tibiae I d1fv1-0-0 II v1-1-1 III d3*pl2*r12*(1)v1-1-2 IV d3*pl2*r12*v1-1-1; metatarsi I v1-0-0 II v1-0-2 III d1-2-2 pl2*v2-0-2 IV d2-1-2pl3*r1lv2-1-2.

Measurements: Pa+Ti I 1.24 II 1.08 III 0.98 IV 1.32.

Epigyne (Figs 39a-b): Fairly small with central posterior plate with straight, dark, transverse line, posterior margin strongly convex. Entrance openings caudal. Entrance ducts straight, running forward entering large spermathecae from the back. Fertilization ducts long.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 3).

Tenedos ultimus new species

Figs. 40a-b; Map 3

TYPE MATERIAL: Holotype: Male: COLOMBIA: Valle del

Cauca, Quindio, 1km S of Calarca, 5000', 8-10.III.1974 (S. and J. Peck) (MCZ).

DIAGNOSIS: Males of this species are easily recognized by the large retrolateral tibial apophysis and the peculiar DTA in the male palp.

ETYMOLOGY: *ultimus* (Latin for "the last") refers to the fact that this was the last species we studied for this revision.

DESCRIPTION: *Male holotype*: Total length 7.76; carapace 3.88 long, 2.44 wide, 1.52 high.

Colour: Carapace brown with darker striae. Sternum orange brown. Legs: Coxae white; Fe brown, proximal part with white ventral and dorsal patch; Pa brown; Ti brown with dorsal and ventral longitudinal white stripe; Mt and Ta yellow with orange tinge except Ta I white. Abdomen black with dorsal sepia area and seven white spots; sides with two caudal spots.

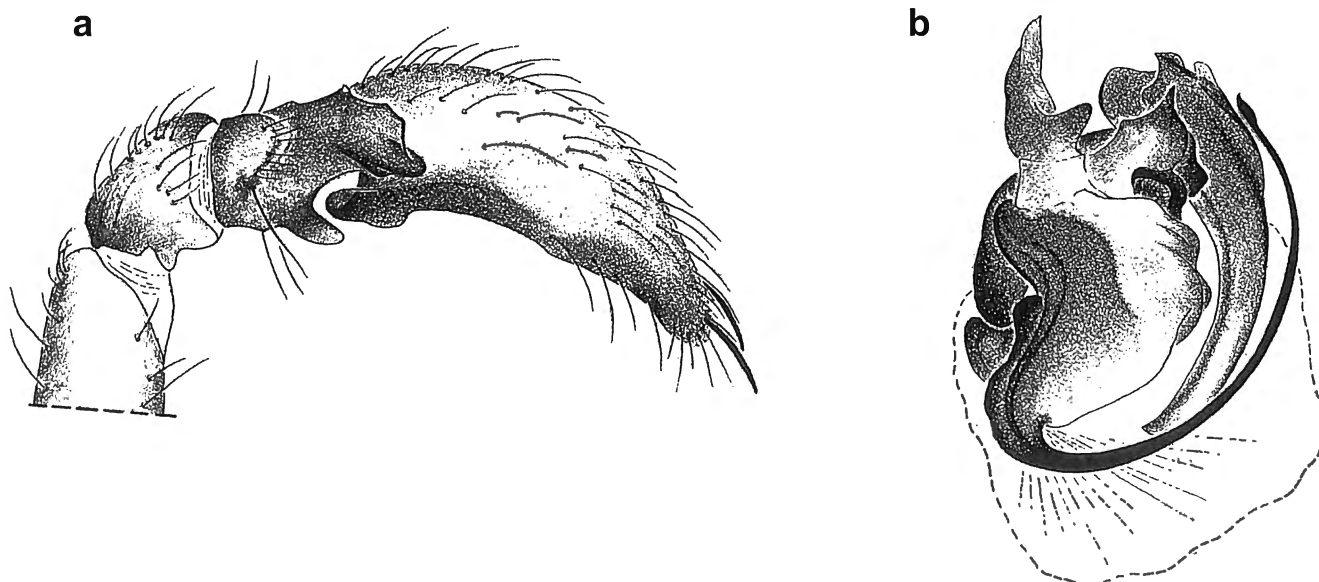
Carapace strongly reticulated.

Eyes: MOQ: AW = 0.75PW; AW = 0.64L.

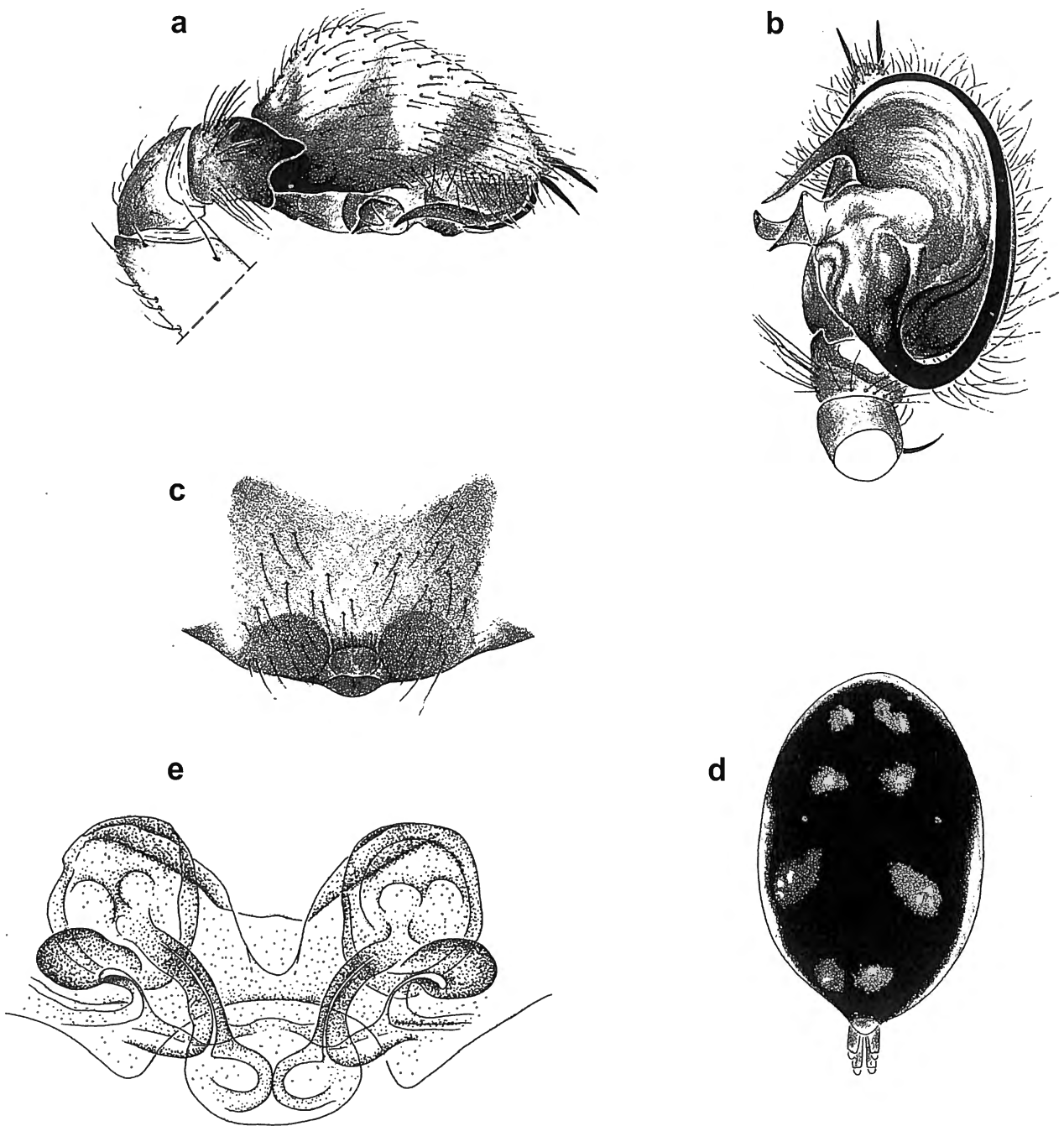
Legs: Spination: femora I-II d3*pl1 III d2*pl1r1l IV d3*r1l; patellae III-IV d1pl2r1l; tibiae I d2fv2-1-2 II d2fpl1v1-1-2 III d2*pl2*r12*v2-2-2 IV d3*pl2*r12*v2-2-2; metatarsi I pl1 v2-1-2 II pl2*v2-1-2 III d1-2pl3*r13*v2-2-2 IV d1-2pl3*r13*v2-3-2.

Measurements: Pa+Ti I 2.78 II 2.30 III 2.18 IV 2.80.

Male palp (Figs. 40a-b): Tibia with retrolateral ridge, provided with row of hairs and broad complex apophysis, short blunt prolateral apophysis and ventral apophysis with sharp tip. Cymbium with three apical short spines. Tegulum with strong swelling near base of embolus. Median apophysis bifid: long prong sharp, shorter prong blunt. DTA bifid with prolateral extension developed in opposite direction of embolus over ca. 2/3 its length.



Figs. 40a-b — *Tenedos ultimus*. a. Right male palp, retrolateral view. b. Male palp, ventral view.



Figs. 41a-e — *Tenedos venezolanus*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Abdomen, dorsal pattern. e. Epigyne, cleared, dorsal view.

Embolus long and slender, originating on posterior part of tegulum.

Female: Unknown.

DISTRIBUTION: only known from type locality (Map 3).

Tenedos venezolanus new species

Figs. 24f, 41a-e, 20b, Map 3

TYPE MATERIAL: Holotype: Male: VENEZUELA: MERIDA: Los Andes, 1750m, coffee forest, 22-27.VI.1989 (S. and J. Peck leg) (AMNH).

Paratypes: VENEZUELA: MERIDA: 4♂: together with holotype; 1♂: Merida Hechicera, Monte Zerpa, 2000m, montane forest, 22.VII-2.VIII.1989 (S. and J. Peck) (AMNH); 1♂, 4♀, 41 juv.: Araugua, 1300m, 17km S Las Tejerias, 12km N Tiara, 8.VIII.1987 (S. and J. Peck leg) (AMNH) (1♂1♀ in KBIN); MIRANDA: 5♂: 28km N Altigracia, Guatopo National Park, 700m, El Lucero forest ravine, 14.VI-5.VIII.1987 (S. and J. Peck) (AMNH); 8♂, 1 juv.: Guatopo N.P., 35km N Altigracia, 600m, 14.VI-5.VIII.1987 (S. and J. Peck) (AMNH); 1♀: Guatopo National Park, El Lucero, 28km N Altigracia, 700m, 8.VI.1987, (S. and J. Peck) (AMNH).

DIAGNOSIS: Males of this species are easily recognized by the simple palpal tibia combined with the peculiar bifid median apophysis and the long retrolateral appendage of the DTA. Females are characterized by the epigyne with small posterior depression closed towards the back by a narrow lip.

ETYMOLOGY: The specific name is an adjective referring to the type locality.

DESCRIPTION: *Male holotype*: Total length 5.44 (range: 3.04-5.50); carapace 2.56 long, 1.76 wide, 1.16 high.

Colour: Carapace uniform reddish brown. Sternum light brown, darker along margin. Legs: coxae, proximal half of Fe pale yellow, other segments yellowish orange faintly annulated with suffusion. Abdomen (variable) grey with frontal, longitudinal, oval, dark sepia patch, followed by pair of small white spots and larger pale spot in front of spinnerets; sides with posterior pale patch; venter: pale with sepia pattern: margin of epigastric fold, median longitudinal stripe (may be absent) and margin in front of spinnerets.

Carapace strongly reticulated; with small depression in front of fovea.

Eyes: MOQ: AW = 0.71PW; AW = 0.63L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2r1l; tibiae I d1fv1-1-2 II d1fpl2*v1-1-2 III-IV d3*pl2*r12*v2-1-2; metatarsi I v2-2-2 II pl1v2-1-2 III d1-2-2pl2*r1l1v2-2-2 IV d0-1-2pl3*r13*v2-2-2.

Measurements: Pa+Ti I 1.90 II 1.62 III 1.54 IV 2.00.

Male palp (Figs. 41a-b): Tibia with small ventral apophysis and somewhat larger retrolateral apophysis. Cymbium with two short apical spines. Tegulum small, con-

cave, sclerotised. Median apophysis bifid, membranous at base, with sclerotised tip curved inwards and median retrolateral small spur. DTA: large shell-shaped plate, apical and prolateral of tegulum, with slender distal extension pointing in retrolateral direction as embolus. Embolus long, slender, flexible, originating on posterior part of tegulum, directed backwards, curved sharply to front, resting in lateral groove of overhanging margin of DTA. *Female paratype*: Total length 5.84 (range: 5.10-5.90); carapace 2.36 long, 1.40 wide, 1.16 high.

Colour: As male but abdomen (Fig. 41d) sepia with four pairs of white spots.

Eyes: MOQ: AW = 0.75PW; AW = 0.71L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2r1l; tibiae I d1fv1-0-1 II d1fv1-1-1 III-IV d3*pl2*r12*v1-1-2; metatarsi I pl1v1-0-2 II pl1v1(2)-0-2 III d1-2-2pl2*r1l1v2-1-2 IV d0-1-2pl3*r13*v2-2-2.

Measurements: Pa+Ti I 1.54 II 1.30 III 1.28 IV 1.76.

Epigyne (Figs. 24f, 41c,e): Fairly small with oval central depression; posterior margin closed by narrow lip. Entrance openings near posterior rim; entrance ducts short, running out- and forward into large, widely separated spermathecae situated in front.

DISTRIBUTION: Venezuela (Map 3).

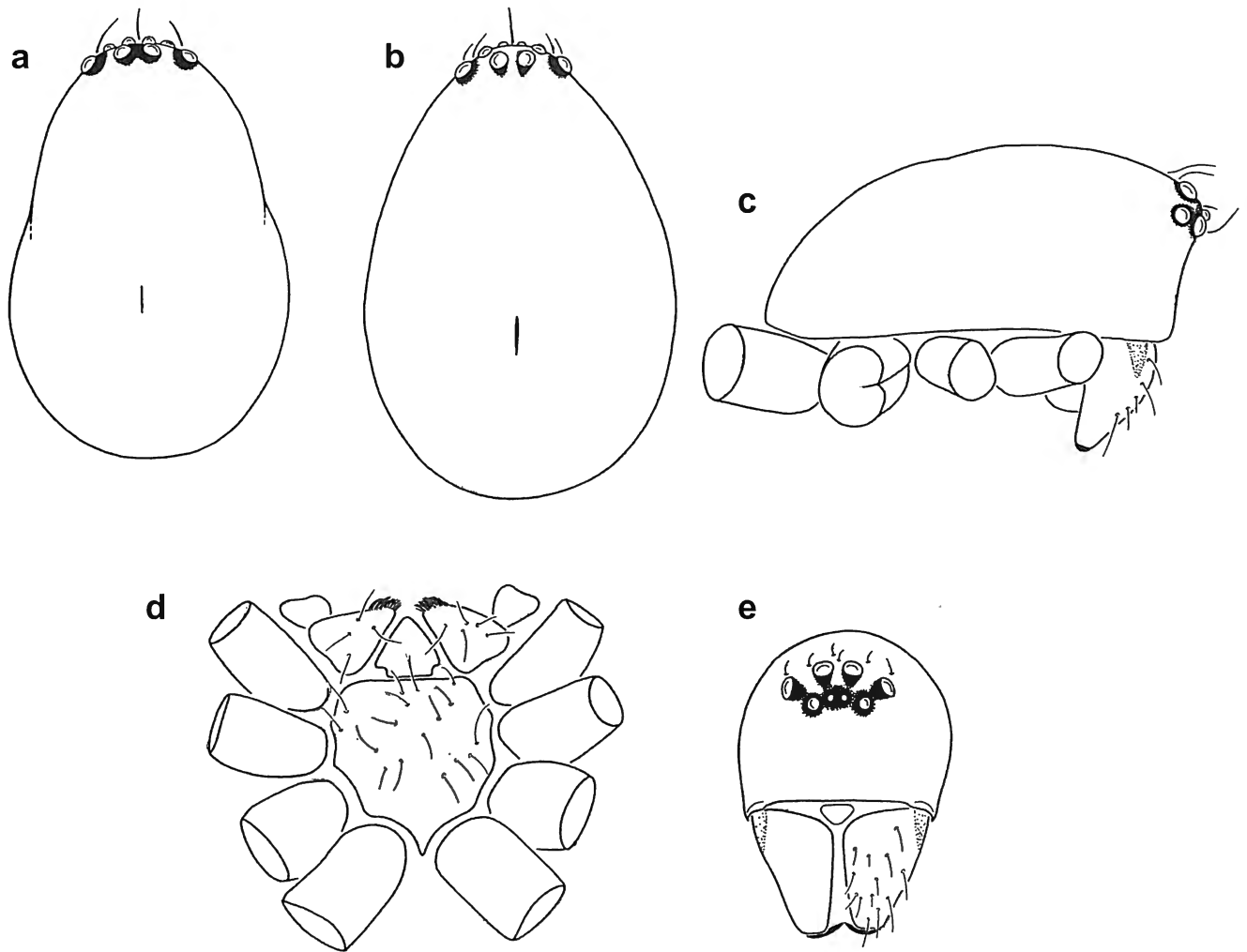
ISHANIA CHAMBERLIN

Ishania CHAMBERLIN 1925: 223 (descr. new genus); JOCQUÉ, 1991: 60; JOCQUÉ & UBICK, 1991: 241.

DIAGNOSIS: *Ishania* is very closely related to *Tenedos* but can be distinguished by the presence of a single chilum whereas it is double in the latter.

DESCRIPTION: Small to medium size spiders (3 - 3.5). Carapace pyriform, widest between coxae II and III, cephalic area about 0.6 times maximum width.

Female with marked cervical grooves, (Fig. 42e) poorly indicated in male (Fig. 42, b). Eye region narrow (Figs. 42 a, b), less than 0.3 times maximum width in males, slightly wider in females. Fovea deep. Tegument smooth, orange to pale brown in color. Anterior region with few scattered hairs and sometimes longitudinal row of hairs between fovea and eyes. Eye rows procurved (Fig. 42e). AR much shorter than PR. AME smaller than others, which are subequal. Anterior eyes equidistant, about 0.5-1.5 times diameter of AME apart. PME about one diameter apart, 1.5 diameters from PLE. AME dark, others with reflective tapetum. MOQ longer than wide (Length = 1.8 times anterior width; posterior width = 1.5 times anterior width), broader posteriorly. Clypeus slightly concave (Fig. 8), about six times as high as diameter of ALE. Chilum broadly triangular, without hairs. Chelicerae relatively slender; basal condyle prolonged into slight lateral ridge (Fig. 8); anterior surface sparsely pubescent with long fringe distomesally; fangs



Figs. 42a-e — *Ishania aztek*. a. female carapace. b. male carapace. c. male carapace side view. d. ventral view male carapace. e. frontal view male carapace.

relatively long, sharp; no marginal teeth. Endites (Fig. 42d) roughly triangular, attenuated; with anteromesal scopula; without serrula. Labium triangular, slightly wider than long. Sternum triangular (Fig. 42d), exactly as long as wide; truncate in front and with sharp posterior extension between coxae IV; males with short extensions between coxae I + II and II + III. Legs formula 4123. Coxae I and II proximally swollen, slightly overhanging sternum. Superior tarsal claws with eight to 15 teeth, implanted on side facing other claw. Metatarsi II to IV with distal tuft, composed of chisel-shaped hairs. No tarsal scopula or claw tuft. Spination typical for the subfamily with few spines on anterior leg pairs, more numerous and stronger spines on legs III and IV. Trichobothria: Ti with dorsal, prolateral and retrolateral row; Mt and t with dorsal row; tarsal row with four trichobothria which increase in length distally. Male palp: patella sometimes with dorsal apophyses; tibia with several apophyses which vary in shape and position (Figs. 43a, 44a,

47a, 48a, 50a, 77a). Cymbium with basal flange somewhat sclerotised but not modified. Embolus usually long but not whiplike (Figs. 43b, 44b, 47b, 48b, 50b, 77b). Tegulum with median apophysis of variable shape and size converging with distal tegular apophysis which is usually strongly developed and accompanying the embolus in opposite direction. Abdomen subspherical, without scutum; area in front of epigastric fold lightly sclerotised. Six spinnerets as in *Tenedos*. Colulus represented by two groups of hairs. Epigynum (Figs. 43c,d; 44 c,d; 47 c,d) variable with sclerotised portion about as long as wide; internal structure usually complex with long wound entrance ducts.

DISTRIBUTION: Central America and Mexico.

TYPE SPECIES: *Ishania tentativa* Chamberlin.

SPECIES INCLUDED: see table 4.

Table 4 — Checklist of *Ishania* species with main distribution area

| | |
|--|------------------|
| 1. <i>I. absoluta</i> (GERTSCH & DAVIS) | Mexico |
| 2. <i>I. aztek</i> new species | Mexico |
| 3. <i>I. centrocavata</i> new species | Mexico |
| 4. <i>I. chicanna</i> new species | Mexico |
| 5. <i>I. chichimek</i> new species | Mexico |
| 6. <i>I. firmus</i> new species | Mexico |
| 7. <i>I. gertschi</i> new species | Mexico |
| 8. <i>I. guerrero</i> new species | Mexico |
| 9. <i>I. hessei</i> (CHAMBERLIN & IVIE) | Mexico |
| 10. <i>I. huastek</i> new species | Mexico |
| 11. <i>I. ivieorum</i> new species | Mexico |
| 12. <i>I. latefossulata</i> new species | Mexico |
| 13. <i>I. maya</i> new species | Mexico |
| 14. <i>I. minuta</i> new species | Honduras |
| 15. <i>I. mixtek</i> new species | Mexico |
| 16. <i>I. mundella</i> (GERTSCH & DAVIS) | Mexico |
| 17. <i>I. nayarit</i> new species | Mexico |
| 18. <i>I. oaxaca</i> new species | Mexico |
| 19. <i>I. ocosingo</i> new species | Mexico |
| 20. <i>I. olmek</i> new species | Guatemala |
| 21. <i>I. paxoides</i> new species | Mexico, Honduras |
| 22. <i>I. perforata</i> new species | Mexico |
| 23. <i>I. protecta</i> new species | Mexico |
| 24. <i>I. querci</i> new species | Mexico |
| 25. <i>I. real</i> new species | Mexico |
| 26. <i>I. relativa</i> new species | Mexico |
| 27. <i>I. simplex</i> new species | Mexico |
| 28. <i>I. tarask</i> new species | Mexico |
| 29. <i>I. tentativa</i> CHAMBERLIN | Costa Rica |
| 30. <i>I. tinga</i> (F.O.P. - CAMBRIDGE) | Mexico |
| 31. <i>I. tormento</i> new species | Mexico |
| 32. <i>I. totonak</i> new species | Mexico |
| 33. <i>I. vacua</i> new species | Mexico |
| 34. <i>I. xilitla</i> new species | Mexico |
| 35. <i>I. zapotek</i> new species | Mexico |

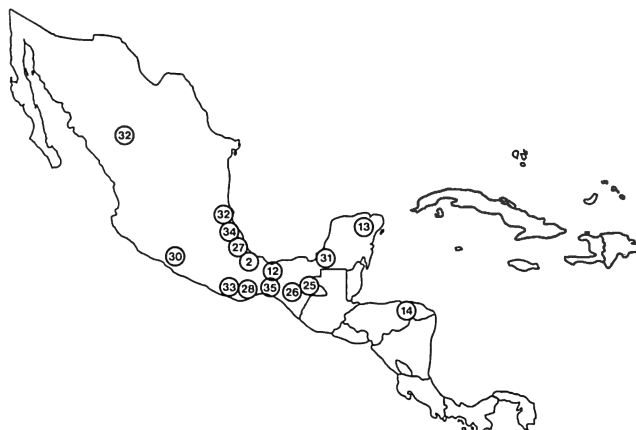
NOTE: The revision on *Ishania* presented by JOCQUÉ & UBICK 1991, was based on the mutilated male holotype of the type species and specimens that were supposed to belong to the genus regarding the very close somatic resemblance. The discovery of male and female specimens of this taxon but mainly the description of many related species sheds a new light on their systematic position and shows that they are less strongly related as initially thought.

Key to males of *Ishania*

1. Palpal patella with dorsal apophysis (Fig. 45a) . 2
- Palpal patella without dorsal apophysis 4
- 2(1). Embolus without distal appendage . . *T. totonak*
- Embolus with distal appendage (Fig. 45b) . . 3



Map 4 — Distribution of *Ishania* species: *I. absoluta* (1), *I. centrocavata* (3), *I. chicanna* (4), *I. chichimek* (5), *I. firma* (6), *I. gertschi* (7), *I. guerrero* (8), *I. hessei* (9), *I. huastek* (10), *I. ivieorum* (11).



Map 5 — Distribution of *Ishania* species: *I. aztek* (2), *I. latefossulata* (12), *I. maya* (13), *I. minuta* (14), *I. querci* (24), *real* (25), *I. relativa* (26), *I. simplex* (27), *I. tarask* (28), *I. tinga* (30), *I. tormento* (31), *I. totonak* (32), *I. vacua* (33), *I. xilitla* (34), *I. zapotek* (35).



Map 6 — Distribution of *Ishania* species: *I. mixtek* (15), *I. mundella* (16), *I. nayarit* (17), *I. oaxaca* (18), *I. ocosingo* (19), *I. olmek* (20), *I. paxoides* (21), *I. perforata* (22), *I. protecta* (23), *I. tentativa* (29).

- 3(2). Proximal RTA almost as long as diameter of tibia, curved forward; patellar apophysis pointing upward (Fig. 47b) *T. huastek*
 – Proximal RTA much shorter than diameter of tibia, pointing outward; patellar apophysis pointing forward (Fig. 45b) *T. chichimek*
- 4(1). Palpal tibia with large, finger-shaped proximal, retrolateral apophysis, clearly standing out (Fig. 50b) 5
 – Palpal tibia without large, finger-shaped proximal, retrolateral apophysis 7
- 5(4). Distal dorsolateral tibial apophysis curved downward (Fig. 50a) 6
 – Distal dorsolateral tibial apophysis straight (Fig. 49b) *T. relativus*
- 6(5). Embolus widened towards tip; distal dorsolateral tibial apophysis implanted on anterior rim of segment (Fig. 50b) *T. maya*
 – Embolus tapered towards tip (Fig. 51b); distal dorsolateral tibial apophysis implanted away from anterior rim of segment *T. tormento*
- 7(4). DTA bifid with retrolateral prong developed in opposite direction of embolus (Fig. 41 b) 8
 – DTA not bifid or without retrolateral prong developed in opposite direction of embolus 30
- 8(7). Palpal tibia with single, broad RTA and one thick dorsal spine (Fig. 48a) *T. xilitla*
 – Palpal tibia different 9
- 9(8). Embolus massive, base pointing prolaterad (Fig. 40b) 10
 – Embolus slender, base pointing backward (Fig. 42b) 12
- 10(9). Palpal tibia with one broad RTA ending in almost straight sharp tip (Fig. 40a) *T. firmus*
 – Palpal tibia with dorsal apophysis and RTA with tip pointing up (Fig. 39a) 11
- 11(10). RTA with smaller excrescence at base; dorsal apophysis large (Fig. 39a) *T. tarask*
 – RTA with longitudinal ridge; dorsal apophysis a tiny tooth (Fig. 37a) *T. zapotek*
- 12(9). Base of embolus hidden by a swelling of the tegulum (Fig. 43 b) 13
 – Base of embolus not hidden by swollen tegulum (Fig. 27a) 18
- 13(12). Male palpal tibia with very long dorsal apophysis overhanging cymbium and smaller knob-like retrolateral apophysis (Fig. 43a) *T. paxoides*
 – Palpal tibia without large dorsal apophysis 14
- 14(13). Palpal tibia with broad retrolateral apophysis, almost as long as segment Fig. 33a) 15
 – RTA much shorter than length of palpal tibia 16
- 15(14). Base of embolus directed prolaterad *T. tentativa*
 – Base of embolus directed backwards *T. protectus*
- 16(14). RTA with a short, sharp ventral tip under main lateral apophysis (Fig. 42a) 17
 – RTA without ventral tip under main lateral apophysis (Fig. 34a) *T. aztek*
- 17(16). Upper margin of main part of RTA folded outward ending in single tip (Fig. 42a) *T. absolutus*
 – Upper margin of main part of RTA not folded; provided with second sharp tip (Fig. 36a) *T. olmek*
- 18(12). RTA broad, ending in narrow, blunt slightly downcurved prong (Fig. 35a) *T. mixtek*
 – RTA narrow, curved upward, with tiny downcurved tip (Fig. 41a) *T. oaxaca*

Descriptions

Ishania absoluta (GERTSCH and DAVIS, 1940)
 new combination
 Figs. 43a-d, 67a, Map 4

Storena absoluta GERTSCH and DAVIS, 1940: 15 (descr. ♂♀).

Storena veracruzana: GERTSCH and DAVIS, 1940: 17 (descr. ♀) (NEW SYNONYMY)

Tenedos absolutus: JOCQUÉ, 1991: 93.

Tenedos veracruzanus: JOCQUÉ, 1991: 93.

