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Heidrunea, a new genus of the spider subfamily Rhoicininae (Araneae, Trechaleidae) from central Amazonia, Brazil

Abstract
Heidrunea is proposed as a new genus of the subfamily Rhoicininae, Trechaleidae. Three new species from central Amazonian inundation forests are described: *H. irmleri* (the type species), *H. arijana* and *H. lobrita*.

Resumo
Um novo gênero da subfamília Rhoicininae (Araneae, Trechaleidae) da Amazônia central
O gênero novo, *Heidrunea*, é proposto para três espécies novas de Rhoicininae da Amazônia central, Brasil: *H. irmleri* (espécie-tipo), *H. arijana* e *H. lobrita*.

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Introduction

The subfamily Rhoicininae was recently redefined by SIERWALD (1993), consisting of three genera, *Rhoicinus* SIMON, 1898 and *Barrisca* CHAMBERLIN & IVIE, 1936 from the neotropical region and the genus *Shinobius* YAGINUMA, 1991 from Japan. The subfamily was placed in Trechaleidae by GRISWOLD (1993; see also discussion in CARICO 1993). The genus *Xingusiella* MELLO-LEITÃO, 1940 was included in Rhoicininae by LEHTINEN (1967: 332) and synonymized by SIERWALD (1993) with *Paradossenus* F.O.P.-CAMBRIDGE, 1903, which is formally included in the family Trechaleidae, but not in the subfamily Rhoicininae.

The genus *Rhoicinus* was proposed by SIMON (1898) and actually contains eight species described from Ecuador, Peru, Guiana and the north of Brazil (SIMON 1898; EXLINE 1950, 1960; BRESCOVIT 1993; HÖFER & BRESCOVIT 1994). The second neotropical genus, *Barrisca* was established by CHAMBERLIN & IVIE (1936). In his generic revision, PLATNICK (1979) included two species widespread in South America (Panama, Colombia, Venezuela, Peru). The spider genus *Shinobius* was recently proposed by YAGINUMA (1991) for the Japanese species *S. orientalis* (YAGINUMA, 1967), which was originally described in the African genus *Cispius* SIMON, 1898.

While sorting through extensive material collected during ecological projects in inundation forests near Manaus, we found spiders of the subfamily Rhoicininae, not congeneric with type species of