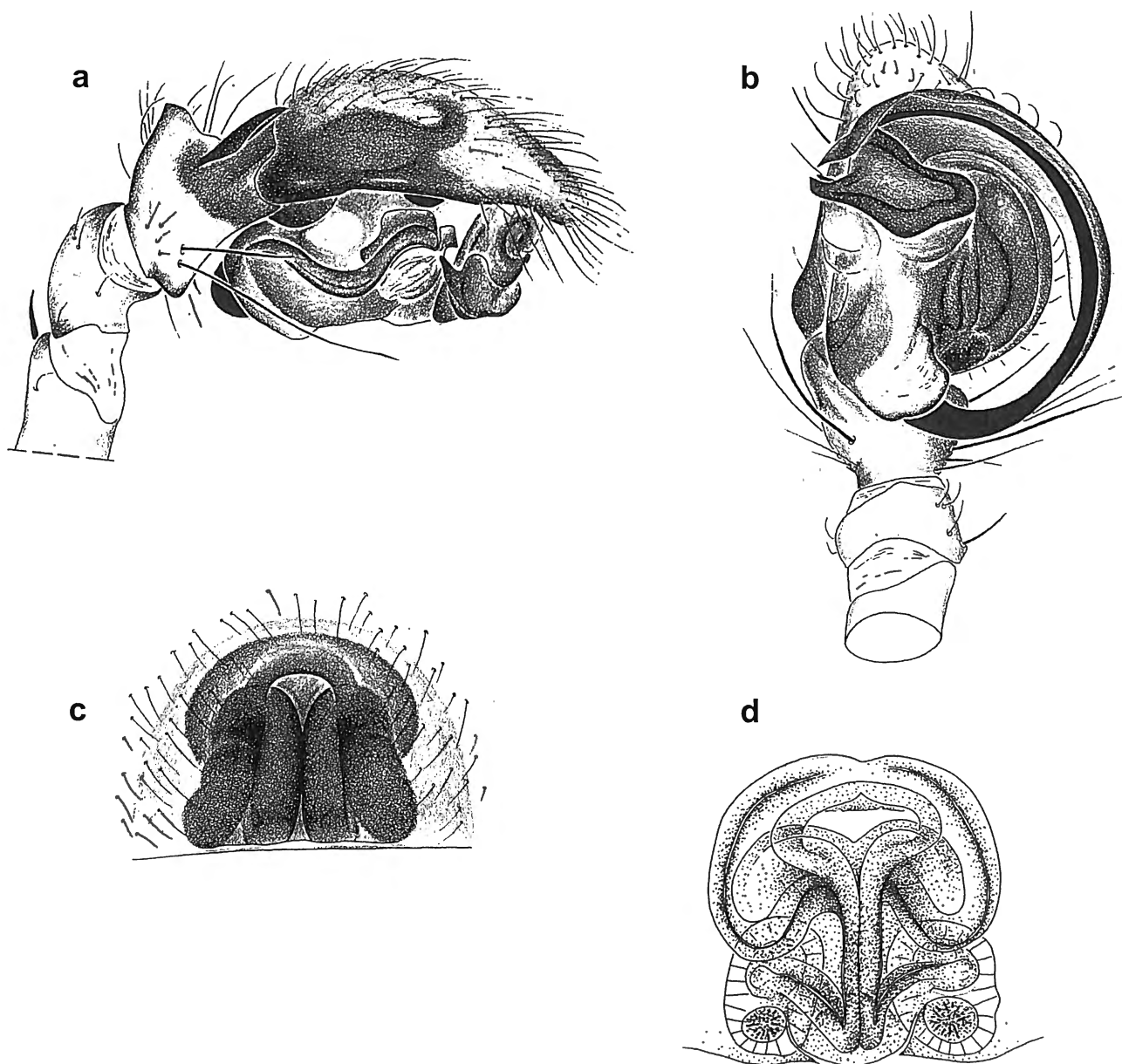
TYPE MATERIAL: Holotype: Male: MEXICO: TAMAULIPAS: 13 miles S. Villa Guarez (AMNH)(examined).

Paratypes: 2♀, 1sa♀ (among which ♀ holotype *S. veracruzana*): MEXICO: VERA CRUZ: Vera Cruz, 22.VI.1936; 1♂, 1♀, 1 juv: VERA CRUZ: Vera Cruz, leaves under vine, 25.VI.1953 (C.J.Goodnight); 1♀: Istmo de Tehantepec, 15.VIII.1966 (J. and W. Ivie) (AMNH); 2♂, 20♀, 31 juv: 9 miles SSW of Vera Cruz (19°02'N 96°12'W), 7.VIII.1966 (J. and W. Ivie); 2♀: Catemaco, Playa Azul (18°25'N 95°04'W), 9.VIII.1966 (J. W. Ivie)(AMNH); 1♂, 1♀: 4km NE Acayucan (17°58'N 94°50'W), 27.IV.1963 (W. Gertsch and W. Ivie)(KBIN); 4♀, 35 juv.: OAXACA: 26km E Valle Nacional, 1220m, mountain tropical forest, litter, 25.VI.1983 (S. and J. Peck)(AMNH); 1♂, 5♀: TABASCO: Villahermosa (La Venta) 18°00'N 92°53'W, 13.VIII.1966 (J. and W. Ivie)(AMNH).

DIAGNOSIS: Males of this species are recognized by the long excrescence of the DTA combined with the shape of the RTA which is situated far towards the ventral side. Females are characterized by the epigyne in which the frontal semicircular depression is open towards the back and the entrance ducts have a sharp distal bend.

DESCRIPTION: *Male holotype*: Total length 4.16 (population range 3.20-4.20); carapace 2.03 long, 1.38 wide, 0.84 high.

Colour: Prosoma brownish orange with darker margin; sternum yellow with slight orange tinge at margin, legs yellowish orange, Fe III and IV suffused with black at sides; abdomen dark grey with pale pattern of five dorsal spots (as in Fig. 77c), lateral stripe and pale venter with dark central V. Spinnerets pale.



Figs. 43a-d — *Ishania absoluta*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.

Carapace slightly reticulated.

Eyes: MOQ: AW = 0.53 PW; AW = 0.46 L.

Legs: Spination: femora I d3*v10* II d3* III d3* IV d3*; patellae III-IV d1pl2rl1; tibiae I d2*pl1v1-1-2 II d2*pl2*v1-1-2 III d2*pl2*v1-1-2rl2* IV d2*pl2*v2-2-2rl2*; metatarsi I pl1v2-2-2 II pl2v2-2-2 III d1-2pl3*v2-2-2rl3* IV d1-2pl4*v1-1-2-2rl4*. Measurements: Pa+Ti I 1.55 II 1.29 III 1.20 IV 1.63.

Male palp (Figs. 43a-b): Tibia with two apophyses: one dorsal outgrowth of posterior margin with transverse prolateral ridge and broad complex retrolateral one with oblique longitudinal ridge ending in sharp tip; ventral swelling present. Cymbium without apical spines. Cymbial flange thick, proximal, hidden by tibial apophysis.

Tegulum elongate, broader in proximal part, membranous in retrolateral half. MA membranous, with twisted tip. DTA with two apophyses: distal one elongate, extended in opposite direction of long embolus over 3/4 its length and with sharp proximal tip pointing in- and backwards; proximal apophysis massive with tapered tip pointing inwards, rounded retrolateral margin. Embolus long, slender, flexible; emerges caudal of tegulum and bends in anticlockwise direction (on right palp).

Female: Total length 3.20-5.30; carapace 1.63, 1.67 long, 0.95, 1.04 wide, 0.52, 0.61 high.

Colour: Prosoma brownish orange with paler area in front of fovea; sternum yellow with darker margin, legs yellow, slightly orange on Mt and Ta, without dark stripes

on Fe III and IV; abdomen dark grey with pale dorsal pattern: one pair of frontal spots followed by three chevrons decreasing in size and one spot in front of spinnerets; frontal chevron runs laterally down and fuses with entirely pale venter. Spinnerets pale.

Eyes: MOQ: AW = 0.66 PW; AW = 0.56 L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2*rl1; tibiae III-IV d2*pl2*v1-1-2rl2*; metatarsi I-II v1-2 III d1-2-2pl2*v2-1-2rl1 IV d1-2pl2*v1-1-1-2rl2*.

Measurements: PaTi I 1.06, 1.14 II 0.86, 0.89 III 0.84, 0.88

IV 1.15, 1.20.

Epigyne (Figs. 43c-d, 67a): Fairly large with long central cleft showing straight part of entrance ducts in transparency; frontal margin of cleft semicircular; entrance ducts with long, smooth, initial curve followed by straight part leading to posterior part, sharply turning towards the lateral spermathecae.

DISTRIBUTION: Mexico (Tamaulipas, Vera Cruz, Oaxaca, Tabasco) (Map 4).

Ishania aztek new species

Figs. 42a-e, 44 a-d, 67b, Map 5

TYPE MATERIAL: Holotype: Male: MEXICO: VERA CRUZ: Penuela (18°53'N 96°48'W), 26.IV.1963 (W.J. Gertsch and W. Ivie) (AMNH).

Paratypes: 3♂, 13♀, 18 juv. together with holotype (AMNH; 1♂, 1♀ in KBIN); 1♂: VERA CRUZ: Fortin de los Flores, (18°53'N 96°59'W), 25.IV.1963 (W.J. Gertsch and W. Ivie); 9♀, 15 juv.: 5 miles NE of Orizaba, (18°53'N 97°02'W), 25.IV.1963 (W.J. Gertsch and W. Ivie); 1♂: Atoya, 12.XI.1941 (AMNH); 1♀, 7 juv.: Vera Cruz, 15.VII.1943 (AMNH).

DIAGNOSIS: Males of this species are recognized by the weak dorsal tibial apophysis in combination with the shape of the DTA. Females are recognized by the small lip closing the frontal part of the central cleft in the epigyne.

ETYMOLOGY: the species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype*: Total length 4.16 (3.68-4.56); carapace 2.08 long, 1.48 wide, 0.92 high.

Colour: Carapace orange brown, margins suffused with black; sternum yellowish orange; legs pale yellow. Abdomen black with common pale pattern (as in Fig. 61c): two apical, oval spots, followed by three chevrons (sometimes faintly connected spots); sides with two spots, one oblique stripe followed by triangular caudal spot; venter white with two black spots in the centre.

Carapace smooth, sparsely covered with short black setae.

Eyes: MOQ: AW = 0.69PW; AW = 0.73L.

Legs: Spination: femora I d3*pl1 II d3* III d3*rl1 IV d3*rl1; patellae III-IV d1pl2rl1; tibiae I pl1v1-1-2 II pl2*v1-1-2 III d2*pl2*v1-2-2rl2* IV d2*pl2*v2-2(1)-2rl2*; metatarsi I pl1v2-2-2 II pl1v2-2-2 III d1-2-2pl2*v2-2-2rl1 IV d2(1)-2-2pl3*v1-1-1-2rl1.

Measurements: Pa+Ti I 1.72 II 1.42 III 1.74 IV 1.32.

Male palp (Figs. 44a-b): Tibia with two apophyses: one dorsal, outgrowth of posterior margin; one wide, complex, retrolateral. Cymbium with one apical spine. Tegulum elongate with large swelling near base of embolus. MA membranous with twisted tip. DTA bifid: small ventral triangular part with retrolateral tooth in close contact with MA; other part bends upwards to turn in prolateral direction extending in opposite direction of embolus, covering 2/3 of its length. Embolus long, slender and flexible; originating at posterior end of tegulum, bending in prolateral direction to fit in DTA.

Female paratype: Total length 4.40 (3.42-4.72); carapace 1.96 long, 1.20 wide, 0.84 high.

Colour: Carapace light brown, legs orange brown. Abdomen as in male, but sides with only one caudal spot. Carapace faintly reticulated.

Eyes: MOQ: AW = 0.69PW; AW = 0.65L.

Legs: Spination: femora I d4*pl1 II d3* III d2* IV d3*; patellae III-IV d1pl2rl1; tibiae I d1fpl1v1 II d1fpl2*v2* III-IV d2*pl2*v1-1-2rl2*; metatarsi I v1-0-2 II v2-1-2 III d1-2-2pl2*v1-1-2rl1 IV d0-1-1pl3*v1-1-1-2rl3*.

Measurements: Pa+Ti I 1.36 II 1.12 III 1.06 IV 1.46.

Epigyne (Figs. 44c-d, 67b): Fairly large, with narrow central cleft running from back to front; small lip closes frontal end. Entrance ducts start with wide curve, followed by straight adjacent part curving sharply towards lateral spermathecae.

DISTRIBUTION: Mexico (Vera Cruz) (Map 5).

Ishania centroavata new species

Figs. 45a-b, Map 4

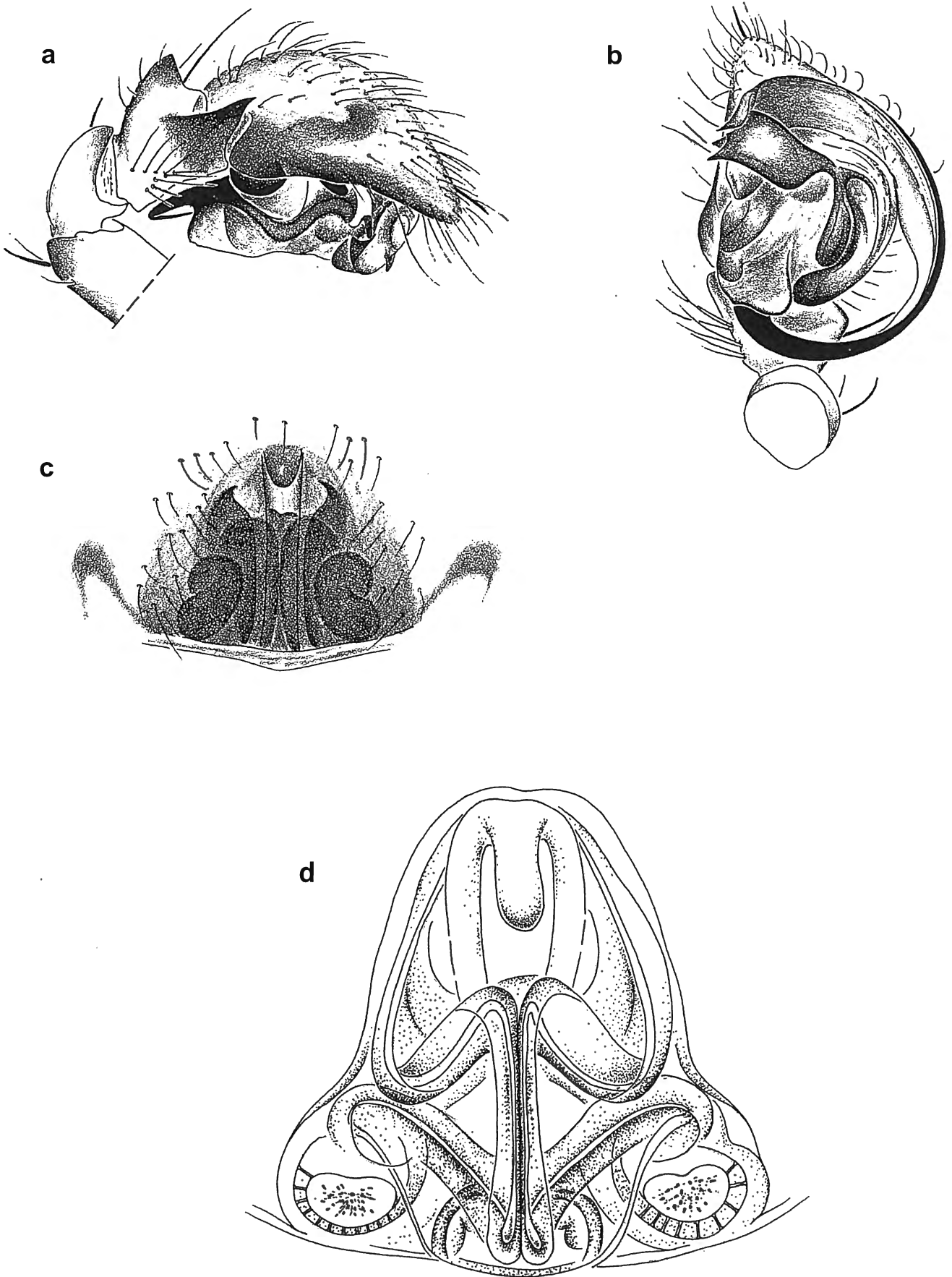
TYPE MATERIAL: Holotype: Female: MEXICO: OAXACA: 48km E of Valle nacional, 2012m, montain oak forest, 25.VI.1983 (S. & J. Peck) (AMNH) (tube also contains 2sa♂ 5sa♀ 7 juv.).

DIAGNOSIS: Females of this species are easily recognized by the large frontal depression which has itself a smaller depression near its posterior margin.

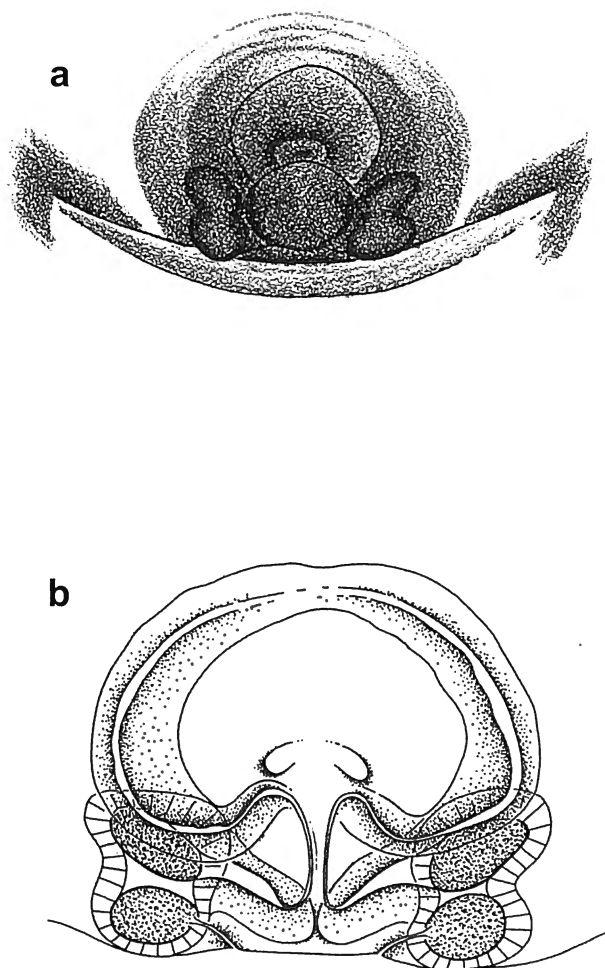
ETYMOLOGY: The specific name is an adjective referring to the small depression which is situated in the centre of the epigyne.

DESCRIPTION: *Female holotype*: Total length 5.68; carapace 2.44 long, 1.52 wide, 1.04 high.

Colour: Carapace dark brown with lighter area in front of fovea. Sternum brown. Legs yellowish brown, femora



Figs. 44a-d — *Ishania aztek*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.



Figs. 45a-b — *Ishania centrocavata*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

ventrally yellow. Abdomen sepia grey with complex pattern of white spots: one large in front followed by two rows of short bars, the posterior two anastomosing; venter white with faint sepia markings; sides dark with two pale oblique bars.

Carapace strongly reticulated.

Eyes: MOQ: AW = 0.69PW; AW = 0.61L.

Legs: Spination: femora I d3*pl1 II d3* III-IV d3*r11; patellae III-IV d1pl2r11; tibiae I d1fv1-0-2 II d1fpl1(distal)v1-1-0 III d2*pl2*r12*v1-1-1 IV d2*pl2*r12*v1-(1)-2-2; metatarsi I-II pl1v1-0-2 III d1-2pl2*r12*v0-2-2 IV d1-1-2pl3*r13*(4*)v2-3-2.

Measurements: Pa+Ti I 1.68 II 1.44 III 1.36 IV 1.82.

Epigyne (Figs. 45a-b): Fairly large with large frontal depression; itself with small depression near posterior margin; slightly bulging area in front of epigastric furrow; entrance ducts long, with short parallel stretch before entering constricted spermathecae; fertilization ducts short.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 4).

Ishania chicanna new species

Figs. 46a-b, Map 4

TYPE MATERIAL: Holotype: Female: MEXICO: CAMPECHE: Chicanna, 10km W of Xpujil, seasonal tropical forest, 300m, 13.VII.1983 (S. & J. Peck) (AMNH).

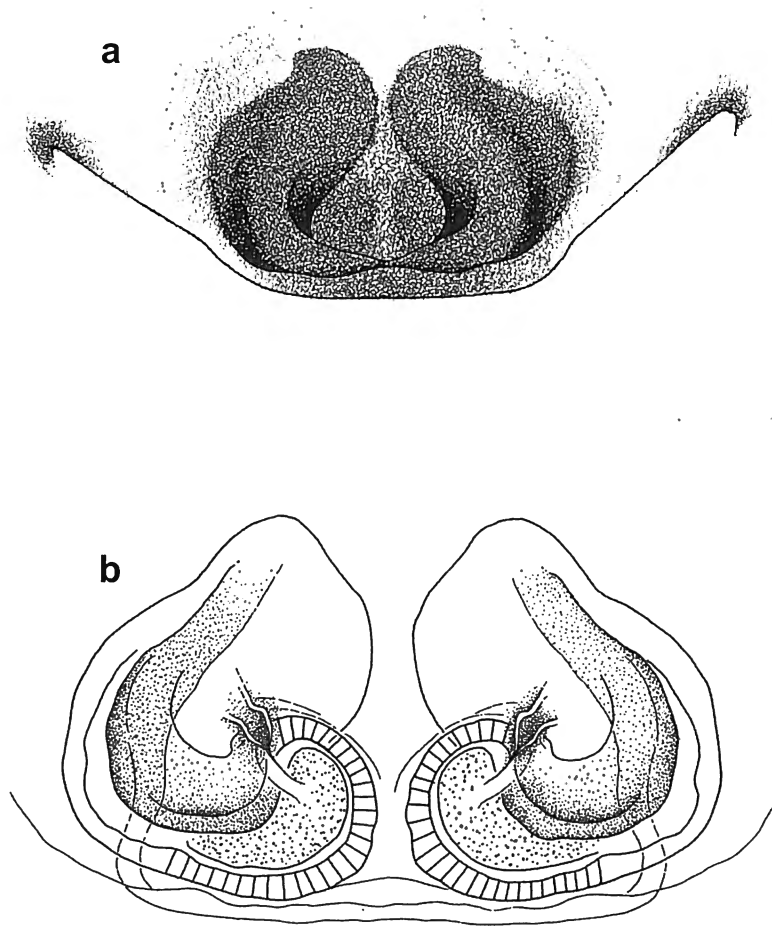
Paratypes: 3♀ together with holotype.

DIAGNOSIS: Females of this species are recognized by the roughly triangular epigyne with broad, slightly bulging rims and shallow central depression and entrance openings near the posterior margin.

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

DESCRIPTION: *Female holotype*: Total length 3.68 (range: 3.28-3.92); carapace 1.76 long, 1.20 wide, 0.80 high.

Colour: Carapace orange brown. Sternum orange. Legs yellow with orange tinge, coxae ventrally pale. Abdomen (as in Fig. 55e) sepia with two pale spots in front, followed by one large chevron and one spot in front of spinnerets; venter white, sides with one white bar.



Figs. 46a-b — *Ishania chicanna*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

Carapace reticulated.

Eyes: MOQ: AW = 0.79PW; AW = 0.59L.

Legs: Spination: femora I-II d3* III d2* IV d3*; patellae III-IV d1pl2r11; tibiae I d1fpl1(proximal)v1-0-0 II d1fpl2*v1-1-0 III d2*pl2*r12*v1-1-1 IV d2*pl2*r12*v1-1-2; metatarsi I v1-0-2 II 2-0-2 III d0-2-2pl2*r10-0-1v2-1-2 IV d1-1-2pl3*r13*v2-1-1-1-2.

Measurements: Pa+Ti I 1.24 II 1.04 III 1.00 IV 1.36.

Epigyne (Figs. 46a-b): A roughly triangular area with broad, slightly bulging rims and slight depression in centre. Entrance openings situated in front, far apart; fertilization ducts originating on lateral side of spermathecae opening towards front.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 4).

Ishania chichimek new species

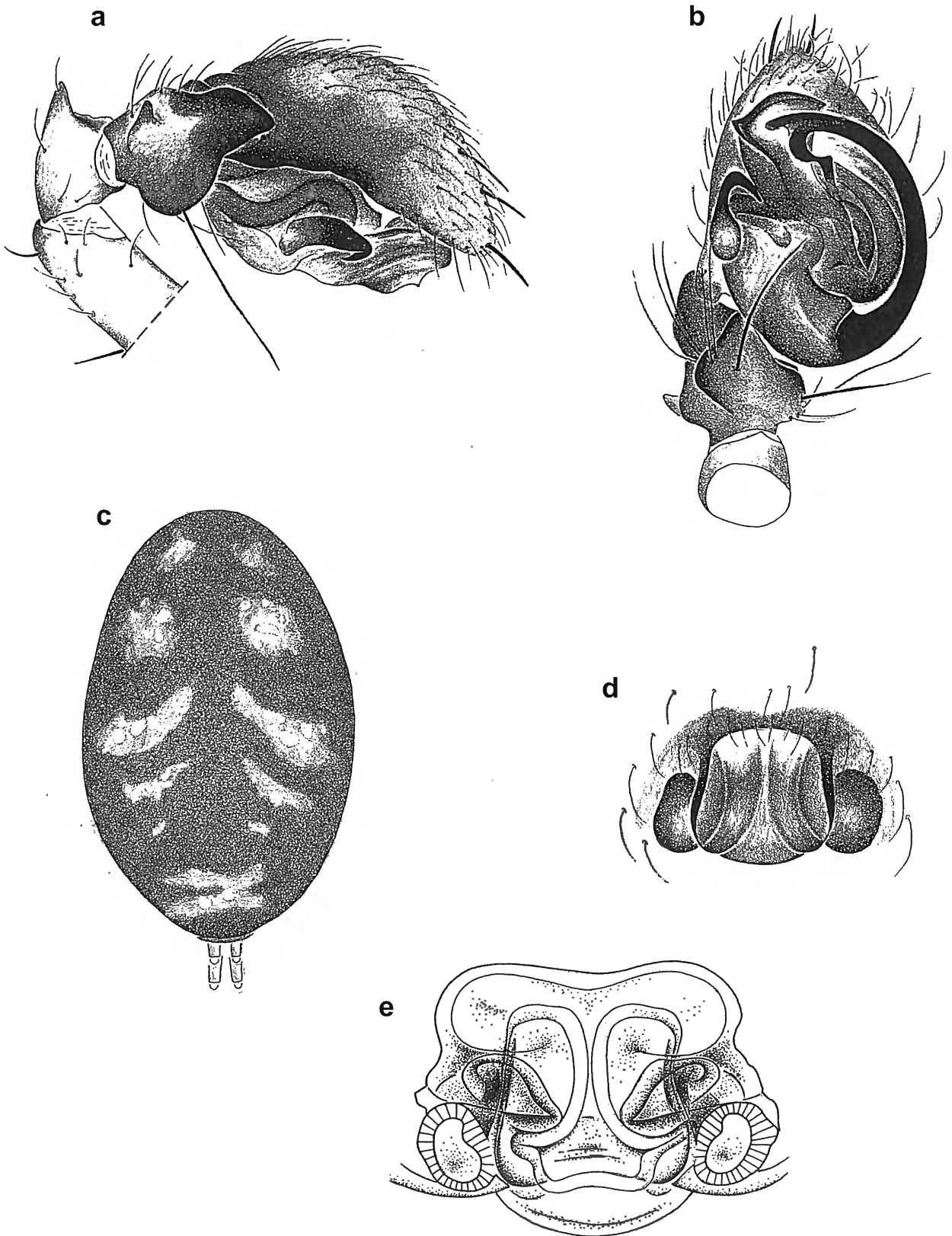
Figs. 47a-e, 67c, Map 4

TYPE MATERIAL: Holotype: Male: MEXICO: SAN LUIS

POTOSI: Tamazunchale (21°15'N 98°48'W), 19.IV.1963 (W.J. Gertsch and W. Ivie) (AMNH).

Paratypes: 1♂, 2♀, 6juv. together with holotype; 3♀, 1 juv.: SAN LUIS POTOSI: 8 miles NNW of Tamazunchale (21°20'N 98°50'W), 19.IV.1963 (W.J. Gertsch and W. Ivie); 1♂, 1 juv.: 5.6 miles E Xilitla, Tropical evergreen forest, 17-19.VII.1969; 2♀, 13 juv.: 20km W Xilitla, 1600m, 12.VI.1983, cloud forest litter; 1♀: El Salto, tropical deciduous forest, 6-9.VII.1969: (S. and J. Peck); 1♀: TAMAULIPAS: La Cueva del nacimiento del rio Frio, 7km S of Gomez Farias, 18.II.1973 (C. McConnell) (AMNH); 1♂, 2♀, 2 juv.: Tamazunchale, 20.V.1944, (F. Bonet) (KBIN); 1♂: HIDALGO: 6.6miles SW of Chapulhuacan, 1170m, cloud forest, 27.VI-1.VII.1973, (A. Newton) (MCZ).

DIAGNOSIS: Males of this species are recognized by the presence of a dorsal apophysis on the palpal patella, the short posterior retrolateral apophysis on the tibia and the embolus with strong terminal excrescence. Females are characterized by the epigyne in which the central depression lays clearly above the posterior margin.



Figs. 47a-e — *Ishania chichimek*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.

ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype*: Total length 3.76 (range 3.68-4.16); carapace 1.96 long, 1.40 wide, 0.72 high.

Colour: Carapace reddish brown, margins suffused with black; faint black V-mark in front of fovea; sternum yellowish brown; legs yellow with orange tinge, Fe I suffused with black on ventral and lateral sides, other femora on retro- and prolateral extremities. Abdomen (Fig. 47c) pale sepia with pattern of white spots arranged in two rows of five and single caudal; venter white with two black spots in centre; sides white, with dark central patch marked with oblique white stripe.

Eyes: MOQ: AW = 0.81PW; AW = 0.68L.

Legs: Spination: femora I-II d3*pl1 III-IV d3*pl1r1; patellae III-IV d1pl2r1; tibiae I-II d1fpl2*v2-2-2 III d2*pl2*rl2v2-2-2 IV d2*pl2*v2-1-1-2rl2(3)*; metatarsi I pl1v2-2-2 II d1pl1-2v2-2-2 III d1-2-2pl2*v2-2-2r1 IV d2-2-2pl3*v1-1-2-2rl2*.

Measurements: Pa+Ti I 1.54 II 1.34 III 1.24 IV 1.60.

Male palp (Figs. 47a-b): Patella with small dorsal conical apophysis. Tibia with two apophyses: one retrolateral, broad, complex, one dorsal, displaced to retrolateral position in posterior half of tibia; ventral swelling with bunch of seven hairs. Cymbium with three short apical spines. Tegulum elongate, with swelling near base of embolus. MA strong and hooked. DTA concave, directed prolaterad. Embolus rigid with distal apophysis; originates on posterior prolateral part of tegulum, runs in anticlockwise direction (on right palp) with extremity resting on DTA.

Female paratype: Total length 4.80 (range 3.60-4.96); carapace 2.24 long, 1.44 wide, 0.96 high.

Colour: As in male but carapace light brown.

Eyes: MOQ: AW = 0.72PW; AW = 0.62L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2r1; tibiae I d1fpl2*v1-0-1 II d1fpl2*v1-1-0 III-IV d2*pl2*v1-1-2rl2*; metatarsi I v1-0-2 II pl1v2-0-2 III d2*pl2*v1-1-2rl3* IV d3*pl3*v1-1-2rl3*.

Measurements: Pa+Ti I 1.60 II 1.34 III 1.30 IV 1.70.

Epigyne (Figs. 47d-e, 67c): With a broad almost square depression, its level higher than the posterior margin. Entrance openings in front: large duct starts in front, makes turn of 180° towards centre, thence curves over 90°, runs backwards to turn over 90° again into spermathecae near posterior lateral margin.

DISTRIBUTION: Mexico (San Luis Potos, Hidalgo) (Map 4).

Ishania firma new species

Figs. 48a-e, Map 4

TYPE MATERIAL: Holotype: Male: MEXICO: OAXACA: 15mi S valle Nacional, 1200m, 21.V.1971 (S.Peck) (MCZ).

Paratype: 1♀ together with holotype.

DIAGNOSIS: Males of this species are recognized by the solid embolus with enlarged tip and simple retrolateral apophysis. Females are characterized by the mushroom-shaped depression in the epigyne.

ETYMOLOGY: The name of the species (*firmus* is Latin for rigid) refers to the characteristic embolus.

DESCRIPTION: *Male holotype*: Total length 2.80; carapace 1.40 long, 0.96 wide, 0.56 high.

Colour: Carapace orange, margins broadly suffused with black. Sternum pale. Legs yellowish orange; coxae, proximal third of Fe, Ti I and II white; Fe strongly suffused with black. Abdomen (Fig. 48c): dorsum sepia with five white patches; venter pale.

Eyes: MOQ: AW = 0.62PW; AW = 0.62L.

Legs: Spination: femora I-III d2* IV d3*rl1; patellae III-IV d1pl2r1; tibiae I d1fpl2*v2-1-2 II d1fpl2*v1-1-2 III d2*pl2*rl2*v1-1(2)-2 IV d2*pl2*rl2*v2-2-2; metatarsi I pl1v2-1(2)-2 II d1pl2*v2-1-2 III d1-1-2pl2*rl2*v2-1-2 IV d0-1-2pl3*rl3*v2-2-2.

Measurements: Pa+Ti I 1.16 II 0.94 III 0.80 IV 1.10.

Male palp (Figs. 48a-b): Tibia with long, broad, sharp retrolateral apophysis. Cymbium with two apical spines. Tegulum elongate, membranous, with swelling near embolus base. MA inconspicuous, membranous. DTA one piece, apically extended in opposite direction of embolus over ca 2/3 its length. Embolus rigid, emerging on posterior prolateral part of tegulum in prolateral direction.

Female paratype: Total length 2.96; carapace 1.44 long, 0.92 wide, 0.66 high.

Colour: Carapace orange. Sternum white. Legs yellow with orange tinge, coxae white. Abdomen with five white patches: two in centre sometimes split.

Eyes: MOQ: AW = 0.75PW; AW = 0.69L.

Legs: Spination: femora I-IV d1; patellae III-IV d1pl2r1; tibiae I v2-0-1 II pl1v1-1-0 III d2*pl2*rl1v1-1-1 IV d2*pl2*rl2*v1-1-1; metatarsi I v1-0-2 II pl1v1-0-2 III d0-1-2pl2*rl2*v2-0-2 IV d0-1-2pl2*rl3*v2-1-2.

Measurements: Pa+Ti I 1.00 II 0.86 III 0.74 IV 1.02.

Epigyne (Figs. 48d-e): Fairly large, with large, roughly mushroom-shaped depression. Entrance openings frontal, far apart. Entrance ducts with parallel stretches, entering two-lobed spermathecae mesally; fertilization ducts long.

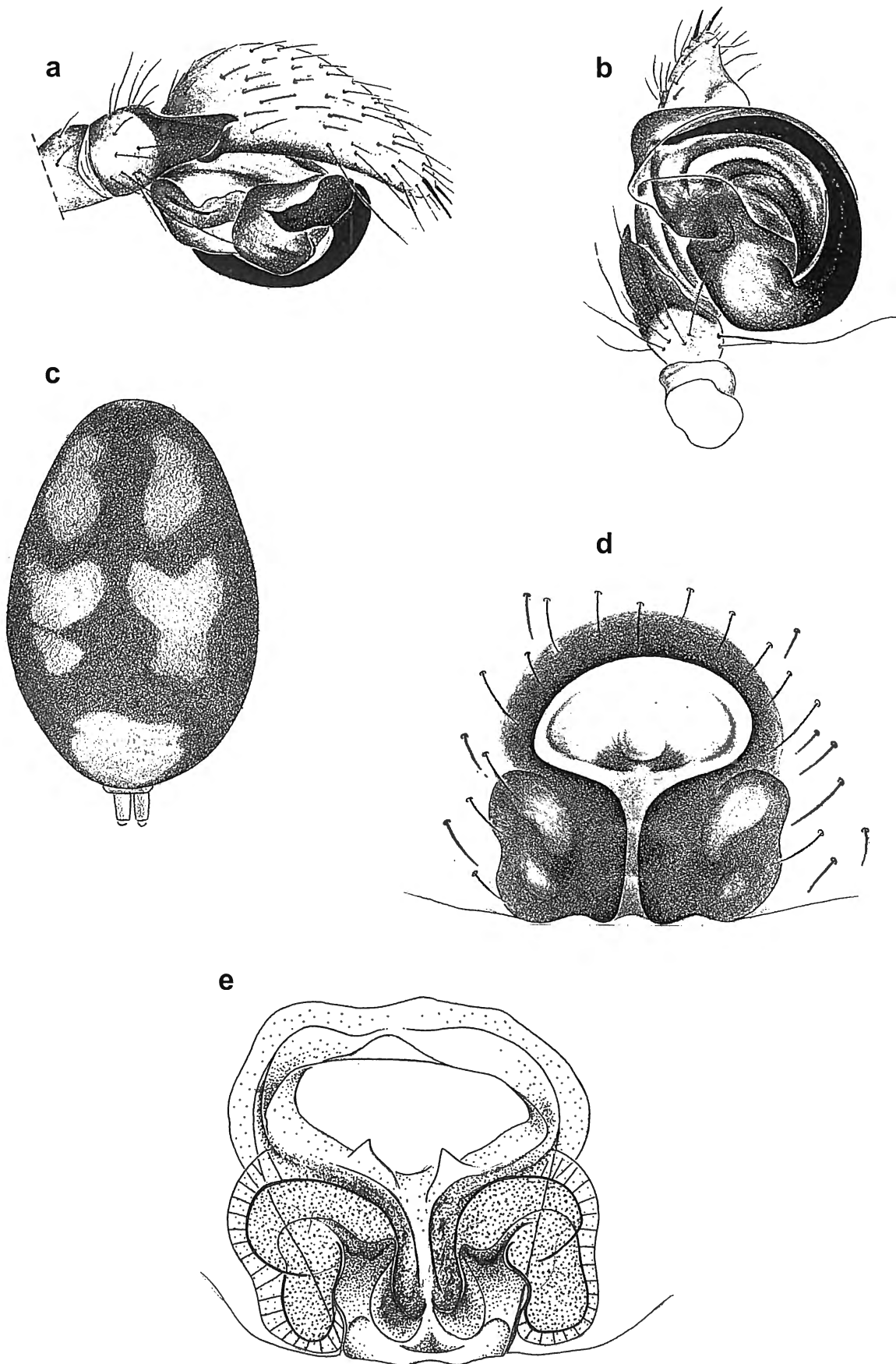
DISTRIBUTION: Only known from type locality (Map 4).

Ishania gertschi new species

Figs. 49a-c, Map 4

TYPE MATERIAL: Holotype: Female: MEXICO: COLIMA: 8mi SSW of Tecalitlan (19°23'N 103°23'W), 10.V.1963 (W.J. Gertsch & W. Ivie) (AMNH) (tube also contains 2 sa♂, 1 sa♀, 1 juv.).

DIAGNOSIS: Females of this species are recognized by



Figs. 48a-e — *Ishania firma*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.

the tiny epigyne consisting of a thin sclerotised line along the rim of the epigastric furrow and a small central scape.

ETYMOLOGY: The species name is a patronym in honour of an outstanding arachnologist and one of the collectors of the holotype.

DESCRIPTION: *Female holotype:* Total length 3.36; carapace 1.72 long, 1.12 wide, 0.76 high.

Colour: Carapace orange brown. Sternum and legs yellow with orange tinge; coxae pale with orange tinge. Abdomen (Fig. 49b) sepia grey with two irregular frontal spots followed by one full and two broken chevrons and one spot in front of spinnerets; venter white; sides pale with one grey bar.

Carapace reticulated; chelicerae setose.

Eyes: MOQ: AW = 0.73PW; AW = 0.65L.

Legs: Spination: femora I-III d3* IV d3*rl1 patellae III-IV d1pl2rl1; tibiae I d1fpl1v1 II d1fv2* III d2*pl2*rl1v1-1-1 IV d2*pl2*rl2*v1-1-2; metatarsi I v0-0-2 II v0-1-2 III d1pl1-2rl1-2v1-0-2 IV d1pl1-1-2rl1-1-2v4*2.

Measurements: Pa+Ti I 1.18 II 1.00 III 0.96 IV 1.32.

Epigyne (Figs. 49a,c): Very small, consisting of thin sclerotised margin along epigastric fold and small central plate slightly sticking out towards the back. Entrance openings caudal. Entrance ducts entering large, complex spermathecae from the back.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 4).

Ishania guerrero new species

Figs. 49d-e, Map 4

TYPE MATERIAL: Holotype: Female: MEXICO: GUERRERO: Gruta de Cacahuamilpa (18°40'N 99°30'N), 2.IX.1966 (AMNH).

Paratype: ♀: GUERRERO: summit 4 mi W of Cacahuamilpa (18°41'N 99°34'W), 3.IX.1966, (J. & W. Ivie) (AMNH).

DIAGNOSIS: Females of this species are recognized by the very simple epigyne which is in fact only a sclerotised area in front of the epigastric fold. Two more or less triangular black areas delimit a paler central patch.

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

DESCRIPTION: *Female holotype:* Total length 5.36; carapace 2.48 long, 1.56 wide, 1.08 high.

Colour: Carapace dark brown. Sternum and legs orange; FE with green tinge. Abdomen sepia grey with white pattern: frontal inverted U followed by three pairs of smaller white spots and long notched spot in front of

spinnerets (as in Fig. 70c); venter pale with four longitudinal darker bars; sides pale with three oblique sepia bars.

Carapace reticulated. Chelicerae setose.

Eyes: MOQ: AW = 0.74PW; AW = 0.70L.

Legs: Spination: femora I-II d3* III d3*pl1rl1 IV d4*rl1 patellae III-IV d1pl2rl1; tibiae I d1fv2-1-0 II d1fv1-1-0 III d2*pl3*rl3*v2-2(1)-2(1) IV d2*pl3*rl3*v2-2-2; metatarsi I v1-0-2 II pl1v1-0-2 III d1pl1-1-2rl1-1-2v2-1-2 IV d2*pl1-1-2rl1-1-2v2-1-2-2.

Measurements: Pa+Ti I 1.68 II 1.50 III 1.44 IV 1.94.

Epigyne (Figs. 49d-e): Very simple. Consisting of ill-defined sclerotised area with two triangular spots delimiting paler central patch not sticking out backwards. Entrance openings halfway epigyne, short, hidden by large kidney-shaped spermathecae; fertilization ducts short.

Male: Unknown.

DISTRIBUTION: Mexico (Guerrero) (Map 4).

Ishania hessei (CHAMBERLIN & IVIE)

new combination

Figs. 49f-g, Map 4

TYPE MATERIAL: Allotype: Female: MEXICO: Chilapa, Guerrero (ZBM).

NOTE: *Storena hessei* Chamberlin & Ivie most probably belongs in *Ishania*. The male holotype and female paratype were both deposited in ZMB where they were examined superficially. The male holotype was apparently lost afterwards (MORITZ, in litt.) and could therefore not be reexamined.

DESCRIPTION: *Female allotype:* Total length 5.10; carapace 2.24 long, 1.52 wide, 0.96 high.

Colour: Prosoma, orange brown with yellow dorsum, fine reticulated. Sternum orange yellow and legs yellow with orange tinge. Abdomen sepia grey with creamy pattern of two anterior kidney-shaped spots followed by four chevrons and a posterior spot; venter sepia grey.

Eyes: MOQ: AW = 0.40PW; AW = 0.42L

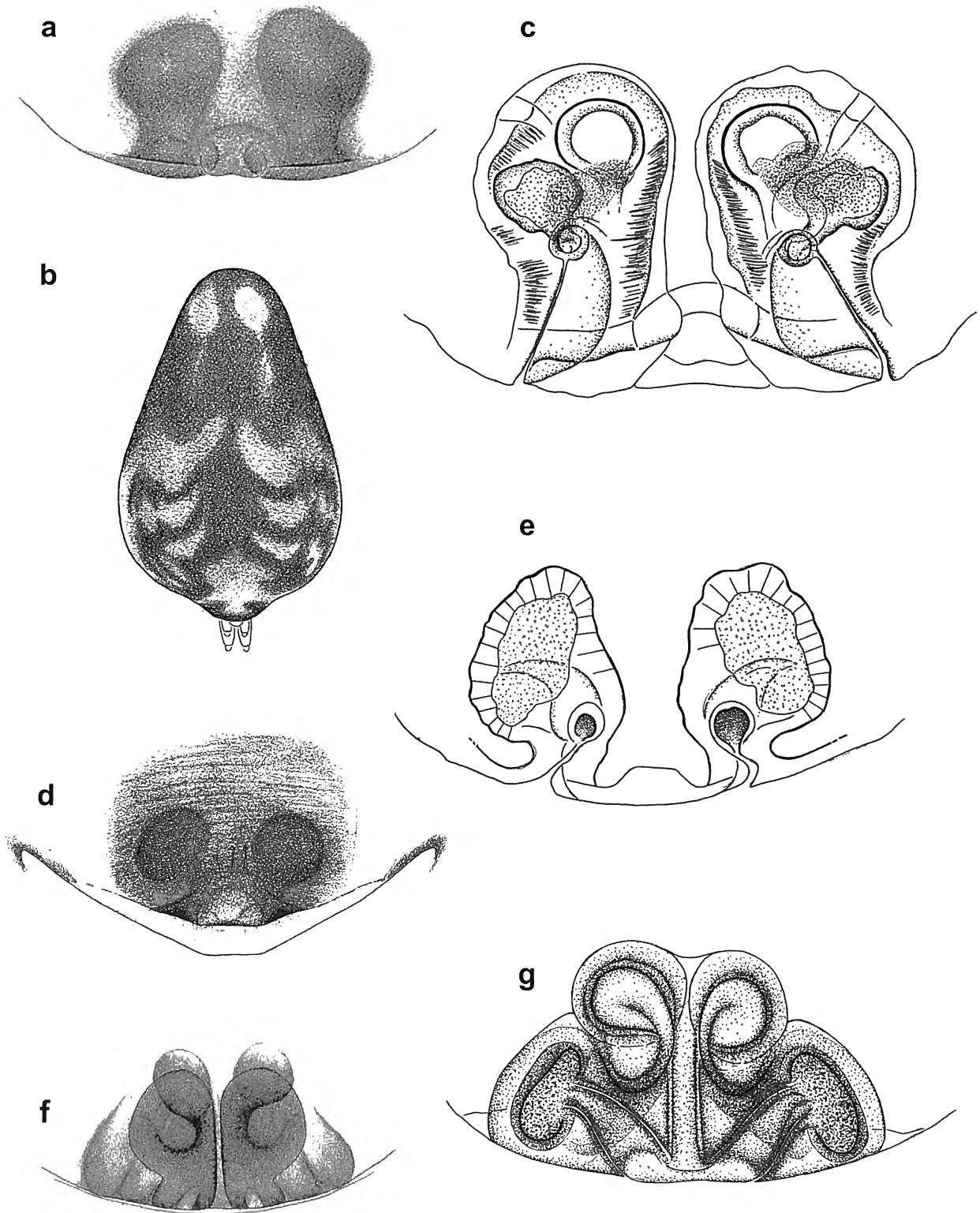
Legs: Spination: femora I-II d1 III d2rl1 IV d3*rl1; patellae III-IV d1pl2rl1; tibiae I pl1 II - III-IV d2*pl3*rl2*v2-1-2; metatarsi I-II v2-0-2 III d2*pl3*rl1-1-2v2-1-2 IV d2*pl3*rl1-1-2v2-1-1-2.

Measurements: Pa+Ti I 1.60 II 1.44 III 1.36 IV 1.76.

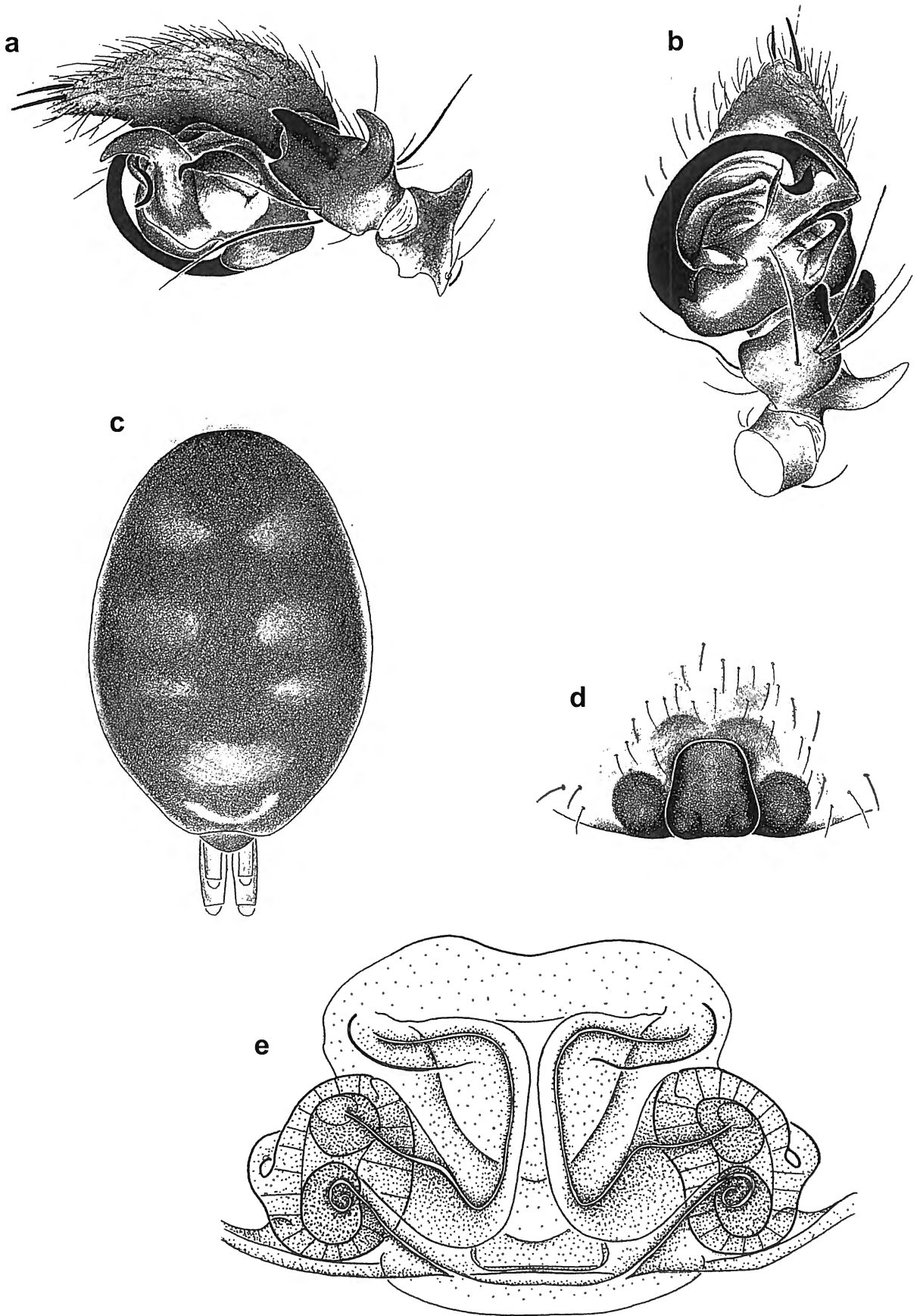
Epigyne: (Figs. 49 f, g): Dark plate with central longitudinal groove. Entrance openings frontal with clearly delimited atria. Entrance ducts long, with parallel sections, entering kidney-shaped spermathecae mesally; fertilization ducts long.

Male unknown.

DISTRIBUTION: Only known from type locality (Map 4).



Figs. 49a-g — a-c. *Ishania gertschi*. a. Epigyne, ventral view. b. Abdomen, dorsal pattern. c. Epigyne, cleared, dorsal view. d-e. *Ishania guerrero*. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view. f-g. *Ishania hessei*. f. Epigyne, ventral view. g. Epigyne, cleared, dorsal view.



Figs. 50a-e — *Ishania huastek*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.

Ishania huastek new species

Figs. 50a-e, Map 4

TYPE MATERIAL: Holotype: Male: MEXICO: TAMAULIPAS: Gomez Farias, Rancho del cielo, cloud forest, 1110m, 1-4.VII.1969 (S. and J. Peck).

Paratypes: 1♀: MEXICO: TAMAULIPAS: Gomez Farias, 1000m, 7.VIII.1983, (S. and J. Peck); 1♀: 7km NW of Gomez Farias, 10.I.1971, (J. Reddell, S. Wiley); 1♂: 6mi NW of Gomez Farias, Rancho del cielo, 1110m, 194.VII.1969, (S. and J. Peck) (AMNH); 1♂, 1♀: 6 miles NW Gomez Farias, Rancho del Cielo, 1110m, 1-4.VII.1969 (S. and J. Peck) (KBIN).

DIAGNOSIS: Males of this species are recognized by the combination of a patellar apophysis, a curved retrolateral apophysis and a large rigid embolus with distal appendage. Females are characterized by the epigyne with fairly large, almost flat plate.

ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype*: Total length 4.24; carapace 1.72 long, 1.20 wide, 0.88 high.

Colour: Carapace reddish brown, with dark V in front of fovea. Sternum light brown, suffused with black. Legs: coxae pale yellow; Fe yellow with distal half predominantly black; other segments yellowish orange with distal half of Pa and Ti predominantly black. Abdomen (Fig. 50c) grey, with seven white spots, venter white with grey V.

Carapace finely reticulated.

Eyes: MOQ: AW = 0.76PW; AW = 0.76L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2r1l1; tibiae I-II d1fpl2v2-2-2 III d2*pl2*r12*v1-2-2 IV d2*pl2*r12*v2-2-2; metatarsi I pl2v2-1-2 II pl2v1(2)-(1)0-2 III d0-1-2pl3*r12*v1-1(0)-2 IV d1-1-2pl3*r13*v1-1-1-1-2.

Measurements: Pa+Ti I 1.60 II 1.28 III 1.26 IV 1.72.

Male palp (Figs. 50a-b): Patella with dorsal apophysis. Tibia with two apophyses: retrolateral one shifted dorsad and a large dorsal one displaced to a lateral position; ventral retrolateral edge ridged with four long hairs, prolateral spine. Cymbium with two short apical spines. Subtegulum sclerotised with four annuli. Tegulum transverse, elongate, sclerotised in caudal half, with swelling near base of embolus. Median apophysis sclerotised, hook-shaped. DTA: inverted concave triangular plate with membranous base, directed prolaterad. Embolus rigid with distal appendage, originating on prolateral side of tegulum, bent inwards over ca. 60°.

Female paratype: Total length 5.2; carapace 2.08 long, 1.32 wide, 0.80 high.

Colour: As in male but with dark brown carapace and sternum.

Eyes: MOQ: AW = 0.67PW; AW = 0.67L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2r1l1; tibiae I d1fpl1v1(r)-1(r)-1(p) II d1fpl2*v1(r)-

1(r)-0 III d2*pl2*r12*v1-1-2 IV d2*pl2*r12*v1-2-2; metatarsi I pl1v0-0-2 II pl1v1(2)-0-2 III d0-1-2pl2*r12*v2-1-2 IV d1-1-2pl3*r13*v2-1-1-2.

Measurements: Pa+Ti I 1.46 II 1.28 III 1.16 IV 1.66.

Epigyne (Figs. 50d-e): With fairly large central, almost flat plate, wider at back than in front, angles rounded. Entrance openings frontal, far apart; entrance ducts with long parallel stretches, entering two-lobed spermathecae mesally; fertilization ducts long.

DISTRIBUTION: Only known from type locality (Map 4).

Ishania ivieorum new species

Figs. 51a-c, Map 4

TYPE MATERIAL: Holotype: Female: MEXICO: CHIAPAS: Plateau 6 mi S of Tuxtla Gutierrez (16°42'N 93°07'W), 21.VIII.1966 (J. & W. Ivie) (AMNH).

DIAGNOSIS: Females of this species are recognized by the epigyne: a dark slightly bulging area with a tiny lip hiding the entrance openings situated in the middle near the posterior margin.

ETYMOLOGY: The specific name is a patronym in honour of J. & W. Ivie as an esteem for the important collections they made in Mexico.

DESCRIPTION: *Female holotype*: Total length 3.92; carapace 1.68 long, 1.12 wide, 0.76 high.

Colour: Carapace shiny orange brown, with dark V in front of fovea. Sternum and legs yellowish orange, margins suffused with black. Abdomen (Fig. 51c) sepia grey; dorsum with several pale spots: two kidney-shaped in front followed by three pairs of oblique bars and 12 in front of spinnerets. Venter white. Sides with three grey bars.

Carapace slightly reticulated.

Eyes: MOQ: AW = 0.63PW; AW = 0.59L.

Legs: Spination: femora I-III d3* IV d1-1-2 patellae III-IV d1pl2r1l1; tibiae I d1fpl1v1 II d1fpl1v2 III d2*pl2*r1v1-1-1 IV d2*pl2*r12*v1-1-1; metatarsi I-II v1-0-2 III d1pl1-2lr1-2v1-1-2 IV pl2*2r14*2(2*2)v1-1-2.

Measurements: Pa+Ti I 1.08 II 0.96 III 0.94 IV 1.00.

Epigyne (Figs. 51a-b): Very dark, bulging, with internal structure showing through. Tiny central lip on posterior margin. Internal structure obscure. Entrance openings apparently at back under central lip; ducts entering spermathecae mesally.

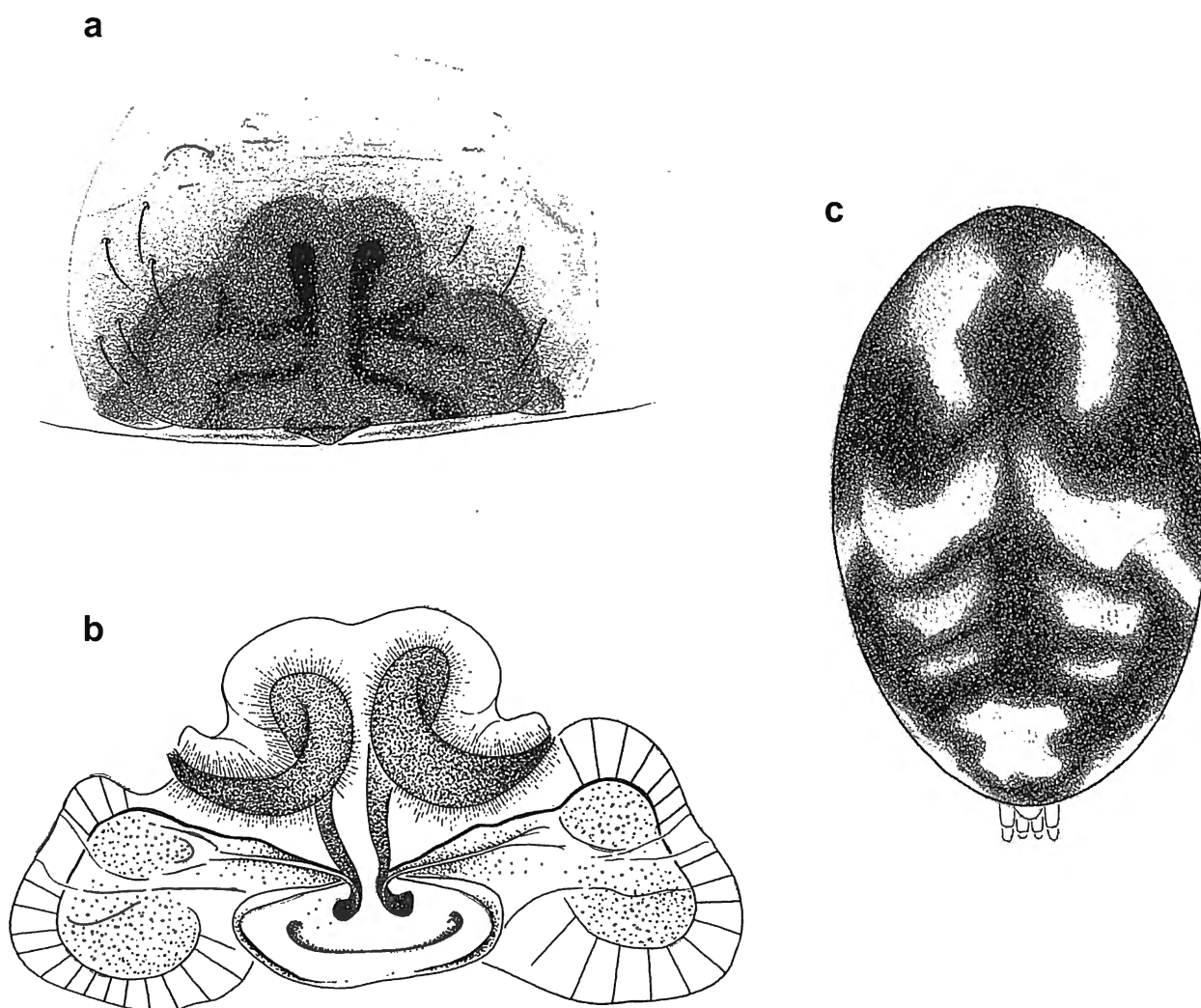
Male: Unknown.

DISTRIBUTION: Only know from type locality (Map 4).

Ishania latefossulata new species

Figs. 52a-b, Map 5

TYPE MATERIAL: Holotype: Female: MEXICO: VERA CRUZ: Riachuelos, bosque tropical, 22.V.1945 (F. Bonet) (AMNH) (tube also contains 4 juv.).



Figs. 51a-c — *Ishania ivieorum*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view. c. Abdomen, dorsal pattern.

Paratypes: 1♀, 1 juv.: TAMAULIPAS: Antigua Mor-
elos, 18.XI.1948, (E.S. Ross)(AMNH); 1♀: Huiy Tamal-
co, 30.XII.1945 (Alvarez)(AMNH); 1♀: VERA CRUZ:
Tlapacoyan, bosque tropical montano, suelo, 24.V.1946
(F. Bonet)(AMNH); 1♀, 1 juv.: OAXACA: grutas de
Monteflor, 6km N Valle Nacional, 28.XII.1972 (J. Red-
dell, S. Murphy, D. and M. McKenzie)(AMNH).

DIAGNOSIS: The female of this rather large species is
defined by the epigyne with central groove and frontal
depression (cf. *T. aztek* and *T. olmek*); in the present
species the depression is wider than long and has no
frontal lip.

ETYMOLOGY: The specific name is an adjective referring
to the wide frontal depression (*latus* and *fossulatus* are
Latin for “wide” and “provided with a groove” resp.).

DESCRIPTION: *Female holotype*: Total length 5.84; cara-
pace 2.52 long, 1.60 wide, 1.16 high.

Colour: Carapace orange brown with lighter area in

front of fovea. Sternum orange. Legs yellow with deep
orange tinge, coxae ventrally pale. Abdomen grey with
white pattern of two anterior spots followed by one
chevron, one pair of smaller spots and one spot in front
of spinnerets (cf. pattern in *T. olmek*); venter white; sides
dark with one oblique pale bar.

Carapace reticulated.

Eyes: MOQ: AW = 0.75PW; AW = 0.79L.

Legs: Spination: femora I d3*pl1 II d3* III-IV d3*r11;
patellae III-IV d1pl2r11; tibiae I d1fpl1(proximal)v1-0-1
II d1fpl2*v1-1-0 III d2*pl2*r12*v1-1(2)-2 IV
d2*pl2*r12*v1-1(2)-2; metatarsi I pl1v1-0-2 II pl1v1-1-
2 III d1-2-2pl2*r10-0-1v2-1-2 IV d0-1-2pl3*r13*v2-3-2.

Measurements: Pa+Ti I 1.74 II 1.44 III 1.40 IV 1.92.

Epigyne (Figs. 52a-b): With a large central groove
showing longitudinal parts of entrance ducts, ending in
frontal transverse depression without frontal lip. Entrance
openings frontal; entrance ducts with long parallel
stretches, entering two-lobed spermathecae mesally; fer-
tilization ducts long.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 5).

Ishania maya new species
Figs. 53a-b, Map 5

TYPE MATERIAL: Holotype: Male: MEXICO: YUCATAN: 2km E. Chichén Itza, 20m, seasonal forest litter, 20.VII.1983 (S. and J. Peck) (AMNH).

DIAGNOSIS: Males of this species are recognized by the large retrolateral and small hook-shaped dorsal apophyses of the palp.

ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype*: Total length 3.92; carapace 2.00 long, 1.24 wide, 0.76 high.

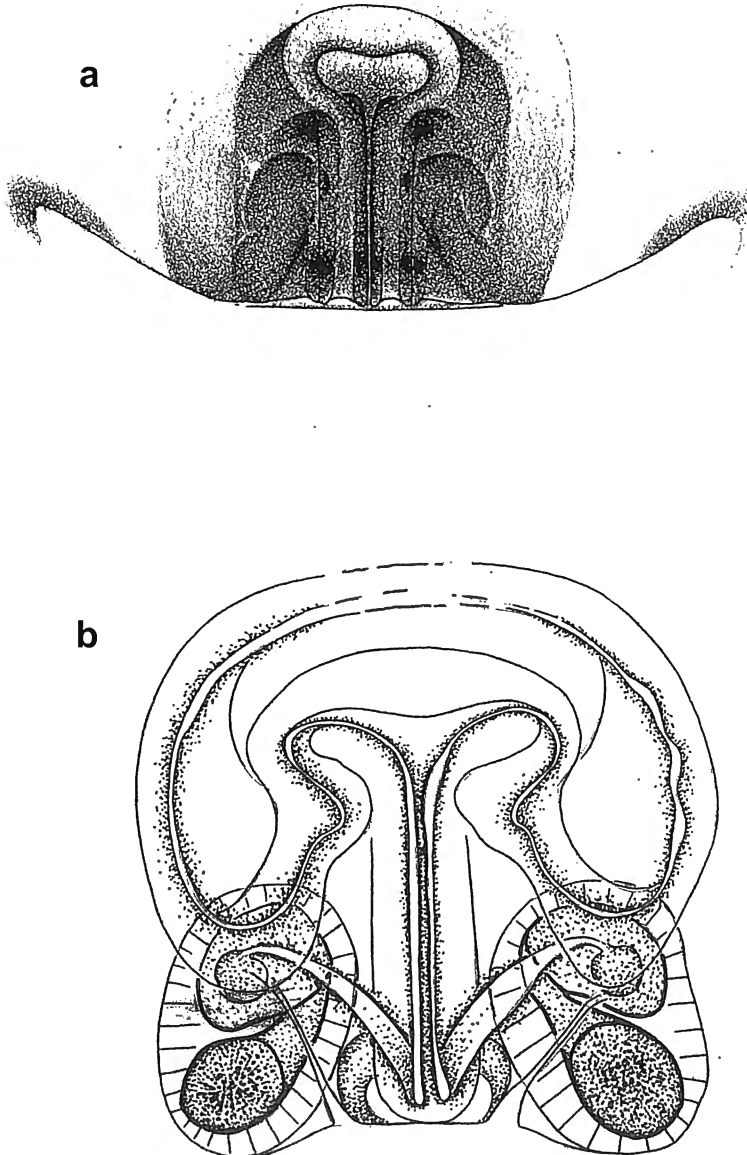
Colour: Carapace orange, with wide margin suffused with black; sternum pale yellow, margin with slight orange tinge; legs yellow with orange tinge; abdomen grey with five dorsal white spots; venter white (as in Fig. 14c). Carapace reticulated.

Eyes: AM small, nearly flat, poorly developed; area around them transparent. MOQ: AW = 0.63PW; AW = 0.59L.

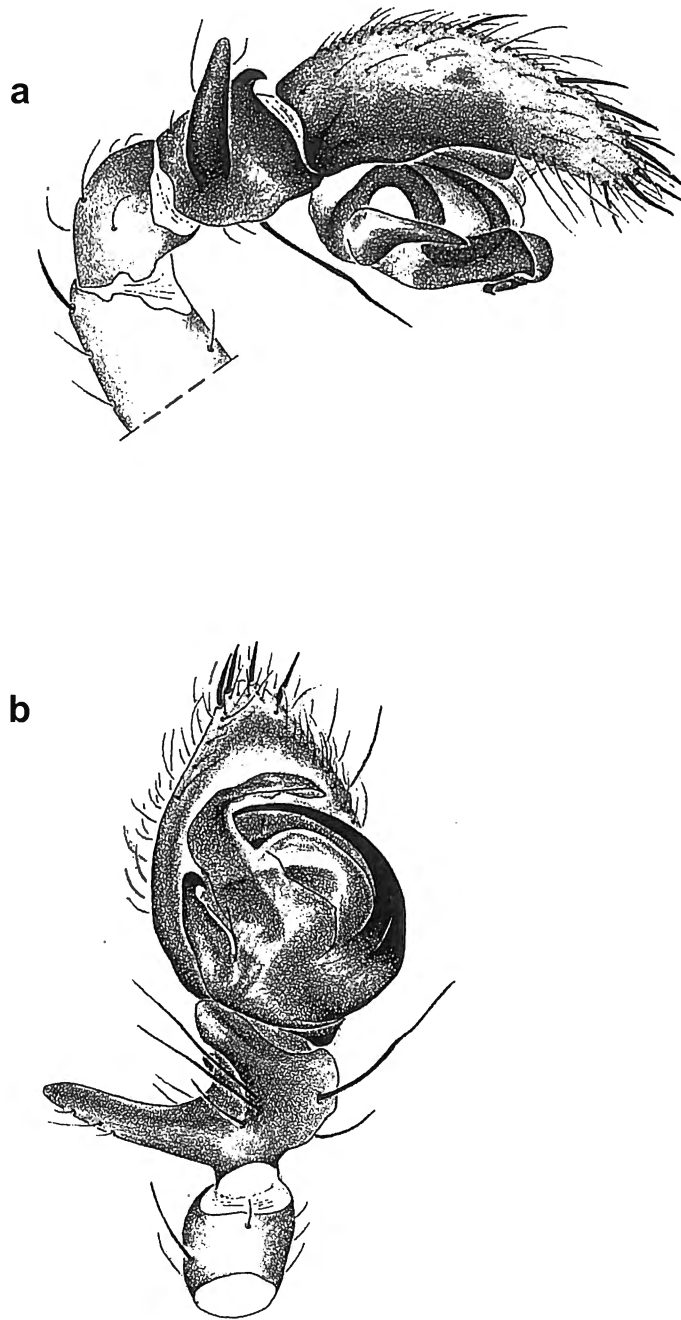
Legs: Spination: femora I-II d3*pl1 III-IV d3*pl1r11; patellae III-IV d1pl2r11; tibiae I d1fp13*v2(1)-2-2 II d1fp13*v1-2-2 III d2*pl2*r12*v1-2-2 IV d2*pl2*r1*v2-2-2; metatarsi I pl2*v2-2-2 II pl1-2v2-2-2 III d1-2pl2*r12*v2-2-2 IV d1-1-2pl3*r13*v2-2-2.

Measurements: Pa+Ti I 1.44 II 1.16 III 1.16 IV 1.56.

Male palp (Figs. 53a-b): Tibia with three apophyses: one small, dorsal curved forward, one large, retrolateral,



Figs. 52a-b — *Ishania latefossulata*. a. Abdomen, dorsal pattern. b. Epigyne, cleared, dorsal view.



Figs. 53a-b — *Ishania maya*. a. Right male palp, retrolateral view. b. Male palp, ventral view.

standing out at straight angle, one simple, blunt, ventral. Cymbium with 11 short spines. Tegulum small, broader than long. Median apophysis hook-shaped. DTA in one piece, with double retrolateral ridge, prolateral part developed in opposite direction of embolus over 1/4 its length. Embolus short, rigid, with broad base, widened tip flat, transparent; originating on posterior retrolateral side of tegulum, bent inwards over nearly 130°, joining DTA.

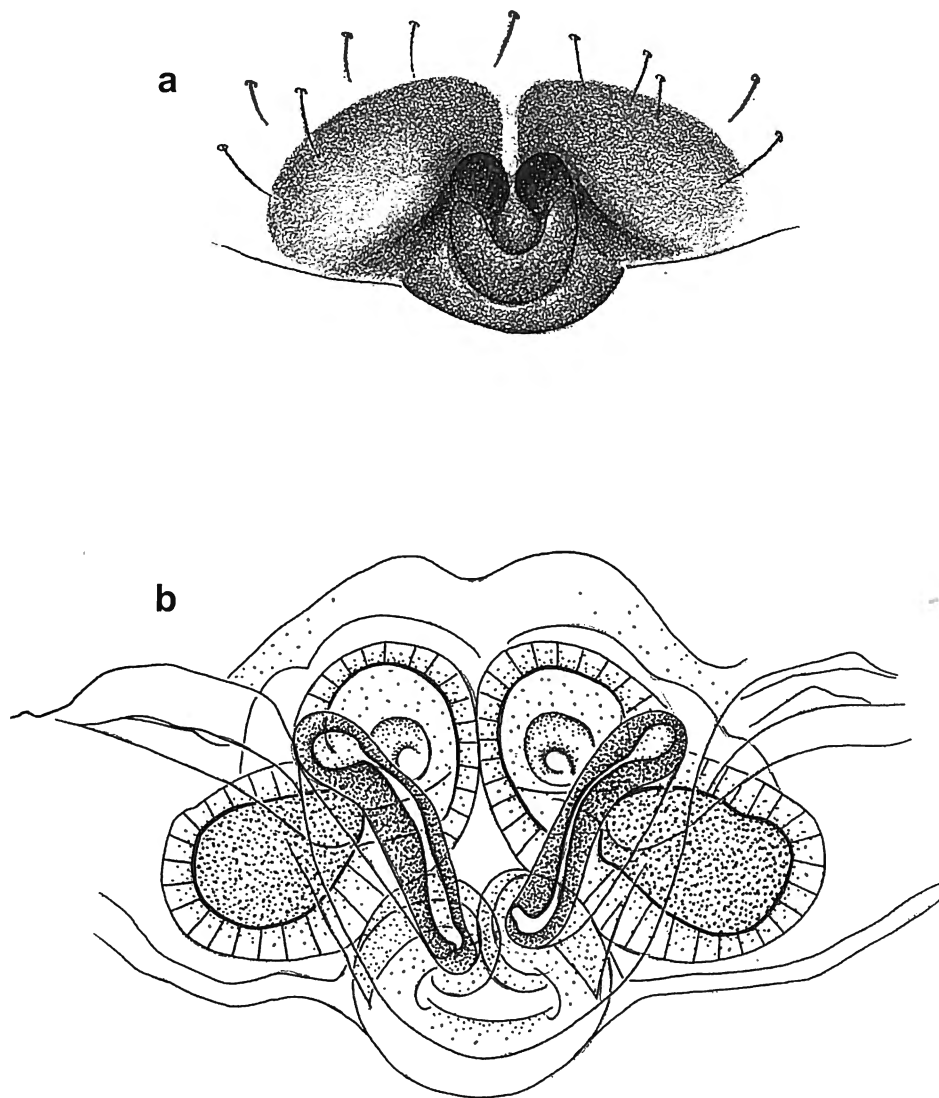
Female: Unknown.

DISTRIBUTION: Only known from type locality (Map 5).

Ishania minuta new species

Figs. 54a-b, Map 5

TYPE MATERIAL: Holotype: Female: HONDURAS: Depro. Atlantido, 14 km S of La Ceiba, 130m, steep forest slope, 23.III.1979 (W.J. Brown) (MCZ) (same tube contains 1 sa♀).



Figs. 54a-b — *Ishania minuta*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

DIAGNOSIS: The female of this small species is recognized by its epigyne with strongly procurved central plate.

ETYMOLOGY: The name of this species (*minutus* is Latin for “tiny”) evidently refers to its reduced size.

DESCRIPTION: *Female: Holotype:* Total length 3.36; carapace 1.48 long, 0.88 wide, 0.68 high.

Colour: Carapace orange brown; sternum, legs yellow, coxae white. Abdomen sepia grey, with five large pale interconnecting patches; venter white.

Carapace reticulated, with few short black setae.

Eyes: MOQ: AW = 0.63 PW; AW = 0.56 L.

Legs: Spination: femora I-II d3* III d2* IV d3*; patellae III-IV d1pl2r1l1; tibiae I d1fpl1v1-0-0 II d1fpl1v1-1-0 III d2*pl2*rl2*v1 -1-1 IV d2*pl2*rl2*v1-1-2; metatarsi I v1-0-2 II pl1v1-0-2 III d0-1-2pl3*rl3*v2-0-2 IV d1-1-2pl3*rl3*v2-1-2.

Measurements: Pa+Ti I 1.02 II 0.86 III 0.82 IV 1.06.

Epigyne (Figs. 54a-b): With strongly procurved central plate. Entrance openings caudal; entrance ducts short and straight, entering strongly constricted spermathecae mesally. Fertilization ducts short.

Male: Unknown.

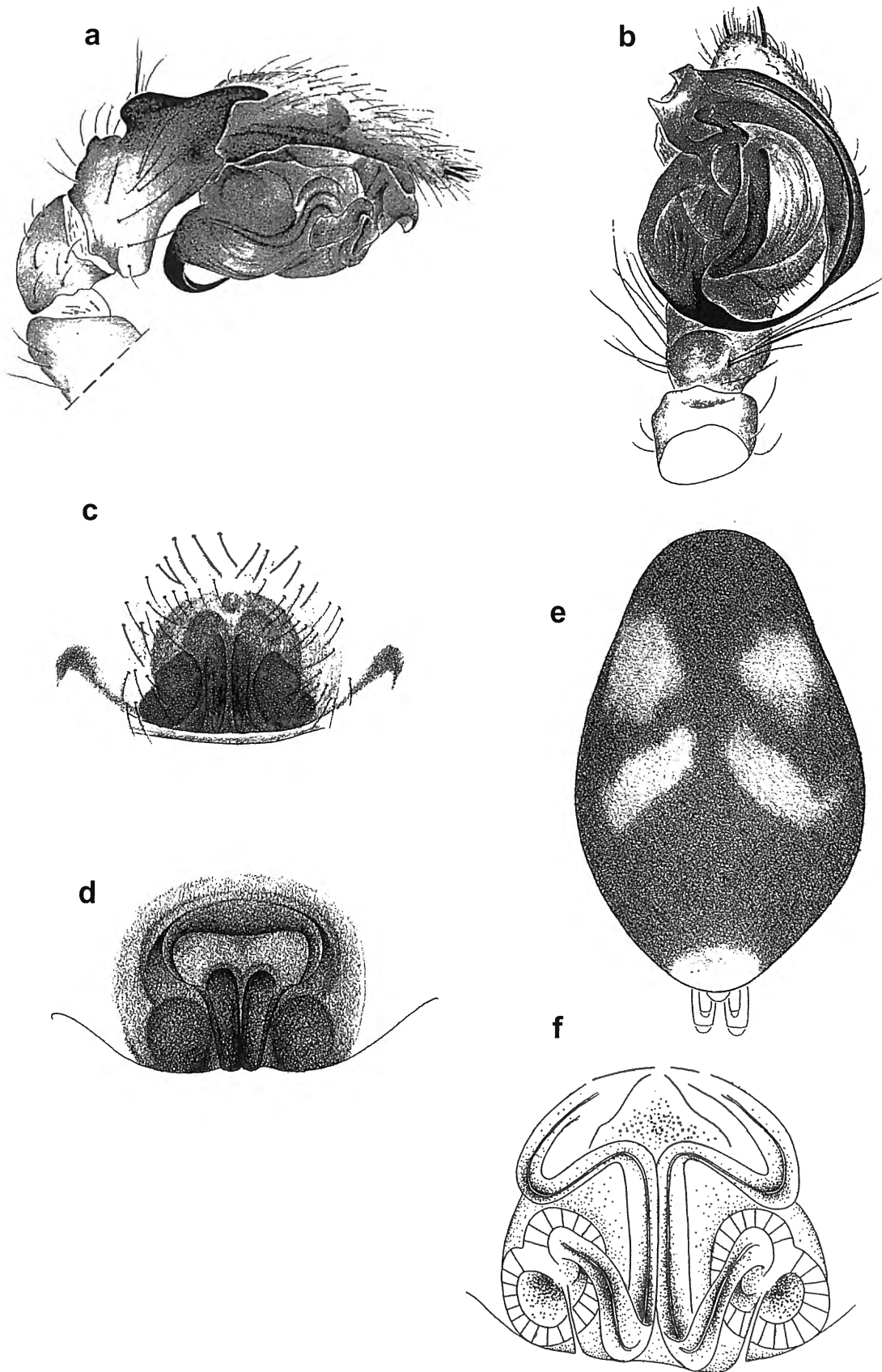
DISTRIBUTION: Only known from type locality (Map 5).

Ishania mixtek new species

Figs. 55a-f, 67d, Map 6

TYPE MATERIAL: Holotype: Male: MEXICO: VERA CRUZ: 7km E of Huatusco, cloud forest, 1040m, 22.VI.1983 (Anderson and Peck) (AMNH).

Paratypes: 6♀ together with holotype (1♀ in KBIN); 2♀, 14 juv: 5km NE Coscomatepec (19°05'N 97°03'W), cloud forest litter, 1130m, 22.VI.1983 (Anderson and Peck) (AMNH); 1♀: Coscomatepec, 5.VIII.1966 (J. &



Figs. 55a-f — *Ishania mixtek*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view, entrance opening plugged. d. Epigyne, ventral view, entrance opening free. e. Abdomen, dorsal pattern. f. Epigyne, cleared, dorsal view.

W. Ivie) (AMNH); 1♀: 4.4mi N of Huatusco, 1260m, cloud forest, 29.VII-2.VIII.1973 (A. Newton) (MCZ); 1♀: 33km NE of Catemaco, 160m, Los Tuxtlas Biol. Station, 1.VII.1983 (S. & J. Peck) (AMNH). 1♂: CHIAPAS: Jalapa, 19-21.V.1946 (J.C. and D.L.P. Allister) (AMNH).

DIAGNOSIS: Males of this species are recognized by the peculiar shape of the palpal tibia and DTA in combination with the very long embolus. Females are characterized by the epigyne of which the broad central groove ends in a very wide transverse depression. As this is most often plugged it appears as if the central groove is hardly delimited in front and has no extra lip.

ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype:* Total length 4.16; carapace 1.92 long, 1.32 wide, 0.88 high.

Colour: Carapace dark brown, slightly iridescent. Sternum light brown in centre, darker along margins. Legs: coxae, proximal half of femora white; trochanters brown dorsally, white ventrally; distal half of femora, patellae and tibiae (distal 2/3th of Ti I yellow) light brown with black markings and orange tinge; metatarsi and tarsi brown with orange tinge. Abdomen black with five white spots (Fig. 55e), venter white with pair of median spots, area in front of spinnerets black; sides pale with black oblique bar, epigastric region with orange tinge.

Carapace reticulated.

Eyes: MOQ: AW = 0.73PW; AW = 0.61L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2r1l; tibiae I d1fpl1v1(r)-0-1(p) II d1fpl2v1(r)-1(r)-0 III d2*pl2*rl2*v1(p)-1(p)-2 IV d2*pl2*rl2*v2-2-2; metatarsi I pl1v0-0-2 II pl2v2(1)-0-2 III d1-1-2pl2*rl2*v2-1-2 IV d1-2-2pl3*rl1v1-1-1-2(1)-2.

Measurements: Pa+Ti I 1.50 II 1.20 III 1.18 IV 1.56.

Male palp (Figs. 55a-b): Tibia with two apophyses: one broad, complex retrolateral, one tiny, dorsal, separated

from retrolateral by groove; with five long retrolateral setae; ventro-prolaterally with row of 12 hairs; ventral swelling. Cymbium with two short, apical spines. Tegulum elongate, sclerotised, reticulated. Median apophysis membranous at base, with twisted sclerotised tip. DTA bifid, proximal part broad, at the same level as tegulum, produced in retrolateral direction, tip bifid; distal part dorsad of previous part, extended in opposite direction of embolus, over slightly more than 2/3th its length. Embolus slender, originating on posterior part of tegulum, bent over 180°, in close contact with distal part of DTA.

Female paratype: Total length 4.64 (range: 4.40-5.20); carapace 2.04 long, 1.24 wide, 0.92 high.

Colour: As in male but with coxae yellow white, Fe yellow; Pa, Ti, Mt, Ta orange.

Eyes: MOQ: AW = 0.65PW; AW = 0.50L.

Legs: Spination: femora I d3*pl1 II-IV d3*; patellae III-IV d1pl2r1l; tibiae I d1fpl1v1(r)-0-1(p) II d1fpl2v1(r)-1(r)-0 III d2*pl2*rl2*v1(p)-1(p)-2 IV d2*pl2*rl2*v1-1-2; metatarsi I-II pl1v1(2)-0-2 III d1-1-2pl2*rl2*v2-1-2 IV d1-2-2pl3*rl1v1-1-1-1-2.

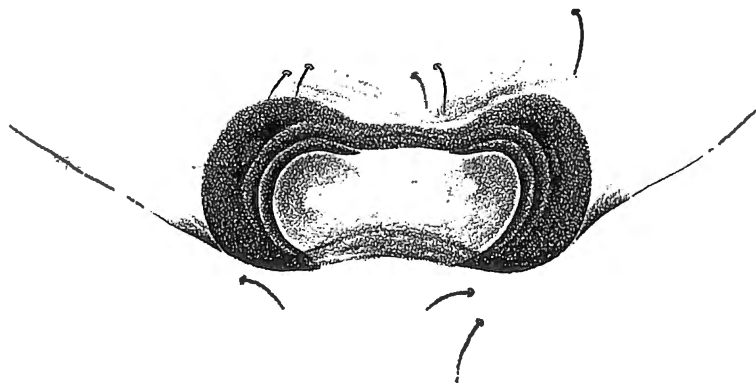
Measurements: Pa+Ti I 1.28 II 1.10 III 1.06 IV 1.40.

Epigyne (Figs. 55c-d,f, 67d): Fairly large with central longitudinal groove opening in very wide frontal depression; this depression most often plugged and appearing as poorly defined frontal margin of central groove. Entrance openings in front; ducts curved out- then inwards to run closely together backwards, turning towards side into lateral spermathecae.

DISTRIBUTION: Mexico (Vera Cruz, Chiapas) (Map 6).

Ishania mundella (GERTSCH and DAVIS, 1940)
new combination
Fig. 56, Map 6

Storena mundella GERTSCH and DAVIS, 1940 (descr. ♀).
Tenedos mundellus: JOCQUÉ, 1991: 93.



Figs. 56 — *Ishania mundella*. Epigyne, ventral view.

TYPE MATERIAL: Holotype: Female: MEXICO: 62 miles N. Acapulco, Guerrero, 18.VI.1936 (AMNH) (examined).

DIAGNOSIS: Females are recognized by the very wide and short central depression on the epigyne just in front of the epigastric fold.

DESCRIPTION: *Female holotype*: Total length 5.08; carapace 2.17 long, 1.33 wide, 0.59 high.

Colour: Carapace medium brown; sternum light brown and legs yellowish brown; abdomen sepia with two anterior dorsal spots, a chevron in the middle and one spot in front of spinnerets, venter and sides pale and two oblique pale stripes in front of spinnerets. Spinnerets pale.

Eyes: MOQ: AW = 0.61 PW; AW = 0.55 L.

Legs: Spination: femora I d1 II d2* III d3-1-1 IV d2-1-1; patellae III-IV d1pl2r1l1; tibiae I v1 II v2 III d2*pl2*v2*r12* IV d3*pl2*v1-1-1-2r13*; metatarsi I-II v1-2 III d1-2-2pl2*v1-1-2r13* IV d1-1pl2*v2-1r12*w5.

Measurements: Pa+Ti I 1.58 II 1.33 III 1.20 IV 1.67.

Epigyne (Fig. 56): Fairly simple: with a short, transverse, shallowly impressed plate.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 6).

Ishania nayarit new species

Figs. 57a-b, Map 6

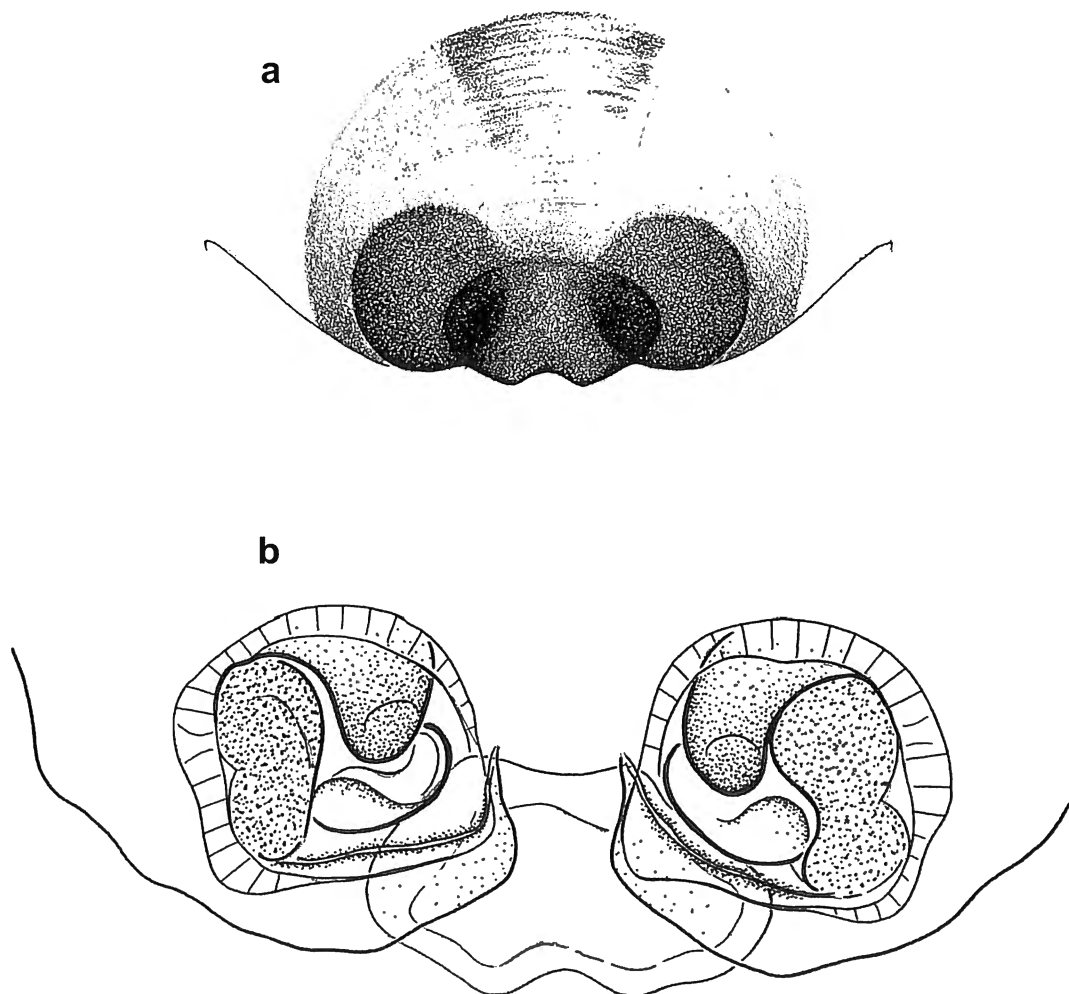
TYPE MATERIAL: Holotype: Female: MEXICO: Nayarit, San Blas Montautchen Beach, 9.IX.1966 (J. & W. Ivie) (AMNH).

DIAGNOSIS: Females of this species are recognized by the epigyne with a fairly wide central plate with a sinuous posterior margin.

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

DESCRIPTION: *Female holotype*: Total length 5.04; carapace 2.76 long, 1.76 wide, 1.12 high.

Colour: Carapace reddish brown with orange area in



Figs. 57a-b — *Ishania nayarit*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

front of fovea. Sternum orange. Legs yellow with orange tinge. Abdomen black with caudal and frontal white spot; sides black with three pale spots; venter pale with dark median longitudinal bar.

Carapace reticulated.

Eyes: MOQ: AW = 0.70PW; AW = 0.68L.

Legs: Spination: femora I-II d3*pl1 III d3*pl1r1l IV d3*r1l; patellae III-IV d1pl2r1l; tibiae I d1fpl1(proximal)v1-1-1 II d1fpl1(0)v1-1-0 III d2*pl3*r12*v2-2-2 IV d2*pl3*r13*v2-2-2; metatarsi I-II v2-2-2 III d1-2pl3*r13*v2-2-2 IV d1-2pl3*r13*v2-3-2.

Measurements: Pa+Ti I 1.92 II 1.64 III 1.58 IV 2.14.

Epigyne (Figs. 57a-b): Fairly large sclerotised area provided with wide posterior plate of which posterior margin is shallowly indented, thus appearing sinuous. Entrance openings central. Entrance ducts fairly short entering globular spermathecae mesally. Fertilization ducts short.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 6).

Ishania oaxaca new species

Figs. 58a-d, 67c, Map 6

TYPE MATERIAL: Holotype: Male: MEXICO: OAXACA: 6 miles S of Valle Nacional, 600m, 19.V.1971 (MCZ).

Paratypes: 1♂, 16♀ together with holotype; 1♀: 15 miles S Valle nacional, 1200m, 27.V.1971 (S.B. Peck) (MCZ, 1♀ in KBIN).

DIAGNOSIS: Males of this species are recognized by the slender retrolateral apophysis on the palpal tibia in combination with the transverse base of the DTA. Females are characterized by the epigyne with central groove in which the anterior part is closed and widened.

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

DESCRIPTION: *Male holotype*: Total length 3.36(3.12); carapace 1.66 long, 1.12 wide, 0.72 high.

Colour: Carapace brownish orange, margin broadly suffused with black; sternum pale. Legs yellow orange, coxae pale, distal half of Ti I white, femora suffused with black. Abdomen grey with pattern of white patches: two frontal kidney-shaped patches followed by two transverse bars and posterior patch (as in Fig. 77c); venter pale. Carapace finely reticulated, with few dark setae.

Eyes: MOQ: AW = 0.53 PW; AW = 0.32 L. A very small.

Legs: Spination: femora I d3*pl1 II d3* III-IV d3*r1l; patellae III-IV d1pl2r1l; tibiae I d1fv2-1-1 II d1fpl2*v3* III d2*pl2*r12*v1-1-2 IV d2*pl2*r12*v1-2-2; metatarsi I v1-0-2 II v2-0-2 III d1pl1-2r1l-1-2v4*+2 IV d1-2pl3*r13*v1-2-1-2.

Measurements: Pa+Ti I 1.32 II 1.13 III 1.00 IV 1.30.

Male palp (Figs. 58a-b): Tibia with two apophyses: one slender, retrolateral appearing double due to deep groove and poorly sclerotised dorsal apophysis, outgrowth of posterior margin; ventral haired swelling. Cymbium with two short apical spines, cymbial flange small. Tegulum narrow, elongate, sclerotised in retrolateral part, with swelling near base of embolus. Median apophysis membranous, with sclerotised tip. DTA with transverse, diamond-shaped basal proximal part, gutter-shaped elongate, distal part extended in opposite direction of embolus, covering it over 3/4 its length. Embolus long, slender, flexible, base directed laterad.

Female paratype: Total length 4.72; carapace 2.12 long, 1.48 wide, 1.16 high.

Colour: Carapace brown; sternum brown, suffused with black; legs orange brown, coxae and proximal half of femora pale, pro- and retrolateral distal parts of femora and tibiae suffused with black; abdomen sepia grey with pattern of 11 white patches.

Carapace reticulated.

Eyes: MOQ: AW = 0.82PW; AW = 0.67L.

Legs: Spination: femora I-II d3* III d2* IV d3*; patellae III-IV d1pl2r1l; tibiae I d1fpl1v1-0-1 II d1fpl1v2* III-IV d2*pl2*r12*v1-1-2; metatarsi I pl1v1-0-2 II pl1v2-0-2 III d1-2-2pl2*r11v2-0-2 IV d1-1-2pl3*r13*v1-2-1-2.

Measurements: Pa+Ti I 1.56 II 1.32 III 1.24 IV 1.60.

Epigyne (Figs. 58c-d, 67c): Fairly large, with longitudinal central groove, closed in front; anterior part widened. Entrance openings in front, ducts curved inwards to run closely together backwards, turning towards side joining lateral spermathecae.

DISTRIBUTION: Mexico (Oaxaca) (Map 6).

Ishania ocosingo new species

Figs. 59a-b, 67f, Map 6

TYPE MATERIAL: Holotype: Female: MEXICO: CHIAPAS: El Real, 6.VII.1950 (C. & M. Goodnight & L.J. Stannard) (AMNH).

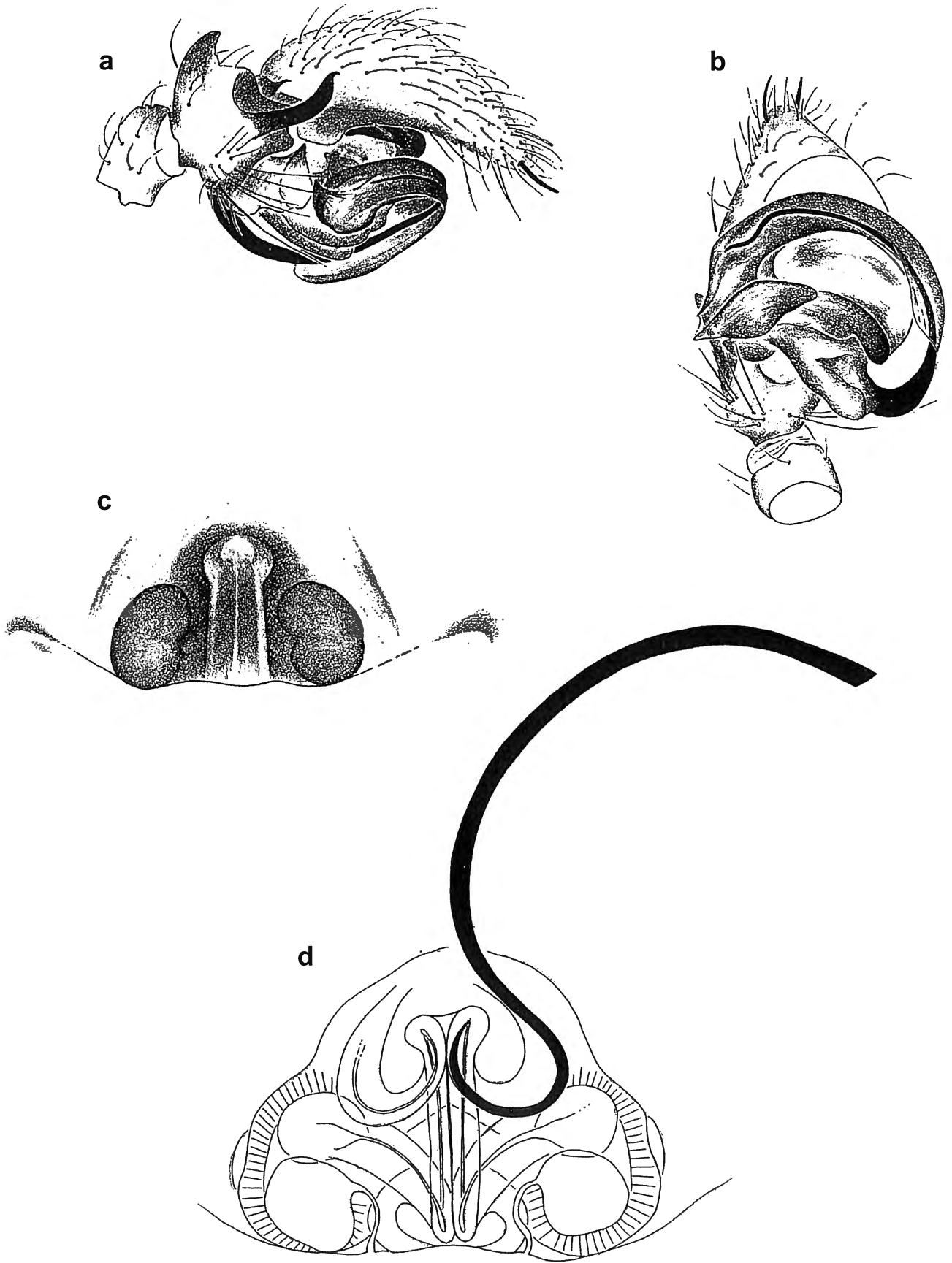
Paratype: 1♀: MEXICO: CHIAPAS: Ocosingo valley, Finca Monte Libano in tropical rainforest, 4.VII.1950 (C. & M. Goodnight & L. Stannard) (AMNH) (tube contains 1 juv.).

DIAGNOSIS: Females of this species are recognized by the shape of the central plate of the epigyne: it is rather broad and with a small, posterior, median pit.

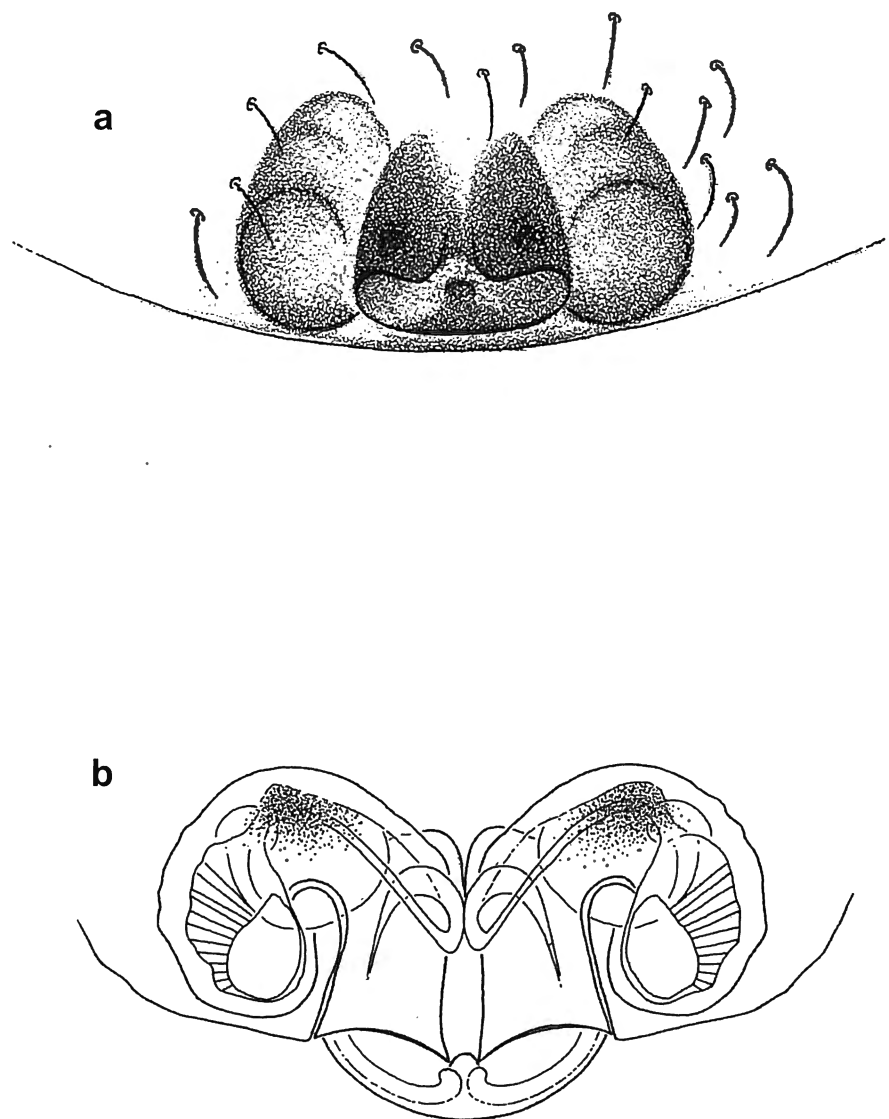
ETYMOLOGY: The specific name is a noun in apposition taken from the locality where the paratype was collected.

DESCRIPTION: *Female holotype*: Total length 3.36; carapace 1.48 long, 0.92 wide, 0.64 high.

Colour: Carapace shiny orange; area in front of fovea suffused with black. Sternum and legs orange brown. Abdomen sepia grey with faint pattern of ten white spots (as in Fig. 61c); venter pale.



Figs. 58a-d — *Ishania oaxaca*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne with detached embolus, cleared, dorsal view.



Figs. 59a-b — *Ishania ocosingo*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

Carapace reticulated.

Eyes: MOQ: AW = 0.77PW; AW = 0.71L.

Legs: Spination: femora I-II-III d2* IV d3*; patellae III-IV d1pl2r1l1; tibiae I d1fv1 II d1fv2 III d2*pl2*r1l1v3* IV d2*pl2*r1l2*v3*; metatarsi I v1-0-0 II v2-0-1 III d0-0-2pl1-0-1r1l1-0-1v2-0-2 IV d1-2-2pl1-0-1r1l0-0-1v2-1-2.

Measurements: Pa+Ti I 1.02 II 0.86 III 0.80 IV 1.10.

Epigyne (Figs. 59a-b, 67f): Fairly wide, with short median plate provided with central pit. Entrance openings at the back, just in front of central plate; entrance ducts running forward, thence turning outward to join widely separated spermathecae.

Male: Unknown.

DISTRIBUTION: Mexico (Chiapas) (Map 6).

Ishania olmek new species

Figs. 60a-d, 68a, Map 6

TYPE MATERIAL: Holotype: Male: MEXICO: VERA CRUZ: 4 miles NE of Acayuan (17°58'N 95°50'W), 27.IV.1963 (W.J. Gertsch and W. Ivie) (AMNH).

Paratypes: 1♂, 5♀ together with holotype; 1♀: Catemaco, Playa Azul (18°25'N 95°04'W), 9.VIII.1966 (J. and W. Ivie); 1♂: CHIAPAS: ca. 12 miles from Palenque, Nututun road, 20.I.1976 (C. Alteri); 6♂: Laguna Belgica, 16km NW Ocozocoautla, 970m, 31.V.1990; 11♂: 14.VI.1990 (H. and A. Howden) (AMNH, 1♂, 1♀ in KBIN).

DIAGNOSIS: Males of this species are recognized by the

shape of the frontal retrolateral apophysis on the palpal tibia. Females are characterized by the longitudinal central groove in the epigyne which is widened in front and provided with a rounded lip.

ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype:* Total length 2.96 (range of Veracruz specimens: 2.96-3.28; range of Chiapas (1990)-specimens: 4.16-5.04); carapace 1.68 long, 1.20 wide, 0.84 high.

Colour: Veracruz specimens: Carapace orange, margins broadly suffused with black; sternum pale yellow, margins with orange tinge; legs yellowish orange; trochanters white; femora: proximal half pale, distal half pro- and retrolaterally suffused with black; abdomen white with pale sepia dorsum divided in proximal and distal part by transverse white bar; apical half with pair of pale kidney-shaped spots; posterior half with two transverse white bars followed by larger white spot with grey center; venter with pair of grey spots in front of spinnerets.

Chiapas (1990)-specimens: Carapace reddish orange; legs with white trochanters, deep yellow femora and yellowish orange patellae, tibiae, metatarsi and tarsi; abdomen grey with five white spots.

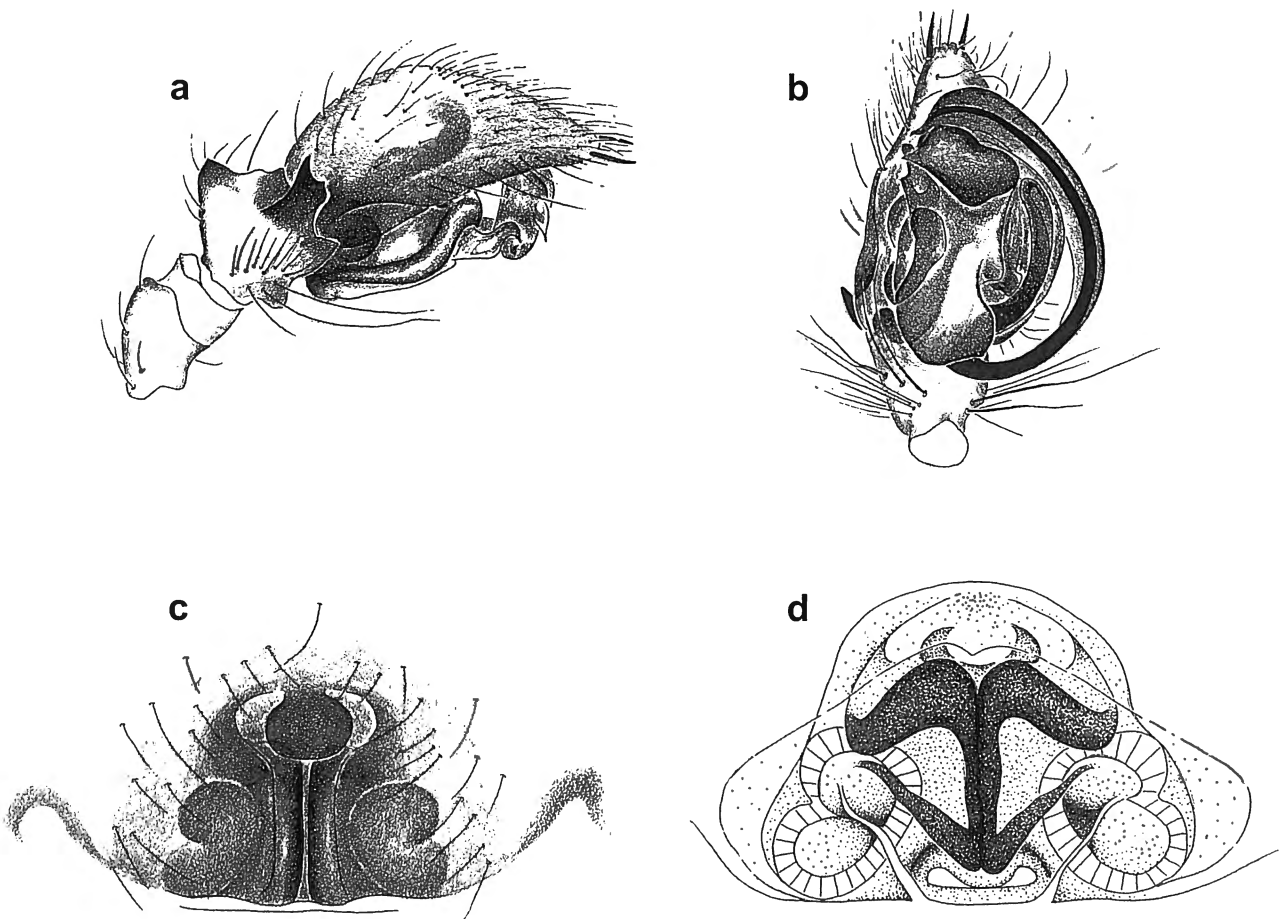
Carapace smooth to slightly reticulated.

Eyes: MOQ: AW = 0.57PW; AW = 0.62L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2r1l; tibiae I pl1v0-0-1 II pl1v1-(1)-0 III d1(2)*pl2*r1l v1-1-2 IV d2*pl2*r12*v1-1-2; metatarsi I pl1v1-1-2 II v2-1-2 III d1-2pl2*r12*v2-1-2 IV d1-2pl2*r13*v5*+2.

Measurements: Pa+Ti I 1.30 II 1.08 III 0.98 IV 1.30.

Male palp (Figs. 60a-b): Tibia with two apophyses: one poorly sclerotised, dorsal (dorsal swelling), outgrowth of posterior margin and one broad, complex, retrolateral; 12 long retrolateral hairs. Cymbium with two short apical spines, cymbial flange pointing backwards, not hidden by tibial apophysis. Tegulum elongated, retrolateral part and broad base of embolus sclerotised. Median apophysis membranous with sclerotised twisted tip. DTA in two pieces (cfr *absolutus*): distal part elongate, extended in opposite direction of embolus, covering it dorsally over 3/4 its length; with short proximal tip pointing in- and backwards (smaller and more slender than in *absolutus*);



Figs. 60a-d — *Ishania olmek*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.

proximal part massive, with sharp tapered tip, pointing inwards. Embolus long, slender, flexible, originating on posterior part of tegulum, pointing backwards, bent forwards in prolateral direction.

Female paratype: Total length 4.16 (range Veracruz specimens 2.88-4.16); carapace 1.92 long, 1.24 wide, 0.92 high.

Colour: As in male holotype but with reddish brown carapace; femora less strongly suffused with black.

Eyes: MOQ: AW = 0.56PW; AW = 0.53L.

Legs: Spination: femora I d3*pl1 II d3* III d2* IV d3*; patellae III-IV d1pl2r11; tibiae I v1-0-1 II v1-1-0 III d2*pl2*rl2*v1-1-1 IV d2*pl2*rl2*v1-1-2; metatarsi I v1-0-2 II v2-0-2 III d2-2pl2*rl1v2-1-2 IV d1-2pl3*rl3*v2-1-2.

Measurements: Pa+Ti I 1.34 II 1.14 III 1.04 IV 1.44.

Epigyne (Figs. 60c-d, 68a): Fairly large; with wide central longitudinal groove, widened and closed in front, provided with large rounded lip. Entrance openings in front; entrance ducts strongly sclerotised, curved inwards to run closely together backwards, turning towards side joining lateral spermathecae.

DISTRIBUTION: Mexico (Vera Cruz, Chiapas) (Map 6).

Ishania paxoides new species

Figs. 61a-e, 68b, Map 6

TYPE MATERIAL: Holotype: Male : MEXICO: CHIAPAS: Palenque, 2-24.III.1975 (C.H. Alteri) (AMNH).

Paratypes: 2♀ together with holotype; 1♀: Pichuacalco, 18.VII.1947 (C.J. Goodnight); 2♀: Near Grutas de Cocona, 25.VIII.1972 (Cooke, Mitchell and Russell); 2♀, juv.: Palenque, VII.1948 (C.J. Goodnight); 1♀: 13.VII.1949, further as previous; 1♂, 1♀: Ruinas de Palenque, 28.III.1974; 1C: 3.IV.1974, further as previous; 11♀: Cacao grove, 29.I.1976, further as previous; 1♂, 2♀: S of ruinas near Templo de León, rainforest trail, 24.I.1976 (C.H. Alteri); 1♀: rainforest, 100m, 25.VII.1983: 3C, 2-30.VII.1983 (S. and J. Peck, R. Anderson). 1♀: Nutuntun road, ca. 12 miles from Palenque, 20.I.1976 (C.H. Alteri); 3♀: Chacamax, river road at stream ford, 3.II.1976 (C.H. Alteri)(AMNH). HONDURAS: 2♂, 2♀, 4 juv.: Capon, El Cedro, 8.III.1939 (KBIN).

DIAGNOSIS: Males of this species are easily recognized by the shape of the palpal tibia which is high, procurved and has an extra apophysis along the anterior prolateral rim. The female has a fairly large rounded scape.

ETYMOLOGY: The specific name refers to the genus *Pax* Levy whose type species has a male palpal tibia resembling the one here described.

DESCRIPTION: *Male holotype*: Total length 2.96 (range: 2.88-3.36); carapace 1.64 long, 1.16 wide, 0.72 high.

Colour: Carapace orange, margin broadly suffused with black. Sternum pale yellow, margin with orange

tinge. Legs: coxae and proximal half of Fe yellow white; distal half of Fe and proximal tip of Ti suffused with black; remainder yellowish orange; Abdomen (Fig. 61c) pale sepia with pattern of white spots: two anterior roughly oval spots, followed by three chevrons and caudal spot; sides predominantly white, venter white with two median black spots.

Carapace reticulated.

Eyes: MOQ: AW = 0.77PW; AW = 0.72L.

Legs: Spination: femora I d3*pl1 II d3* III d2* IV d3*rl1; patellae III-IV d1pl2r11; tibiae I d1fpl3*v1-1-1 II d1fpl2*v1-1-0 III d2*pl2*rl2*v1-1(2)-2 IV d2*pl2*rl2*v1-2-2; metatarsi I pl1v1-1-2 II pl1v1-0-2 III d2-2pl1rl2*v2-0-2 IV d1-2-2pl3*rl1v1-1-1-2-2.

Measurements: Pa+Ti I 1.22 II 0.96 III 0.94 IV 1.24.

Male palp (Figs. 61a-b): Tibia with two apophyses: one small, truncated, retrolateral, one large, dorsal, curved forward, with bifid tip; six long, retrolateral setae; ventral swelling. Cymbium with two short apical spines. Tegulum ovoid, membranous. Median apophysis heart-shaped, with ventral median ridge and tooth pointing outwards. DTA bipartite: proximal part with retrolateral truncated apophysis, with double incision, directed ventrad; distal part with short retrolateral apophysis and prolateral wing extending in opposite direction of embolus over about 5/6 its length. Embolus long, slender, flexible, originating on posterior part of tegulum, directed outwards, bent over 180°.

Female paratype: Total length 3.6 (range: 2.72-3.76); carapace 1.60 long, 1.08 wide, 0.76 high.

Colour: As male but carapace brighter, legs uniform yellowish orange, abdomen with three pairs of white spots followed by transverse white bar and caudal white spot.

Eyes: MOQ: AW = 0.67PW; AW = 0.67L.

Legs: Spination: femora I-II d3* III d2* IV d3*; patellae III-IV d1pl2r11; tibiae I d1fpl1v1-0-0 II d1fpl1v1-1-0 III d2*pl2*rl2*v1-1-1 IV d2*pl2*rl2*v1-1-2; metatarsi I v1-0-2 II pl1v1-0-2 III d1-1-2pl2*rl2*v2-1-2 IV d1-2pl3*rl3*v2-1-2.

Measurements: Pa+Ti I 1.12 II 0.94 III 0.90 IV 1.20.

Epigyne (Figs. 61d-e, 68b): Fairly large, provided with rounded scape. Course of entrance ducts obscure.

DISTRIBUTION: Mexico (Chiapas) and Honduras (Map 6).

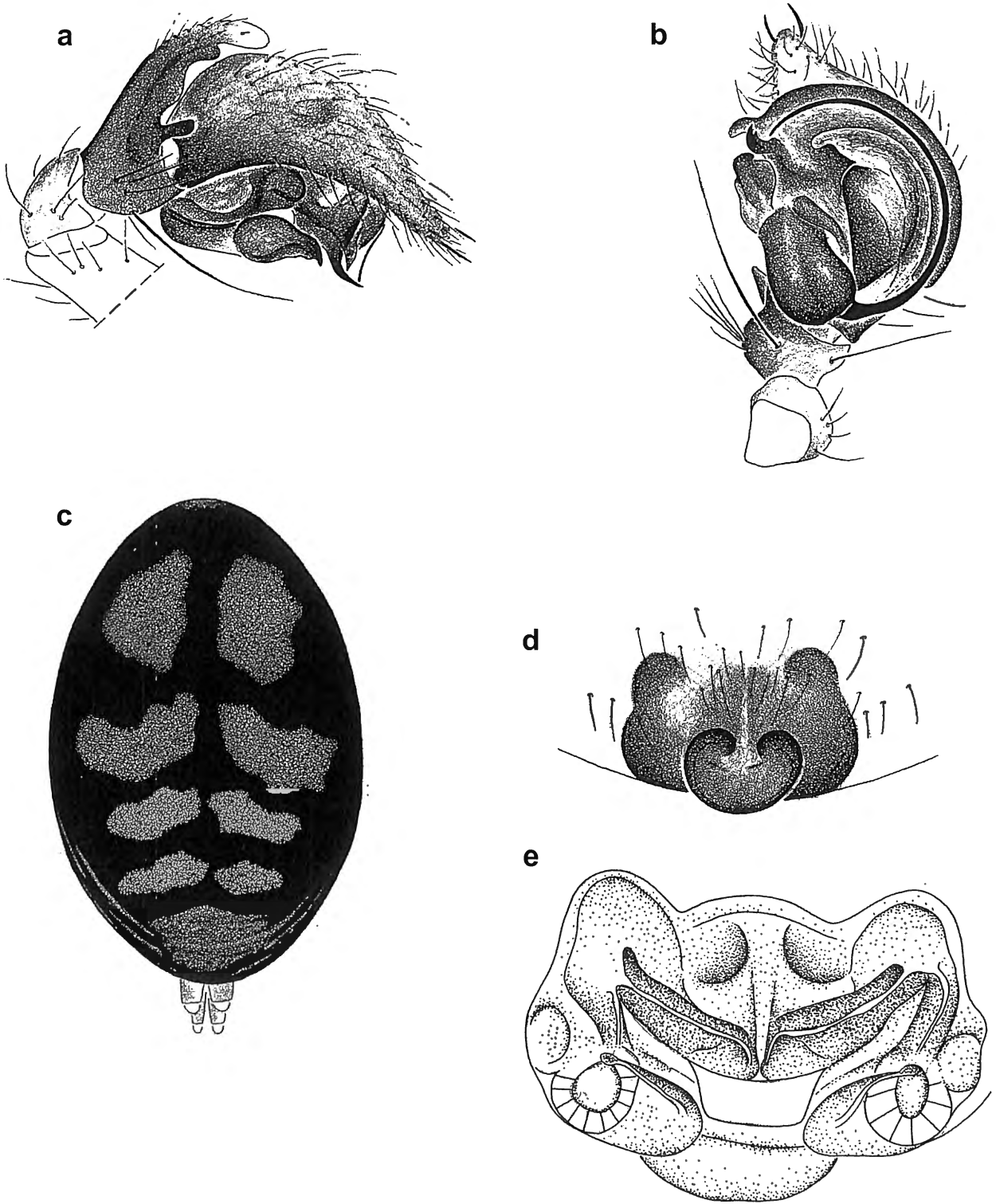
Ishania perforata new species

Figs. 62a-b, Map 6

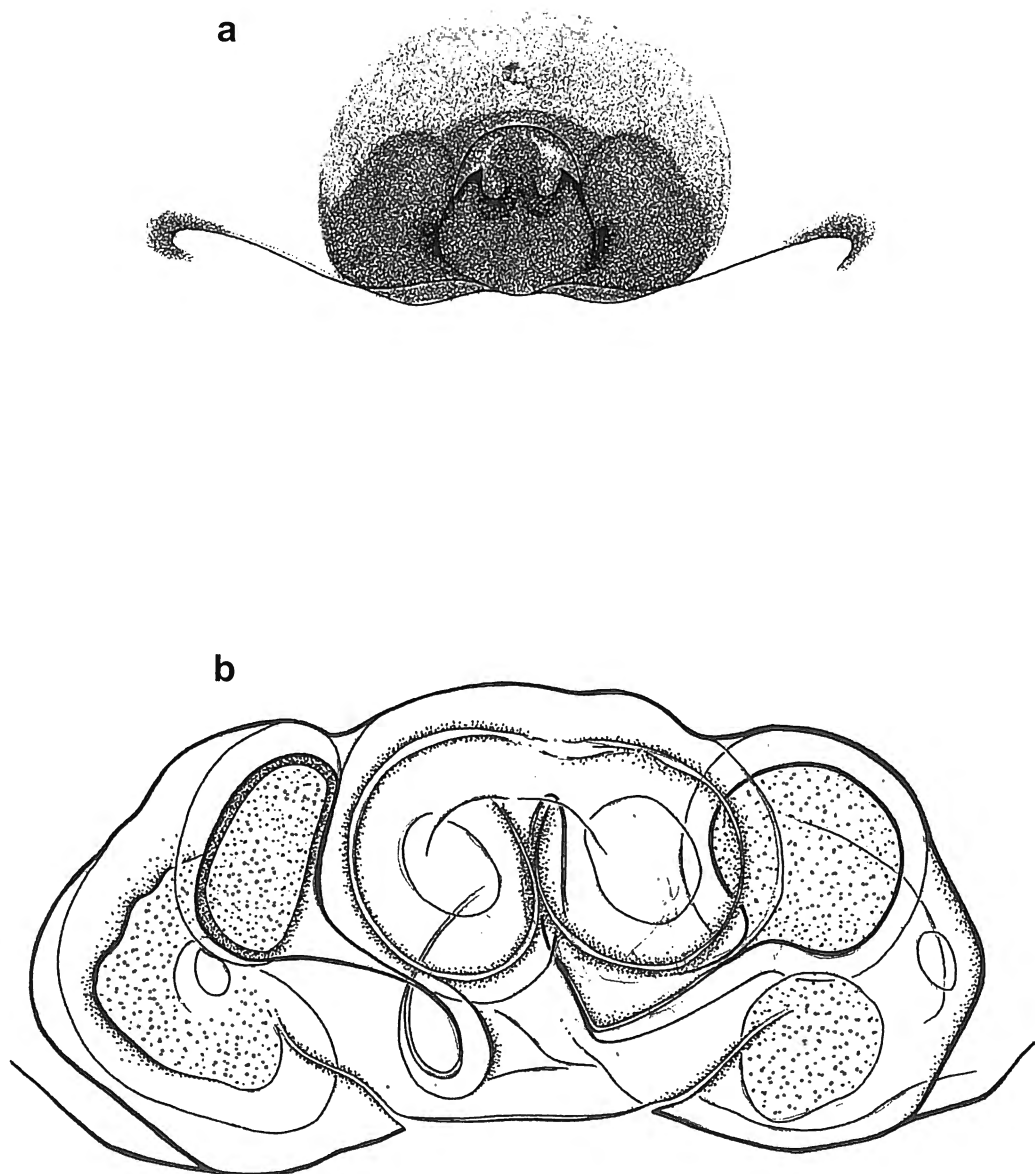
TYPE MATERIAL: Holotype: Female: GUATEMALA: Alta Verapaz, Lanquin, lowland forest, 28-30.VIII.1969 (S. & J. Peck) (AMNH).

DIAGNOSIS: Females of this species are recognized by the presence of two prominent holes in front of the central plate of the epigyne.

ETYMOLOGY: The specific name is an adjective referring



Figs. 61a-e — *Ishania paxoides*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.



Figs. 62a-b — *Ishania perforata*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

to the conspicuous holes in the anterior part of the central epigynal plate (*perforatus* is Latin for perforated).

DESCRIPTION: *Female holotype*: Total length 3.68; carapace 1.56 long, 1.04 wide, 0.72 high.

Colour: Carapace brown. Sternum light brown. Legs yellow with orange tinge, coxae lighter. Abdomen white with some faint greyish marks.

Carapace reticulated.

Eyes: MOQ: AW = 0.71PW; AW = 0.67L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2rl1; tibiae I d1fp1lv1-0-0 II d1fv1-1-0 III d2*pl2*rl1v1-1-2 IV d2*pl2*rl2*v1-1-2; metatarsi I v1-0-1 II v1-0-2 III d1pl1-2rl1-2v2-0-2 IV d1pl1-1-2rl1-2v2-1-2.

Measurements: Pa+Ti I 1.08 II 0.91 III 0.88 IV 1.18.

Epigyne (Figs. 62a-b): Prominent transverse sclero-

tised area with central plate with rounded corners, in front with two prominent perforations; depression well delimited in front. Entrance openings central. Entrance ducts entering into strongly constricted spermathecae mesally. Fertilization ducts long.

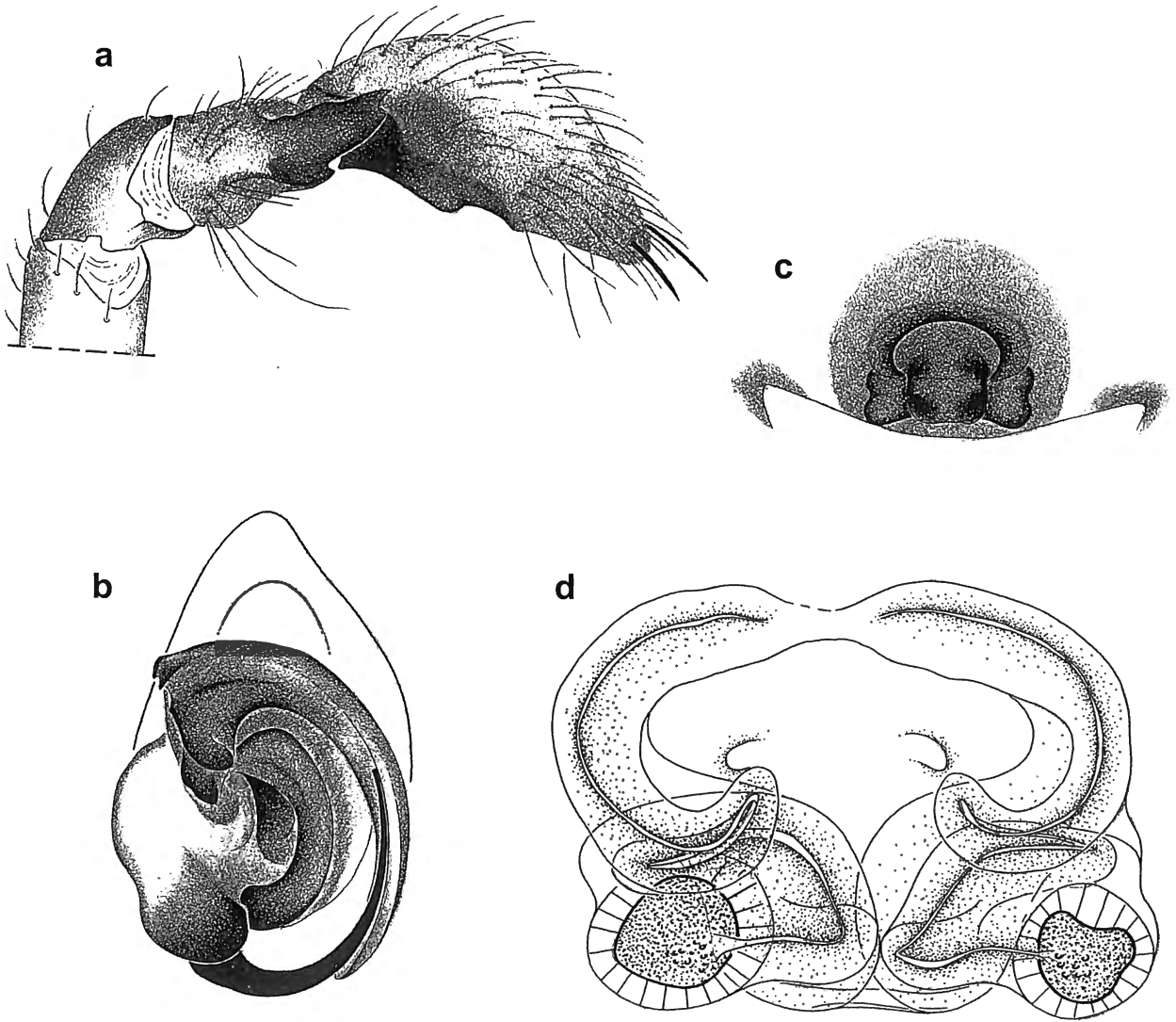
Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 6).

Ishania protecta new species

Figs. 63a-d, Map 6

TYPE MATERIAL: Holotype: Male: MEXICO: OAXACA: 32mi S of valle Nacional, 2300m, 22.V.1971 (S.B. Peck) (MCZ).



Figs. 63a-d — *Ishania protecta*. **a.** Right male palp, retrolateral view. **b.** Male palp, ventral view. **c.** Epigyne, ventral view. **d.** Epigyne, cleared, dorsal view.

Paratypes: 3♀: together with holotype.

DIAGNOSIS: Males of this species are easily recognized by the strong swelling near the base of the embolus, the double appendage of the proximal part of the DTA and the tiny, spine-shaped median apophysis; the female epigyne is characterized by the large depression, slightly narrowed towards the back.

ETYMOLOGY: The specific name is an adjective (Latin *protectus* = protected) referring to the type locality which is apparently a protected area.

DESCRIPTION: *Male holotype:* Total length 4.64; carapace 2.40 long, 1.64 wide, 1.08 high.

Colour: Carapace brown. Sternum yellowish orange, margins broadly suffused with black. Legs yellow with orange tinge, Fe yellow in proximal half, suffused with black in distal half, Pa and Ti slightly suffused with black. Abdomen grey with faint white pattern of two anterior spots, three broken chevrons and three caudal bars (as in Fig. 61c); venter grey.

Carapace finely reticulated.

Eyes: MOQ: AW = 0.67PW; AW = 0.67L.

Legs: Spination: femora I d3*pl1 II d3* III-IV d3*r11; patellae III-IV d1pl2r11; tibiae I d1fv1-(1)-1-1 II d1fpl2*v1-1-0 III-IV d2*pl2*r12*v1-2-2; metatarsi I pl1v2-2-2 II pl1-2v2-1-2 III d1-2pl2*r13*v3-2-2 IV d1-2pl3*r13*v2-3-2.

Measurements: Pa+Ti I 1.92 II 1.62 III 1.50 IV 1.86.

Male palp (Figs. 63a-b): Cymbium with two short apical spines. Tibia with broad retrolateral apophysis with tip curved upwards; strong dorsal spine directed prolaterad; ventral side flat with row of seven strong hairs. Tegulum elongate sclerotised in caudal half, membranous in frontal half, with strong swelling near base of embolus. Median apophysis inconspicuous with sharp tip, appressed against DTA. DTA with long extension in opposite direction of embolus, following it over slightly more than 1/2 its length. Embolus short and slender, originating on posterior part of tegulum.

Female paratype: Total length 5.60 (range: 5.04-6.08); carapace 2.72 long, 1.68 wide, 1.16 high.

Colour: Carapace orange brown with lighter area in front of fovea. Sternum orange brown. Legs yellow with orange tinge, Fe yellow in proximal half. Abdomen mottled with grey; dorsum with pale pattern: two spots in front followed by three broken chevrons, one full chevron, one caudal spot.

Carapace finely reticulated.

Eyes: MOQ: AW = 0.73PW; AW = 0.64L.

Legs: Spination: femora I d3* II-III d2* IV d3*; patellae III-IV d1pl2r11; tibiae I d1fpl1v1-0-0 II d1fv1-1-0 III d2*pl2*r11v1-1-2 IV d2*pl3(2)*r12(3)*v1-1-2; metatarsi I-II v1-0-2 III d1-2-2 pl2*r11v1-1-2 IV d1-1-2pl2*r13*v2-3-2.

Measurements: Pa+Ti I 1.92 II 1.64 III 1.56 IV 1.98.

Epigyne (Figs. 63c-d): With large central depression slightly narrowed towards the back; large rectangular

posterior plate. Entrance openings frontal. Entrance ducts long, with extra loops, entering globular spermathecae mesally.

DISTRIBUTION: Only known from type locality (Map 6).

Ishania querci new species

Figs. 64a-b, Map 5

TYPE MATERIAL: Holotype: Female: MEXICO: PUEBLA: 24km N of Xicotepec de Juarez, 1070m, oak forest, 17.VI.1983 (R. Anderson) (AMNH) (tube also contains 1sa♂ and 1 juv.).

DIAGNOSIS: Females of this species are recognized by the epigyne with posterior central anchoring hole.

ETYMOLOGY: The specific name refers to the habitat in which the holotype was found, rather unusual for a zodariid (*quercus* is Latin for oak).

DESCRIPTION: *Female holotype:* Total length 4.16; carapace 1.76 long, 1.08 wide, 0.76 high.

Colour: Carapace brown, sternum light brown. Legs yellow with orange tinge. Abdomen with fading color.

Carapace reticulated; with dorsal row of ten setae running from fovea to eye area. Chelicerae setose.

Eyes: MOQ: AW = 0.60PW; AW = 0.53L.

Legs: Spination: femora I-IV d3*; patellae III-IV d1pl2r11; tibiae I d1fv1-0-0 II d1fpl2(1)v1-1-0 III d3*pl2*r11v1-1-1 IV d3*pl2*r12*v1-1-2; metatarsi I-II v1-0-2 III d1-2-2pl2*r12*v2-0-2 IV d0-1-2pl2*r13*v2-0-2.

Measurements: Pa+Ti I 1.20 II 1.02 III 0.98 IV 1.26.

Epigyne (Figs. 64a-b): Rather large. Posterior part with central anchoring hole. Frontal part, unclear, slightly bulging; probably a plugged transverse depression (see *T. mixtek*). Entrance openings frontal. Entrance ducts with parallel stretches. Spermathecae large and globular. Fertilization ducts short.

Adult male: Unknown.

DISTRIBUTION: Only known from type locality (Map 5).

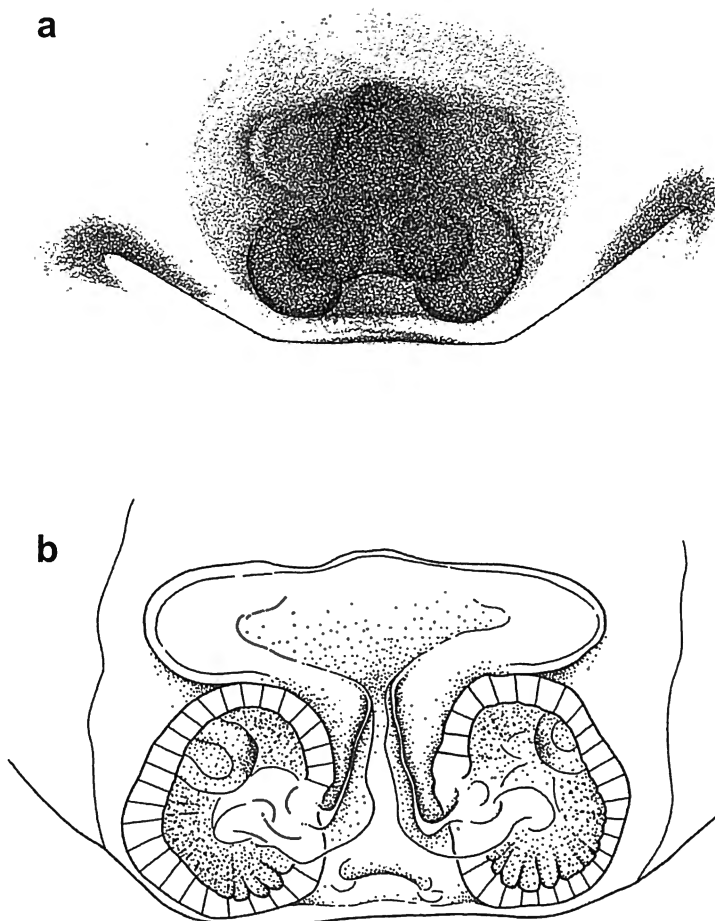
Ishania real new species

Figs. 65a-b, Map 5

TYPE MATERIAL: Holotype: Female: MEXICO: CHIAPAS: El Real, 6.VII.1950 (C. & M. Goodnight & L. Stannard) (AMNH).

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

DIAGNOSIS: Females of this species are similar to those of *T. ocosingo* with which they occur together. In *T. real* the epigyne differs by the presence of a structure, in fact the



Figs. 64a-b — *Ishania querci*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

entrance openings and the first part of the entrance ducts, between the central plate and the spermathecae; the pit in the central plate is transverse and less well delimited.

DESCRIPTION: *Female holotype*: Total length 3.52; carapace 1.32 long, 0.88 wide, 0.56 high.

Colour: Carapace orange with paler spot in front of fovea. Sternum and legs yellowish orange. Abdomen sepia with nine white spots on dorsum (as in Fig. 61c); venter whitish; sides with sepia bar.

Eyes: MOQ: AW = 0.67PW; AW = 0.57L.

Legs: Spination: femora I-II & IV d3* III d2*; patellae III-IV d1pl2r1l1; tibiae I-II v2 III d2*pl2*r1l1v2* IV d2*pl2*r1l2*v1-1-2*; metatarsi II v1-0-2 III d0-1-2pl2*r1l0-0-1v0-0-2 IV d2*pl1-1-2r1l1-1-2v2-1-2.

Measurements: Pa+Ti I 0.92 II 0.76 III 0.74 IV 1.00.

Epigyne (Figs. 65a-b): Fairly large, with short central plate near posterior border, provided with transverse central depression. Entrance openings apparently frontal, with sclerotised atrium. Entrance ducts with extra loops entering kidney-shaped spermathecae mesally. Fertilization ducts short, open in frontal part of spermathecae.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 5).

Ishania relativa new species

Figs. 66a-d, 68c, Map 5

TYPE MATERIAL: Holotype: Male: MEXICO: CHIAPAS: Palenque, 2-24.III.1975 (C.H. Alteri) (AMNH).

Paratypes: 1♂, 1♀ together with holotype; 1♀: Las ruinas de Palenque, VII.1948 (C. and M. Goodnight) (KBIN); 1♀, 3 juv.: 0.8km N of ruinas de Palenque, 25.VII.1973 (J. Reddell and R.W. Mitchel); 1♀, 4 juv.: 100km SE of Palenque, Bonampak road, rainforest, 230m; 8.VI.1983; 1♀: 8.VII.1983: 2C, 37 juv.; Palenque, 100m, 2-5.VII.1983, (S. and J. Peck); 4♀: Chacamax, River road, at stream ford, 3.II.1976 (C. Alteri) (AMNH).

DIAGNOSIS: Males of this species are easily recognized by the peculiar palpal tibia with three apophyses of which the most proximal stands out at a right angle and the distal retrolateral is truncated. Females are characterized by the wide epigyne with broad central plate of which the posterior margin is slightly concave.

ETYMOLOGY: The specific name is a reflection to the name of the related species *T. absolutus* that was described as *Storena absoluta*!

DESCRIPTION: *Male holotype*: Total length 2.96; carapace 1.48 long, 1.04 wide, 0.68 high.

Colour: Carapace orange, sides strongly suffused with black. Sternum pale yellow. Legs: coxae and proximal half of Fe pale yellow, remainder yellow with orange tinge. Abdomen: pale sepia with two white oval spots, followed by two white chevrons and one caudal spot (as in Fig. 77c); sides with triangular spot near posterior end; venter white with a pair of small median spots; venter with orange area with 20 short spines roughly arranged in two rows.

Carapace reticulated.

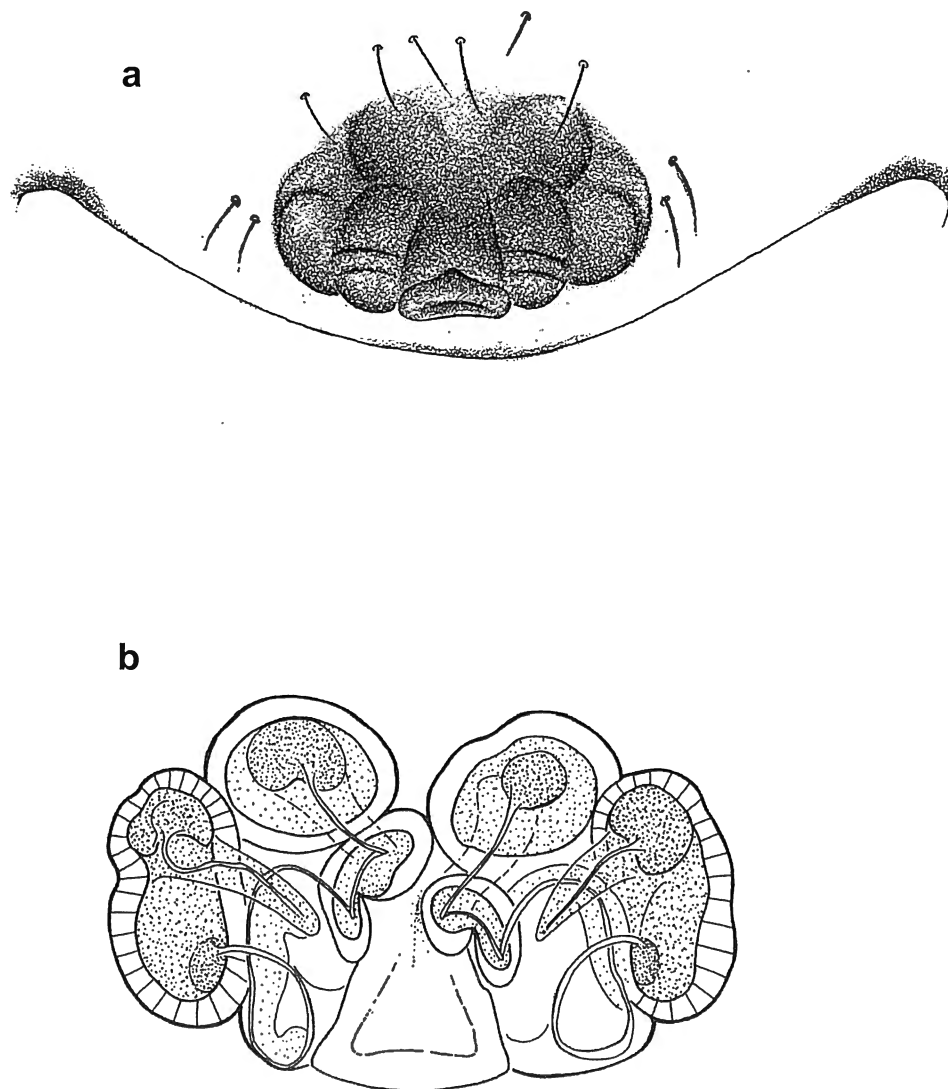
Eyes: MOQ: AW = 0.79PW; AW = 0.79L.

Legs: Spination: femora I-II d3*pl1 III d3* IV d3*pl1;

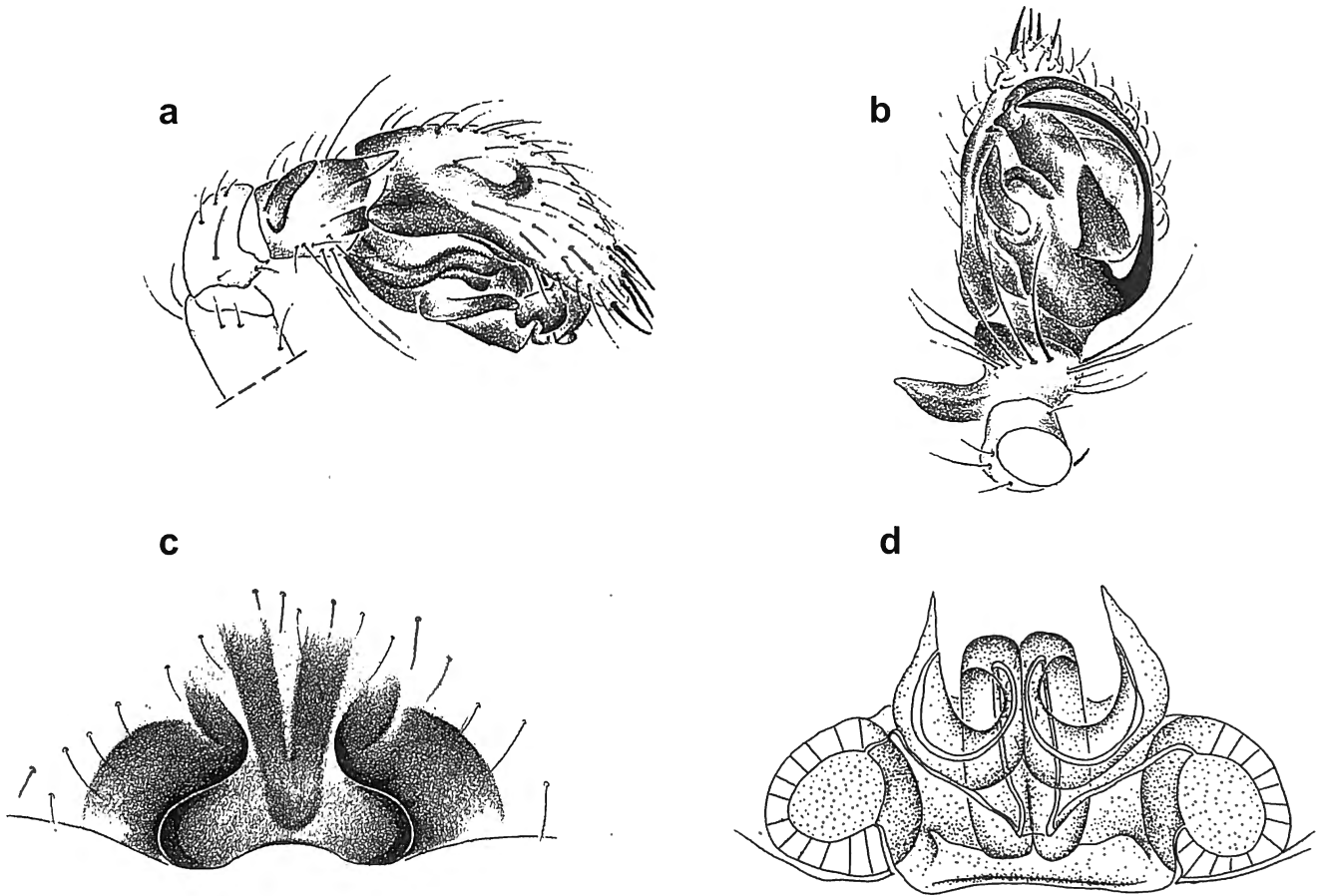
patellae III-IV d1pl2r11; tibiae I d1fpl3*v1-2-2 II d1fpl3*v1-1-2 III d2*pl2*r12*v1-2-2 IV d2*pl2*r12*v2-2-2; metatarsi I pl2*v2-2-2 II pl1-2v2-2-2 III d1-2pl2*r12*v2-2-2 IV d1-2pl2*r13*v2-2-2.

Measurements: Pa+Ti I 1.16 II 0.94 III 0.90 IV 1.20.

Male palp (Figs. 66a-b): Apical margin of tibia concave fitting over convex posterior edge of cymbium; with row of five long prolateral and row of five long ventral setae; three apophyses: one sharply pointed dorsal, one large retrolateral standing out at almost right angle, one truncated ventrolateral. Cymbium with six short apical spines; flange slightly swollen in front of tibial apophysis. Tegulum elongate, in slightly oblique position, with swelling near base of embolus. Median apophysis membranous at base, with slightly hooked, sclerotised tip. DTA one piece: proximal inverted triangular plate running in dorsal direction at apex, distal part developed in opposite direction (prolaterally) of embolus over half its length.



Figs. 65a-b — *Ishania real*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.



Figs. 66a-d — *Ishania relativa*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.

Embolus long, slender, flexible, originating on posterior prolateral part of tegulum, base directed laterad, curved over 90° running along DTA.

Female paratype: Total length 2.72 (range: - 4.16); carapace 1.52 long, 1.04 wide, 0.68 high.

Colour: As male but carapace uniform orange, sternum yellowish orange, abdomen with third white chevron.

Eyes: MOQ: AW = 0.79PW; AW = 0.69L.

Legs: Spination: femora I-II d2* III-IV d3*; patellae III-IV d1pl2rl1; tibiae I d1fpl1v1-0-0 II d1fpl1v1-1-0 III d2*pl2*rl2*v1-1-1 IV d2*pl2*rl2*v1-1-2; metatarsi I v1-0-2 II pl1v2-0-2 III d2-2pl2*rl1v2-0-2 IV d2-2pl2*rl1v2-1-2.

Measurements: Pa+Ti I 1.04 II 0.86 III 0.82 IV 1.10.

Epigyne (Figs. 66c-d, 68c): Fairly wide, with broad central plate with concave posterior margin. Entrance openings in front; ducts running towards the centre, thence backwards, making sharp turn near posterior end to run into large, globular, widely separated spermathecae.

DISTRIBUTION: Mexico (Chiapas) (Map 5).

Ishania simplex new species

Figs. 69a-c, Map 5

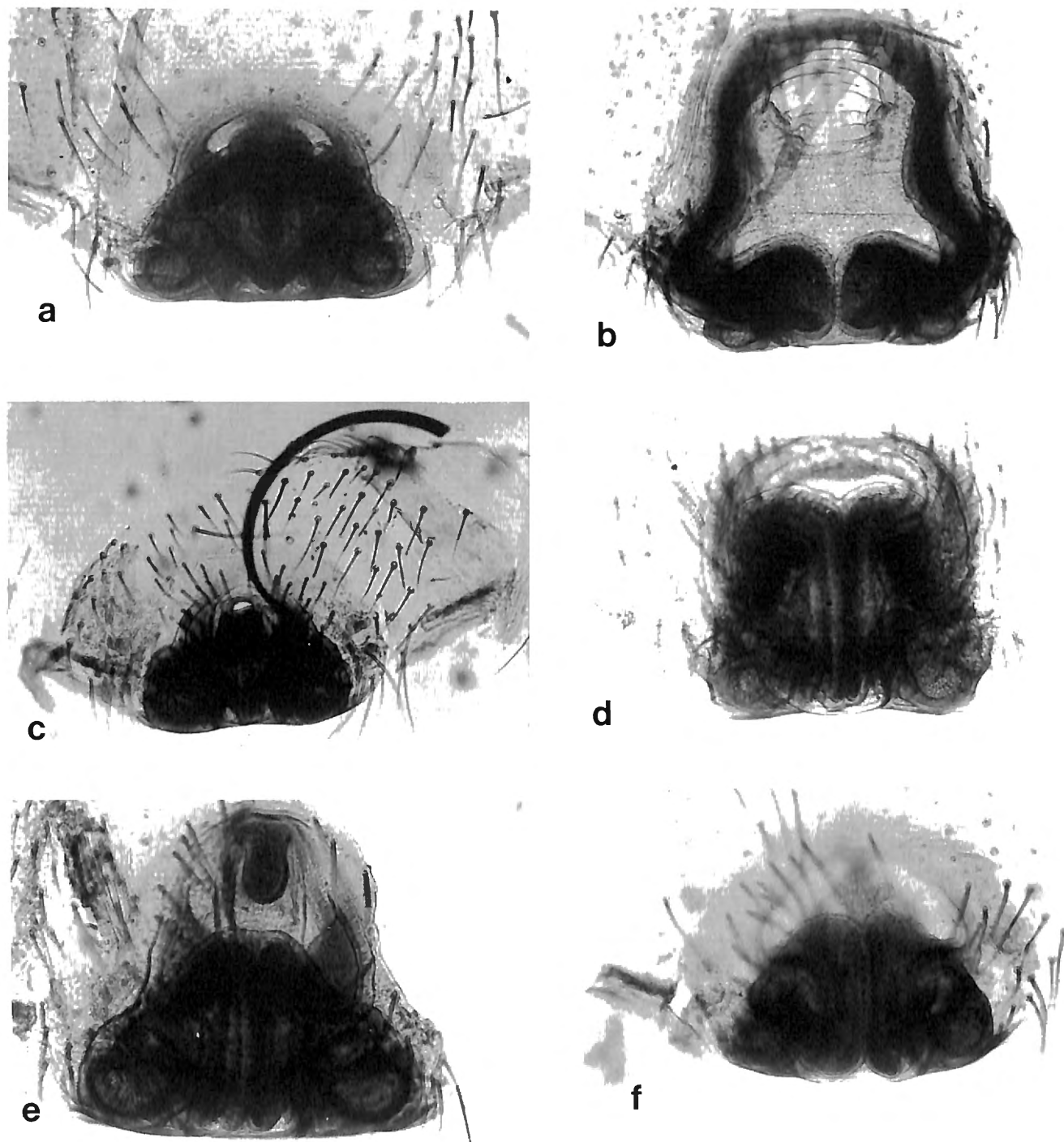
TYPE MATERIAL: Holotype: Female: MEXICO: TAMAULIPAS: Resumidero del Gineo, 7.V.1971 (W. Elliott) (AMNH).

DIAGNOSIS: Females of this species are easily recognized by the epigyne with large subquadrangular plate.

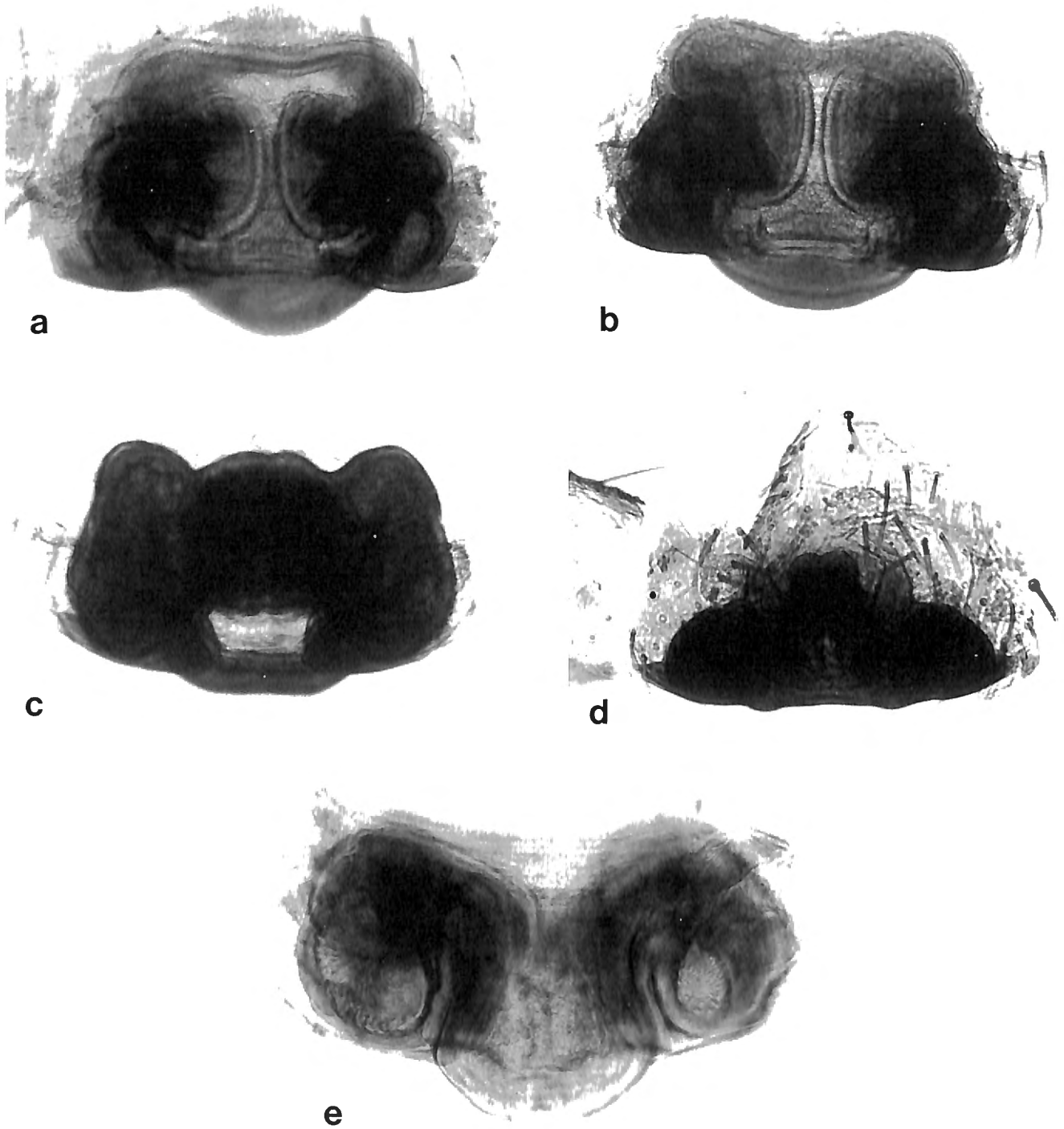
ETYMOLOGY: The specific name (*simplex* is Latin for simple) obviously refers to the structure of the epigyne and the abdominal pattern.

DESCRIPTION: *Female holotype*: Total length 3.84; carapace 1.84 long, 1.16 wide, 0.80 high.

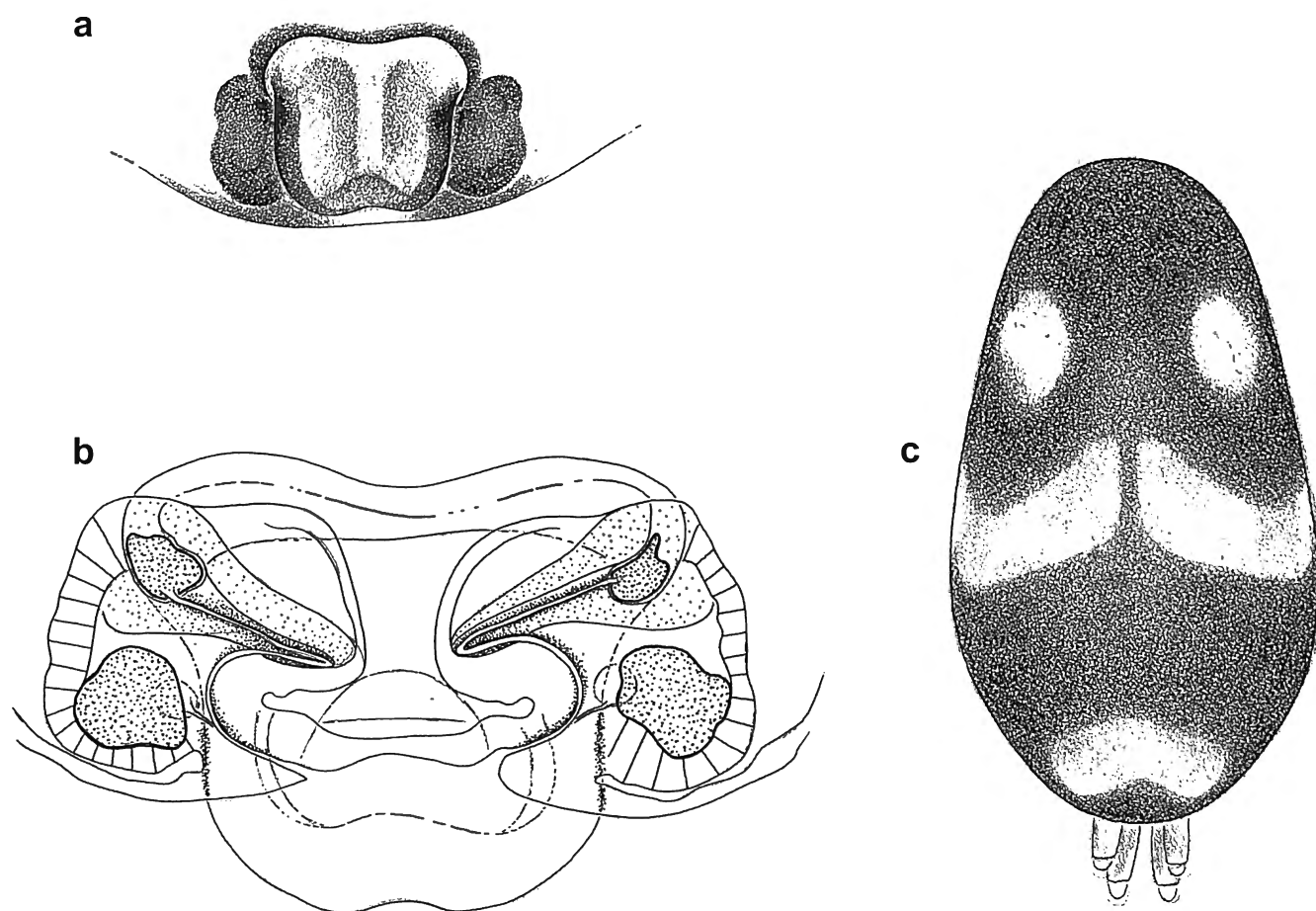
Colour: Carapace dark brown, area in front of fovea suffused with black. Sternum and legs yellow with orange-green tinge, coxae pale. Abdomen (Fig. 69c) black with caudal and frontal white spots and large median transverse chevron; venter white; sides pale with one frontal and two caudal grey bars.



Figs. 67a-f — Cleared epigynes, dorsal view. **a.** *Ishania absoluta*. **b.** *Ishania aztek*. **c.** *Ishania chichimek*. **d.** *Ishania mixtek*. **e.** *Ishania oaxaca*. **f.** *Ishania ocosingo*.



Figs. 68a-e — Cleared epigynes, dorsal view. a. *Ishania olmek*. b. *Ishania paxoides*. c. *Ishania totonak*. d. *Ishania relativa*. e. *Ishania zapotek*.



Figs. 69a-c — *Ishania simplex*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view. c. Abdomen, dorsal pattern.

Carapace strongly reticulated.

Eyes: MOQ: AW = 0.80PW; AW = 0.63L.

Legs: Spination: femora I-IV d3* patellae III-IV d1pl2r1l; tibiae I d1fv2-0-1 II d1fp1lv1-1-0 III d2*pl2*rl2*v1-1-2 IV d2*pl2*rl2*v1-2(0)-2; metatarsi I v1-0-2 II pl1v1-0-2 III d1pl1-2r1l-2v1-1-2 IV d3*pl3*rl3*v2-2-2.

Measurements: Pa+Ti I 1.24 II 1.08 III 1.00 IV 1.42.

Epigyne (Figs. 69a-b): A large subquadrangular plate fitting in frontal depression. Entrance openings frontal, widely separated. Entrance ducts entering frontal part of kidney-shaped spermathecae mesally. Fertilization ducts long.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 5).

Ishania tarask new species

Figs. 70a-e, Map 5

TYPE MATERIAL: Holotype: Male: MEXICO: OAXACA:

10 miles NW of Tamazulapam (17°44'N 97°42'W), 1.V.1963 (W.J. Gertsch and W. Ivie) (AMNH).

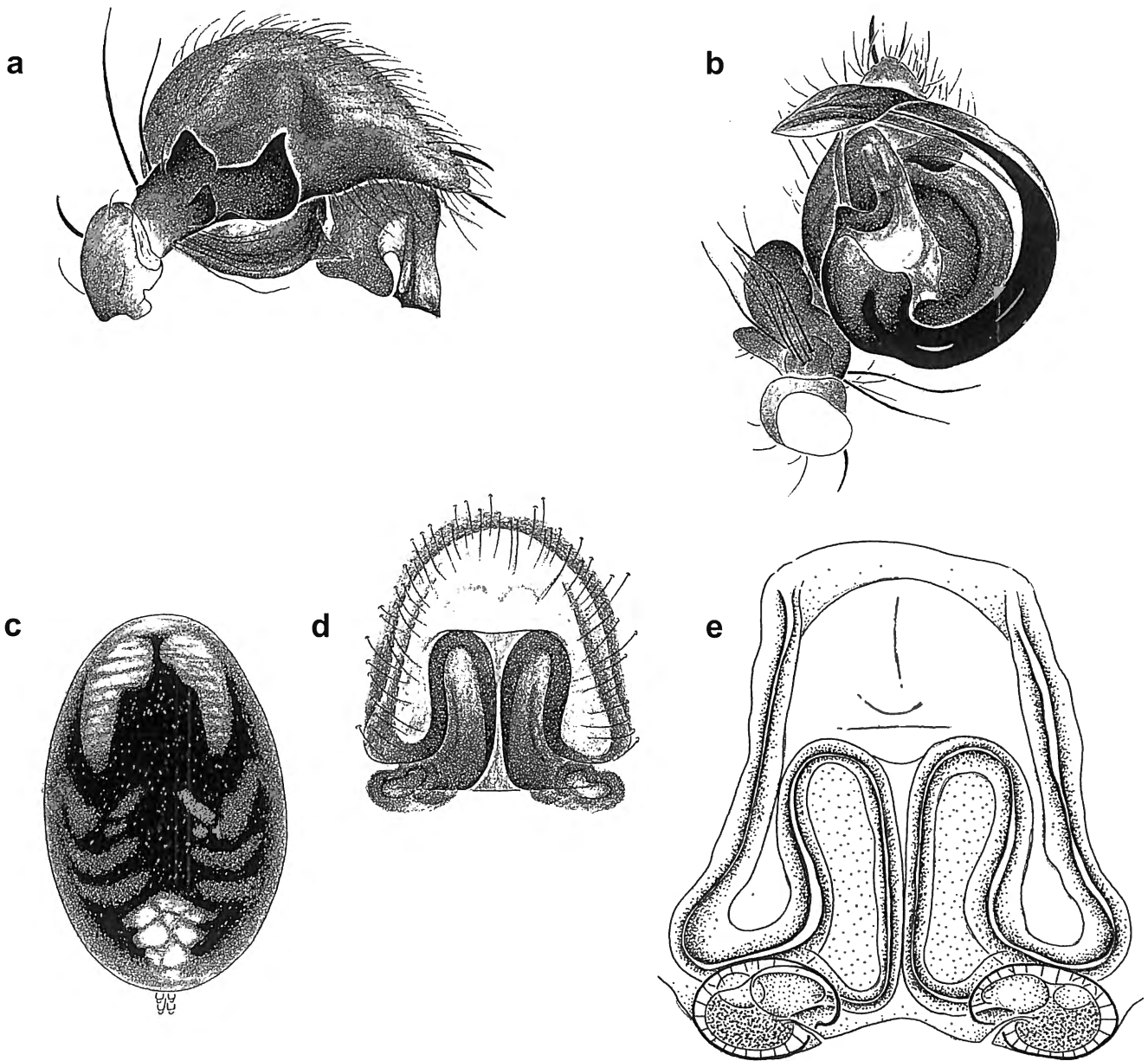
Paratypes: 1♂, 1♀ together with holotype; 1♂: Mitla, 1962-63 (W.R. Miller)(KBIN).

DIAGNOSIS: Males are recognized by the complex palpal tibia with three retrolateral apophyses, the most distal one is broad and has an upwards curved tip. The retrolateral part of the DTA is very large. Females are characterized by the large depression with rounded anterior margin.

ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype*: Total length 4.80 (range 3.76-5.12); carapace 2.44 long, 1.72 wide, 1.04 high.

Colour: Carapace orange brown, margin strongly suffused with black. Sternum pale yellow with orange tinge. Legs yellowish orange, femora strongly suffused with black. Abdomen (Fig. 70c) grey to black with two frontal



Figs. 70a-e — *Ishania tarask*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.

kidney-shaped and one caudal triangular white spots with in between three pairs of procurved white bars; venter white.

Carapace reticulated, with sparse, short black setae.

Eyes: MOQ: AW = 0.74PW; AW = 0.70L.

Legs: Spination: femora I-II d3*pl1 III-IV d3*pl1r11; patellae III-IV d1pl2r11; tibiae I d1fpl3*v2-2-2 II d1fpl3*v1-2-2 III d3*pl3*r13*v1(2)-2-2 IV d3*pl3*r13*v2-2-2; metatarsi I pl2*v2-2(1)-2 II pl2*v2-2-2 III d1-1-2pl3*r13v2-2-2 IV d2-1-2pl3*r13*v2-1-2-2.

Measurements: Pa+Ti I 2.00 II 1.70 III 1.52 IV 2.10.

Male palp (Figs. 70a-b): Tibia with two apophyses: one broad, complex, retrolateral; one small, dorsal, separated

from retrolateral by inconspicuous groove; ventrolateral group of eight long hairs. Cymbium with two apical short spines, cymbium and tibia interconnected: posterior end of cymbium lying against prolateral side of tibia. Cup-shaped subtegulum strongly sclerotised, reticulated (fine annuli). Tegulum extremely small. Median apophysis very small, triangular, membranous, lying just adjacent to DTA on distal retrolateral part of tegulum. DTA bifid: proximal thumb-shaped part distal, retrolateral part of tegulum, ventral part membranous but gradually more strongly sclerotised (running in dorsal direction) towards distal tip; distal part split in retrolaterad and prolaterad directed wings; prolateral wing extended in opposite

direction of embolus over slightly more than half its length. Embolus rigid, with broad base, originating on posterior prolateral part of tegulum, curved forward to join proximal wing of DTA.

Female paratype: Total length 3.6; carapace 1.84 long, 1.20 wide, 0.76 high.

Colour: As in male but carapace brown in cephalic part and paler yellow in thoracic part; with striae and margins (narrower than in male) suffused with black; sternum pale yellow with very narrow black margin; femora distally somewhat suffused with black at prolateral side.

Clypeus with series of long hairs roughly arranged in two transverse rows (less obvious in ♂).

Eyes: MOQ: AW = 0.56PW; AW = 0.50L.

Legs: Spination: femora I-II d3*pl1 III-IV d3*pl1r1l1; patellae III-IV d1pl2r1l1; tibiae I d1fpl1v1(r)-1(r)-1(p) II d1fpl2*v3*(r) III d3*pl3*r13*v1-2-2 IV d3*pl3*r13*v2-2-2; metatarsi I v1-0-2 II pl1v2-0-2 III d1-1-2pl2*r12*v2-1-2 IV d1-1-2pl3*r13*v2-1-2.

Measurements: Pa+Ti I 1.30 II 1.12 III 1.08 IV 1.46.

Epigyne (Fig. 70d-e): Broad depression with rounded anterior margin. Entrance openings lateral. Entrance ducts long, with long parallel stretches entering small, kidney-shaped, caudal spermathecae mesally.

DISTRIBUTION: Mexico (Oaxaca) (Map 5).

Ishania tentativa CHAMBERLIN, 1925
Figs. 71a-e

Ishania tentativa CHAMBERLIN, 1925: 224 (descr. ♂); JOCQUÉ, 1991: 60; JOCQUÉ & UBICK, 1991:243 (descr. ♂).

TYPE MATERIAL: Holotype male: Costa Rica, from stomach of toad! (MCZ 1289) (examined).

OTHER MATERIAL EXAMINED: COSTA RICA: 1♂ 1♀: Province of LIMON: 1X1C: Cacaotal Viejo, alt. of 120m, 11.IX.1998 (leg. C.Vigues, G. Chaubs, P. Jordan).

DIAGNOSIS: This species is recognized by the distally rounded RTA of the male palp, the female by inverted roughly triangular plate in front of the epigyne.

DESCRIPTION (specimen from Cacaotal Viejo): Total length 2.23, carapace 1.18 long, 0.80 wide, 0.50 high.

Colour: Prosoma orange with margins suffused with black; sternum pale yellow with margins suffused with black; legs: yellowish orange; femora suffused with black; coxae white; 3/4 of Ti I white; abdomen sepia with pattern of five white patches, venter white.

Eyes: MOQ: AW = 0.80PW; AW = 0.60L.

Legs: Spination: femora I-IV d1; patellae III-IV d1pl2r1l1; tibiae I d1 II d1v0-1-0 III d2*pl2*r11v0-1-0 IV d2*pl2*r12*v1-1-1; metatarsi III d0-2-2v2-0-2 IV d0-1-1pl0-1-1r1l1-1v2-1-2.

Measurements: Pa+Ti I 0.88 II 0.74 III 0.64 IV 0.88.

Male palp: Cymbium with two apical spines. Cymbial flange unmodified. Tibia with broad retrolateral apophysis. Tegulum small. Median apophysis flat, oval, membranous with small curled tip. DTA extending in opposite direction of embolus over most of its length. Embolus long, slender and originating laterad.

Female: Total length 2.85, carapace 1.05 long, 0.75 wide, 0.53 high.

Colour: Prosoma chestnut brown; sternum yellow, margins suffused with black; legs yellow orange, coxae white, femora suffused with black, Ti suffused with black in proximal part; dorsum of abdomen sepia with pattern of five patches, venter white.

Eyes: MOQ: AW = 0.80PW; AW = 0.60L.

Legs: Spination: femora I-IV d1; patellae III-IV d1pl2r1l1; tibiae I-II d1 III d2*pl2*r11v0-1-0 IV d2*pl2*r11v1-1-1; metatarsi III d0-0-2pl0-0-1r10-0-1v1-0-2 IV d0-2-2pl0-0-1r10-0-1v1-0-2.

Measurements: Pa+Ti I 0.80 II 0.66 III 0.64 IV 0.84.

Epigyne (Figs 71 d-e): in front with rough(ly) triangular plate with slight(ly) concave frontal margin.. Entrance openings in front, at origin of wound entrance ducts leading into huge lateral spermathecae.

DISTRIBUTION: Costa Rica.

Ishania tinga (F. O. P.-CAMBRIDGE) new combination
Fig. 72a, Map 5

Storena lauta O. P.-CAMBRIDGE 1898: 279 (descr. ♀)

Storena tinga: F. O. P.-CAMBRIDGE 1899: 54 (nomen novum pro *lauta*)

Tenedos tinga: JOCQUÉ 1991: 94 (descr. ♀)

TYPE MATERIAL: Holotype: Female: MEXICO: Amula in Guerrero (H. H. Smith) (NHM) (examined).

DIAGNOSIS: Females are recognized by the epigyne in which the central plate has a central part.

DESCRIPTION: *Female holotype*: total length: 5.79; carapace 2.71 long, 1.71 wide.

Colour; carapace, chelicerae and sternum orange brown; legs yellowish orange; abdomen dark grey with pale pattern; venter pale with some darker mottling.

Eyes: MOQ: AW = 0.62 PW: AW = 0.59L.

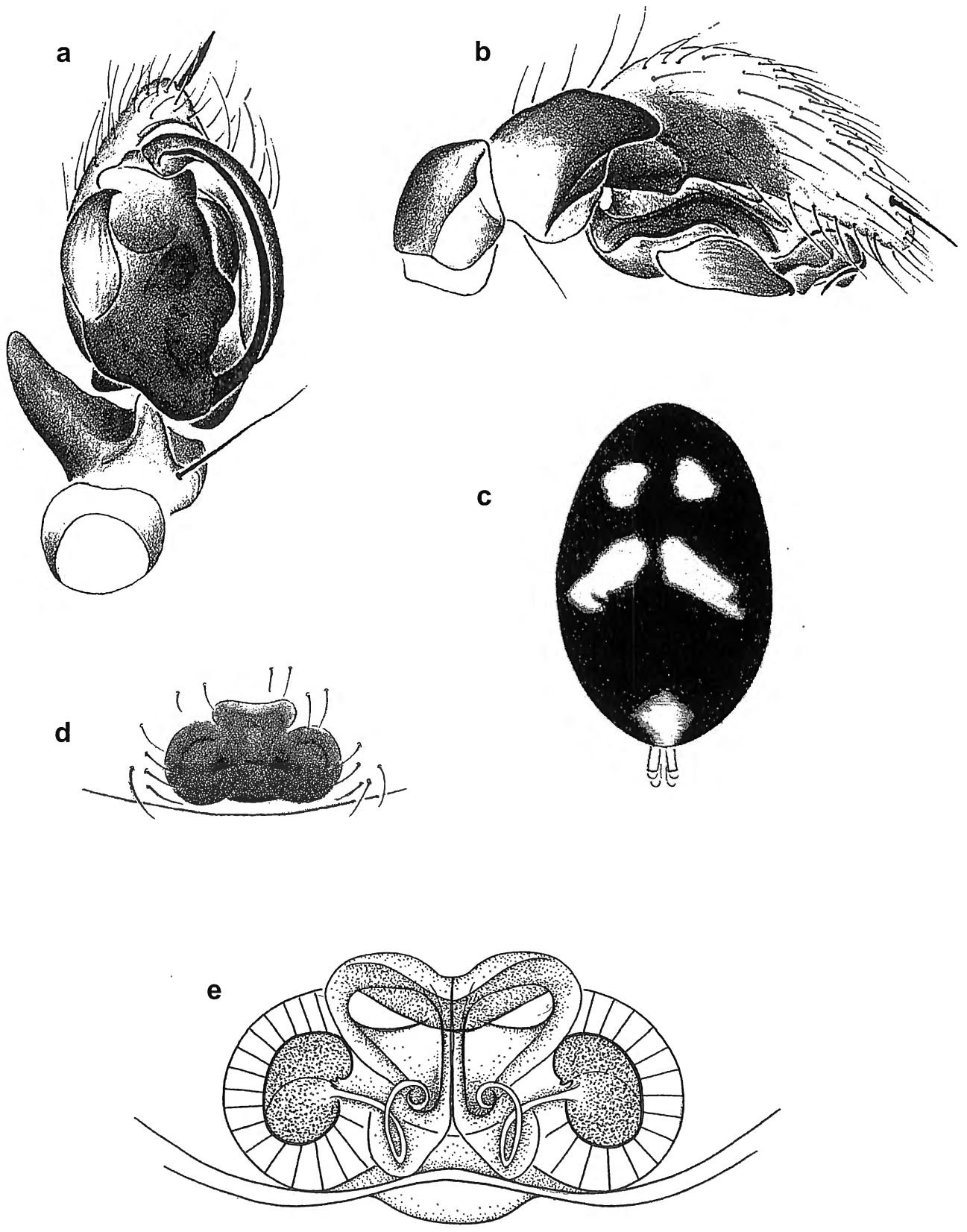
Chilum present but not strongly chitinized.

Spination: femora I-IV d1-1-2; patellae III d1pl2r1l1 IV d1pl1r1l1; tibiae I pl1v1-1-2 II pl2*v1-1-2 III d3*pl3*r12*v2-2-2 IV d4*pl4*r13*v2-2-2; metatarsi I v2-1-2 II v2-2-2 III w4w4w4 IV w4w4w4w3. Measurements Ti + Pa I 1.83 II 1.58 III 1.59 IV 2.11.

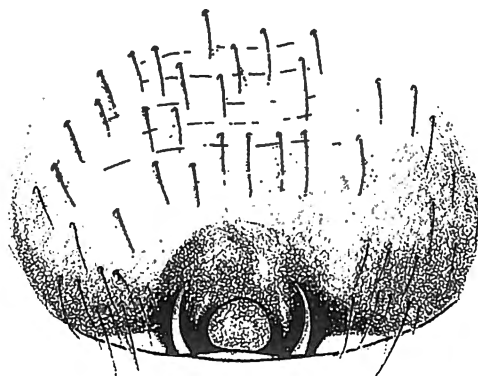
Epigyne (Fig. 72): a small roughly rectangular plate with slightly curved sides.

Male: unknown.

DISTRIBUTION: only known from type locality (Map 5).



Figs. 71a-e — *Ishania tentativa*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.



Figs. 72 — *Ishania tinga*. Epigyne, ventral view.

Ishania tormento new species
Figs. 73a-d, Map 5

TYPE MATERIAL: Holotype: Male: MEXICO: CAMPECHE: Escarcega (6km W), El Tormento, 110m, evergreen tropical forest, 23.VII.1983 (S. and J. Peck) (AMNH).

Paratype: 1♀ together with holotype.

DIAGNOSIS: Males of this species are recognized by the very large proximal retrolateral apophysis combined with the hook-shaped dorsolateral one. Females are characterized by the oval central plate in the epigyne.

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

DESCRIPTION: *Male holotype*: Total length 4.24; carapace 2.00 long, 1.32 wide, 0.84 high.

Colour: Carapace orange, margin strongly suffused with black, sternum lighter orange; legs yellowish orange; abdomen: dorsum sepia with five white spots (as in Fig. 55e); venter white, epigastric region with orange tinge; sides white except median oblique sepia bar.

Carapace reticulated.

Eyes: MOQ: AW = 0.67PW; AW = 0.63L.

Legs: Spination: femora I d3*pl1 II d3*pl1 III-IV d3*pl1r1; patellae III-IV d1pl2r1; tibiae I d1fpl3*v1-2-2 II d1fpl3*v1-1-2 III d2*pl2*r12*v1-2-2 IV d2*pl2*r12*v2-2-2; metatarsi I pl1v2-2-2 II pl1-2*v2-2-2 III d1-1-2pl3*r13*v2-1-2 IV d1-1-2pl3*r13*v2-2-2.

Measurements: Pa+Ti I 1.48 II 1.24 III 1.20 IV 1.70.

Male palp (Figs. 73a-b): Tibia with three apophyses: one large, proximal, retrolateral, standing out at right angle; one distal, retrolateral fairly small, downcurved hook; one ventral, blunt, unmodified; prolateral fringe of four stiff setae. Cymbium with ten short apical spines. Tegulum sclerotised in median and proximal parts. Median apophysis sclerotised, hooked at tip. Distal tegular apophysis short scythe-shaped with apex broadly developed in opposite direction of embolus for about less than 1/3 its length. Embolus short, slender, stiff, originating on

anterior of prolateral part of tegulum, directed forward; bent outwards towards DTA.

Female paratype: Total length 4.16; carapace 1.96 long, 1.16 wide, 0.76 high.

Colour: As in male but carapace brown; femora suffused with black.

Eyes: MOQ: AW = 0.69PW; AW = 0.65L.

Legs: Spination: femora I-II d3* III d2* IV d3*r1; patellae III-IV d1pl2r1; tibiae I d1fpl1v(1)-(1)-2 II d1fv1-1-0 III d2*pl2*r11v1-1(2)-1 IV d2*pl2*r12*v1-1-2; metatarsi I pl1v2-1-2 II pl2*v2-0-2 III d2*pl2*r13*v2-1-2 IV d3*pl3*r13*v2-2-2.

Measurements: Pa+Ti I 1.38 II 1.12 III 1.14 IV 1.58.

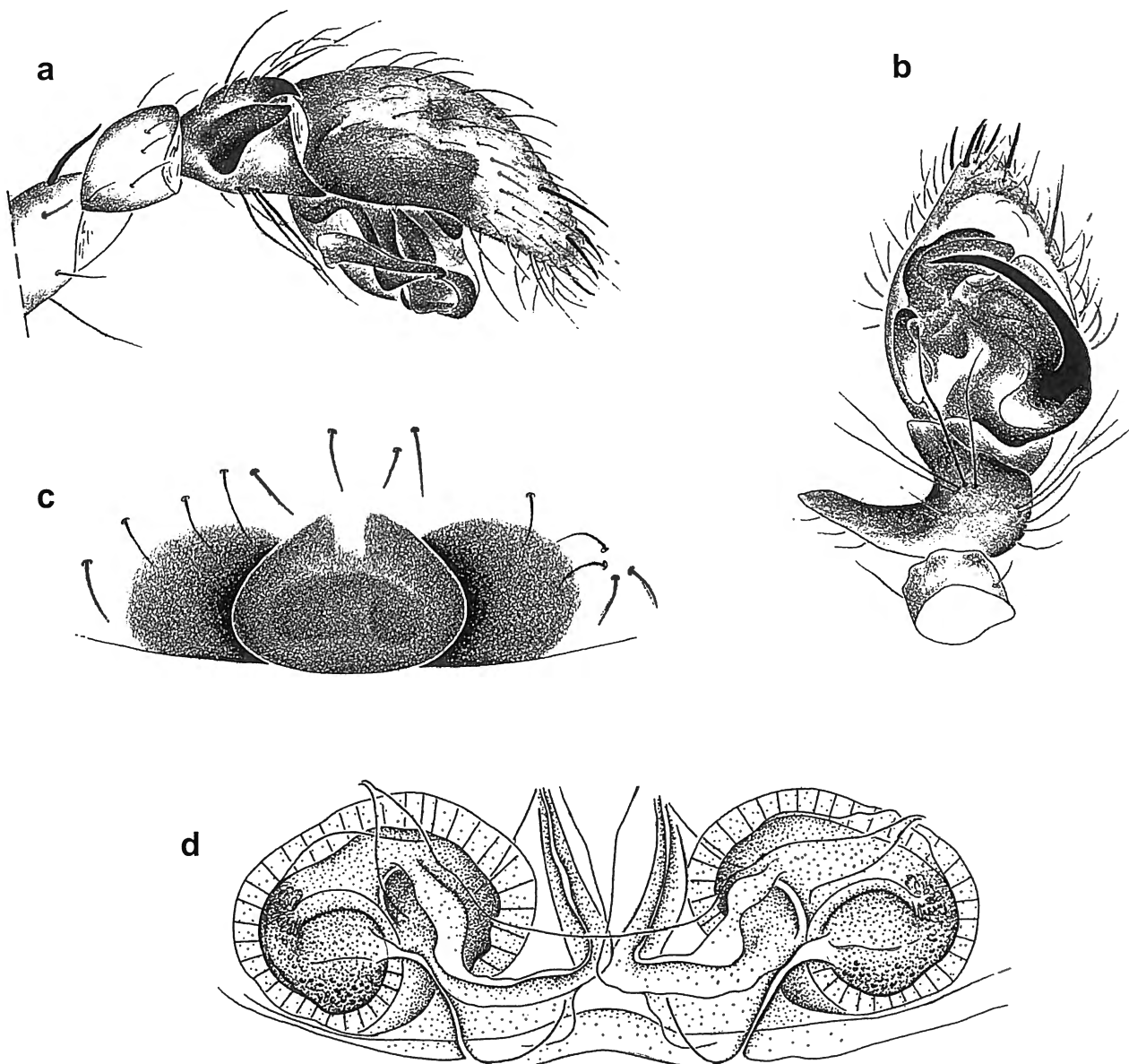
Epigyne (Fig. 73c-d): Fairly wide sclerotised area with central, oval plate attached in front. Entrance openings frontal, central. Entrance ducts with sharp curve, entering large, kidney-shaped spermathecae mesally. Fertilization ducts long.

DISTRIBUTION: Only known from type locality (Map 5).

Ishania totonak new species
Figs. 68d, 74a-e, 46a, Map 5

TYPE MATERIAL: Holotype: Male: MEXICO: HIDALGO: 3 miles N Chapulhuacan (21°11'N 98°54'W), 20.IV.1963 (W.J. Gertsch and W. Ivie)(AMNH).

Paratypes: 2♀ (tube also contains 1 sa♂) together with holotype; 2♀ (tube also contains 1 sa♂, 4 juv.): TAMAULIPAS: Gomez Farias, 300m, tropical deciduous forest, 7.VIII.1983 (S. and J. Peck); 2♂, 1♀: HIDALGO: 4 miles SW of Chapulhuacan, 1050m, cloud forest, 27.VI.1.VII.1973 (A. Newton)(MCZ); 1♀: 5.VII.1976, further as previous; 15♀, ±30 juv.: SAN LUIS POTOSI: Taman, 20 Km SW Tamazunchale, coffee plantation, 350m, 11.VI.1983 (S. and J. Peck)(AMNH); 6♀ (tube also contains 7sa♂, 3sa♀, 14 juv.): HIDALGO: Tlanchinol, 43km SE of Huejutla, 1490m, cloud forest, 1.VIII.1983 (S. & J. Peck) (AMNH); 1♀ (tube also contains 1sa♂, 3sa♀, 22 juv.): 1500m, 14.VIII.1983, further as previous (AMNH).



Figs. 73a-d — *Ishania tormento*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Epigyne, ventral view. d. Epigyne, cleared, dorsal view.

DIAGNOSIS: Males of this species are among the few with a palpal patellar apophysis; it shares the character with *T. chichimek* and *T. huastek* which both have an embolus with distal excrescence, absent in *T. totonak*. The species is recognized by that feature combined with a proximal retrolateral hook on the tibia. Females are characterized by the large central plate, constricted in the anterior half.

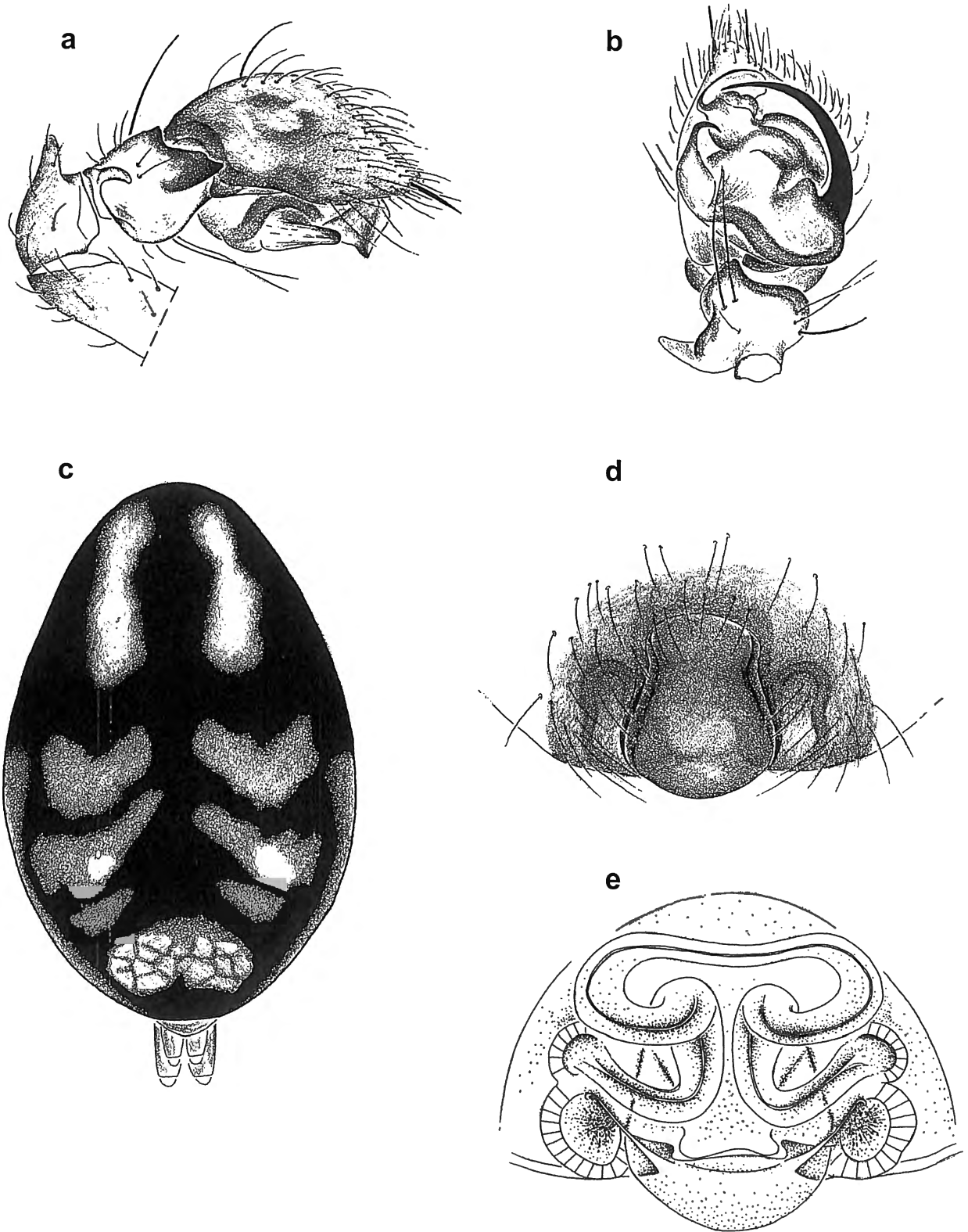
ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype:* Total length 3.04 (X of Tamps 4.32); carapace 1.52 long, 1.12 wide, 0.60 high.

Colour: Carapace brownish orange, margin suffused

with black; sternum pale yellow, margin broadly suffused with black; legs pale yellow, Femora suffused with black except median 1/6th, tibiae retro- and prolaterally suffused with black at proximal tip; abdomen (Fig. 74c) pale sepia with pattern of white spots: pair of apical kidney-shaped spots followed by three pairs of transversal procurved bars and caudal spot; venter white with two black central spots; sides white with oblique, lateral black bar. Specimen of Tamaulipas much darker: carapace chestnut brown; legs brownish orange with distal half of Fe I-IV and Ti III-IV dark brown; abdomen pale sepia with faint pattern.

Carapace finely reticulated (more strongly so in Tamaulipas specimen), with sparse cover of short, white setae.



Figs. 74a-e — *Ishania totonak*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.

Eyes: MOQ: AW = 0.75PW; AW = 0.75L.

Legs: Spination: femora I-III d3* IV d3*r11; patellae III-IV d1pl2r11; tibiae I-II d1fpl3*v1-2-2 III d2*pl2*r12v1-2-2 IV d2*pl3*v2-2-2r13*; metatarsi I pl2*v2-2-2 II pl2*v2-1-2 III d2*pl2*v2-2-2r13* IV d3*pl3*v2-2-2r13*.

Measurements: Pa+Ti I 1.24 II 1.02 III 0.96 IV 1.28.

Male palp (Figs. 74a-b): Tibia with 2 apophyses: one retrolateral, frontal, small, sharp, one retrolateral, proximal, small, curved down, blunt; ventral haired swelling. Patella with conical dorsal apophysis (cfr. *chichimek*, but further backwards). Cymbium with 2 short apical spines. Tegulum elongate, in oblique position, with conical swelling near base of embolus. Median apophysis hook-shaped, sclerotised. Distal tegular apophysis: inverted triangular plate somewhat excavated, extended in opposite direction of embolus over very short distance. Embolus rigid, originating on anterior retrolateral part of tegulum, directed obliquely forwards; tip resting in hollow DTA.

Female paratype: Total length 4.32 (♀ of Tamaulipas = 5.36); carapace 2.08 long, 1.36 wide, 1.00 high.

Colour: As in male but carapace brown, legs with orange tinge, posterior dorsal abdominal spot divided in two.

Eyes: MOQ: AW = 0.76PW; AW = 0.62L.

Legs: Spination: femora I d3*pl1 II-IV d3*; patellae III-IV d1pl2r11; tibiae I d1fpl1v1-1-2 II d1fpl2v1-1-1 III d2*pl2*r11v1-1-2 IV d2*pl2*v1-1-2r12*; metatarsi I pl1v1-0-2 II pl1v2-0-2 III d1-2-2pl2*v2-0-2r11 IV d1-1-2pl3*v2-1-1-1r13*.

Measurements: Pa+Ti I 1.52 II 1.24 III 1.14 IV 1.60.

Epigyne (Figs. 68d, 74d-e): With large central plate much narrower in front than at the back; constricted before anterior margin. Entrance openings in front; entrance ducts curved towards centre, running backwards over short distance, thence curved sideways to join spermathecae situated far apart near posterior margin.

DISTRIBUTION: Mexico (Hidalgo, Tamaulipas) (Map 5).

Ishania vacua new species

Figs. 75a-b, Map 5

TYPE MATERIAL: Holotype: Female: MEXICO: OAXACA: 20mi S of Juchentenango, 1800m, 29.V.1971, berlese oak litter, (S.B. Peck) (MCZ).

DIAGNOSIS: Females are easily recognized by the large, centrally constricted plate.

ETYMOLOGY: The specific name is an adjective (Latin) which means, among many other meanings "without a partner".

DESCRIPTION: *Female holotype*: Total length 4.56; carapace 2.16 long, 1.36 wide, 1.08 high.

Colour: Carapace orange brown. Sternum and legs yellow with orange tinge, coxae and femora pale. Abdomen grey; dorsum with complex pale pattern: 2 kidney-

shaped frontal spots followed by three broken chevrons, one complete chevron and 2 small caudal spots (as in Fig. 70c); sides grey with caudal spot; venter whitish with 2 small median grey spots.

Carapace reticulated.

Eyes: MOQ: AW = 0.67PW; AW = 0.60L.

Legs: Spination: femora I-II d3* III d2*r11 IV d3*r11; patellae III-IV d1pl2r11; tibiae I d1fpl1(proximal)v2-0-0 II d1fpl1(distal)v1-1-0 III d2*pl2*r12*v2-1-2 IV d2*pl3*r13*v1-2-2; metatarsi I v1-0-2 II v2-0-2 III d1-2pl3*r13*v2-1-2 IV d1-1-2 pl3*r13*v2-1-1-2.

Measurements: Pa+Ti I 1.58 II 1.32 III 1.10 IV 1.76.

Epigyne (Figs. 75a-b): With a large plate, strongly constricted in the middle. Entrance openings lateral. Entrance ducts with short parallel stretches, entering long spermathecae mesally. Fertilization ducts long.

Male: Unknown.

DISTRIBUTION: Only known from type locality (Map 5).

Ishania xilitla new species

Figs. 76a-b, Map 5

TYPE MATERIAL: Holotype: Male: MEXICO: SAN LUIS POTOSI: 5.6 miles E of Xilitla, tropical evergreen forest, 400m, 17-19.VII.1969, (leg S. and J. Peck) (MNH).

Paratype: 1♂: MEXICO: SAN LUIS POTOSI: Xilitla, Cueva de Salitre (ca 98°59'W, 21°23'N), ca 600m, 13.VI.1983 (W. Maddison) (MCZ).

DIAGNOSIS: Males of this species are easily recognized by the strong dorsal seta on the palpal tibia and the very large dorsolateral apophysis.

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

DESCRIPTION: *Male holotype*: Total length 3.76; carapace 1.72 long, 1.16 wide, 1.76 high.

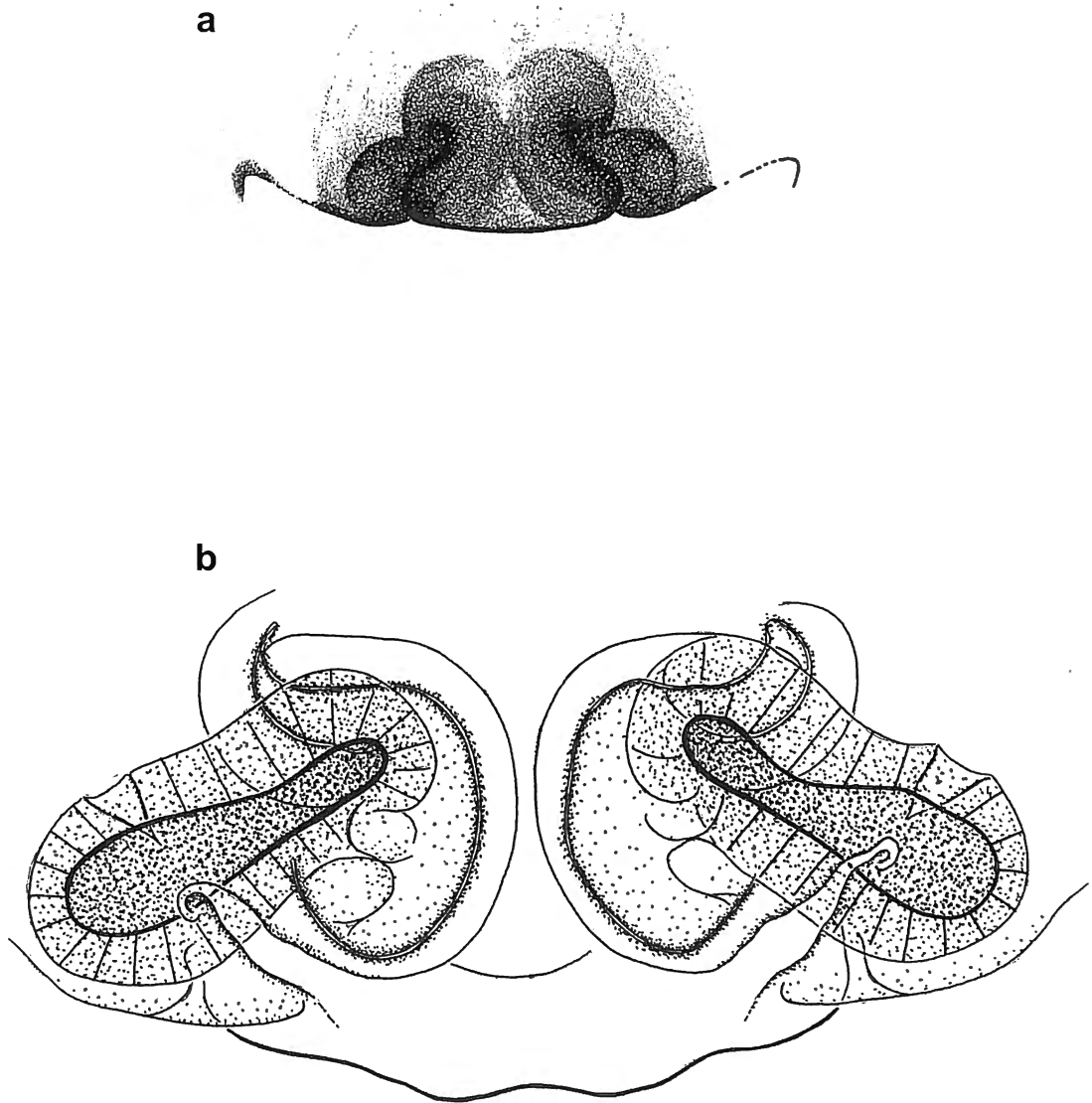
Colour: Carapace orange, suffused with black. Sternum creamy, suffused with black; legs yellow with orange tinge, coxae pale, Fe with proximal and distal tips suffused with black, Fe I-II with greenish tinge. Abdomen pale with dark sepia pattern (as in Fig. 8d). Carapace reticulated.

Eyes: MOQ: AW = 0.61 PW; AW = 0.61 L.

Legs: Spination: femora I-II d3* III-IV d3*pl1r11; patellae III-IV d1pl2r11; tibiae I-II d1fpl2v1-2-2 III-IV d2*pl2*r12*v2-2-2; metatarsi I-II pl2*v2-2-2 III-IV d1-1-2pl3*r13*v2-2-2.

Measurements: Pa+Ti I 1.42 II 1.18 III 1.10 IV 1.52.

Male palp (Figs. 76a-b): Ventral side of tibia nearly flat, smooth with one long hair; ridge between ventral and retrolateral side; with strong dorsal spine, and large, retrolateral dorsal apophysis. Cymbium with 2 apical spines. Small cymbial flange extending up- and backwards. Tegulum elongate; in oblique position, partially sclerotised, with swelling at base of embolus. Median apophysis hook-shaped, sclerotised. DTA cylindrical with



Figs. 75a-b — *Ishania vacua*. a. Epigyne, ventral view. b. Epigyne, cleared, dorsal view.

ridge at retrolateral side of tip; prolateral part extended in opposite direction of embolus over 1/4 its length. Embolus more or less rigid, with distal extension; originating on posterior part of tegulum; directed prolaterad.

Female: Unknown.

DISTRIBUTION: Mexico, San Luis Potosi (Map 5).

***Ishania zapotek* new species**

Figs. 68e, 77a-e, Map 5

TYPE MATERIAL: Holotype: Male: MEXICO: OAXACA: Tlacolula (N16°57'N, 96°27'W), 30.IV.1963, under cliff (W.J. Gertsch and W. Ivie) (AMNH).

Paratypes: 18♂, 7♀, 11 juv. together with holotype

(1♂, 1♀ in KBIN); 1♀ 1juv.: 5 miles SE of Nejapa (16°34'N 95°56'W), 29.IV.1963 (W.J. Gertsch and W. Ivie) (AMNH).

DIAGNOSIS: Males of this species are recognized by the very large distal retrolateral apophysis of the palpal tibia in combination with the very strong, flat, rigid embolus. Females are characterized by the very large central depression on the epigyne and the posterior, touching spermathecae.

ETYMOLOGY: The species name is a noun in apposition taken from the tribe that inhabited the same region before the invasion of the conquistadores.

DESCRIPTION: *Male holotype*: Total length 3.52 (range: 3.20-3.84); carapace 1.92 long, 1.36 wide, 0.88 high.

Colour: Carapace, light brown (chestnut brown in some specimens). Sternum yellowish brown with orange tinge. Legs yellowish orange. Abdomen (Fig. 77c): sepia (black in some specimens) with white inverted U in front, followed by three chevrons (may be broken or absent) and longitudinal white spot in front of spinnerets; venter white with two median black marks.

Chelicerae strongly setose.

Eyes: MOQ: AW = 0.71PW; AW = 0.56L.

Legs: Spination: femora I-II d3*pl1 III-IV d3*pl1r1l1; patellae III-IV d1pl2r1l1; tibiae I d1fpl3*v2-2-2 II d1fpl3*v1-2-2 III d2*pl3*r12*v1-2-2 IV d2*pl3*r13*v2-2-2; metatarsi I-II pl2*v2-2-2 III d1-2-2pl2*r1l1v1-1-2 IV d2-2-2pl3*r1l1v2-2-2.

Measurements: Pa+Ti I 1.36 II 1.12 III 1.04 IV 1.46.

Male palp (Figs. 77a-b): Tibia with 2 apophyses: one retrolateral, broad, flat, with distal tip directed upwards; one dorsal, small, pointed, separated from retrolateral by inconspicuous groove; ventral swelling. Cymbium with two short apical spines; flange small, strongly appressed against large tibial apophysis. Subtegulum cup-shaped, sclerotised, reticulated with several thin annuli. Tegulum elongate, in oblique position, sclerotised in proximal prolateral half, membranous in distal retrolateral half, with swelling near base of embolus. Median apophysis, slightly curved in retrolateral direction, needle-like, with membranous base and sclerotised tip. DTA bifid, with ventral proximal part thumb-shaped; ventral part membranous, gradually sclerotised towards distal extremity which is split in two parts: one strong, sclerotised, distal (dorsal) part forming broad, flat, down curved, retrolateral wing with dorsal ridge in proximal half; one prolateral

wing extended in opposite direction of embolus over 1/2 its length. Embolus rigid, flat, originating on posterior part of tegulum, directed inwards.

Female paratype: Total length 4.16 (range: 3.28-4.40); carapace 1.92 long, 1.24 wide, 0.84 high.

Colour: As in male.

Eyes: MOQ: AW = 0.78PW; AW = 0.66L.

Legs: Spination: femora I d3*pl1 II d3* III d3*pl1r1l1 IV d3*; patellae III-IV d1pl2r1l1; tibiae I d1fpl1v1-1-1 II d1fpl2*v1-1-1 III d2*pl3*r12*v1-2-2 IV d2*pl3*r13*v2-2-2; metatarsi I pl1v1-0-2 II pl1v2-1-2 III d2-2-2pl2*r1l1v2-1-2 IV d1-1-2pl3*r13*v2-1-1-2.

Measurements: Pa+Ti I 1.26 II 1.10 III 1.04 IV 1.44.

Epigyne (Figs. 68e, 77d-e): Large, with large central depression, broader at the back than in front; anterior margin broadly rounded with short rounded indentation; bottom near posterior margin with two large bulging areas; entrance openings apparently in front; entrance ducts running laterally towards the back, thence curved inwards to join adjacent spermathecae.

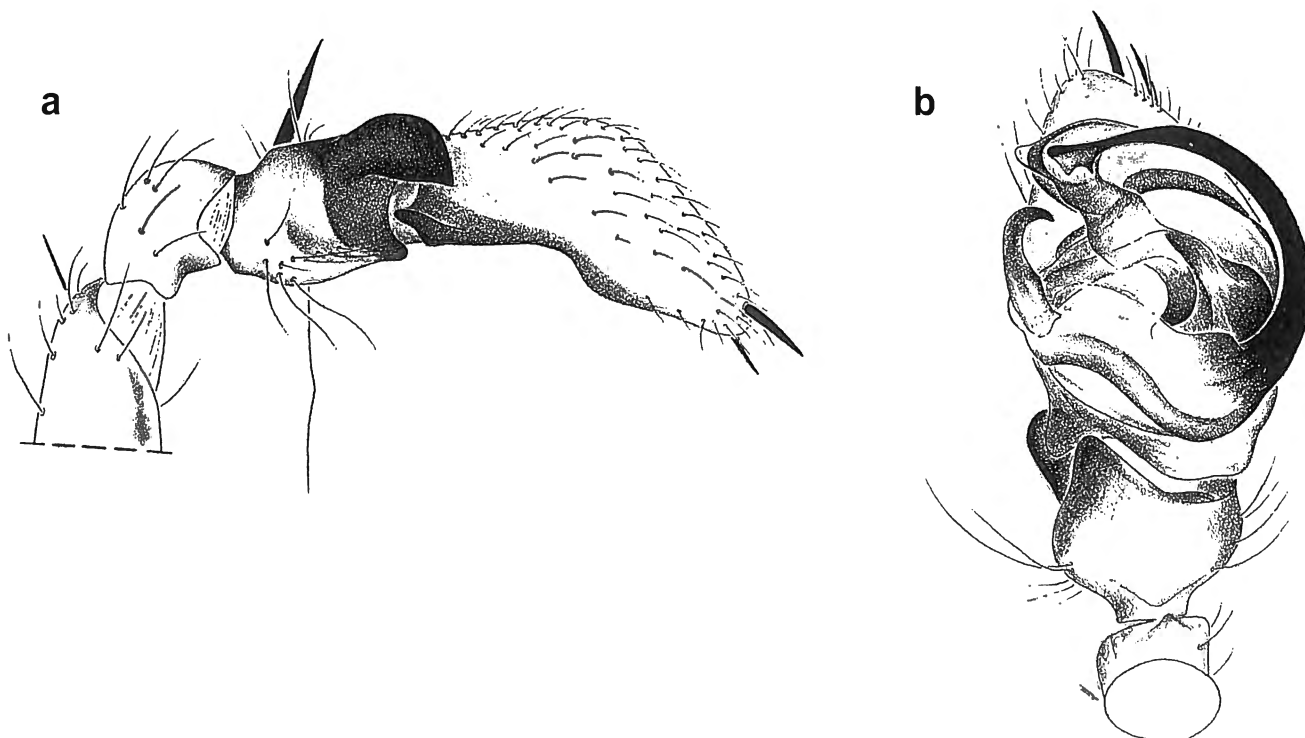
DISTRIBUTION: Mexico (Oaxaca) (Map 5).

Acknowledgements

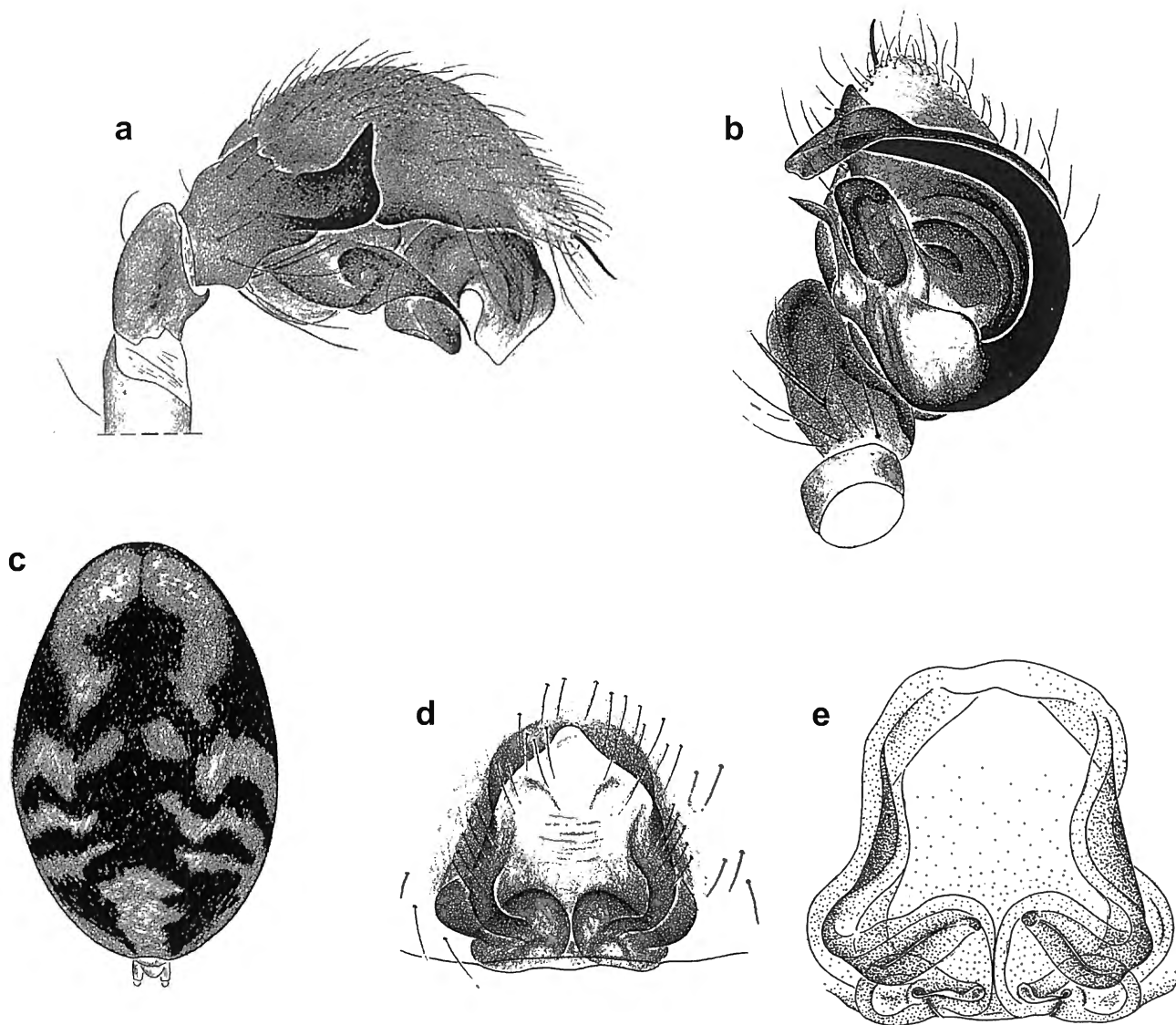
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Figs. 76a-b — *Ishania xilitla*. a. Right male palp, retrolateral view. b. Male palp, ventral view.



Figs. 77a-e — *Ishania zapotek*. a. Right male palp, retrolateral view. b. Male palp, ventral view. c. Abdomen, dorsal pattern. d. Epigyne, ventral view. e. Epigyne, cleared, dorsal view.

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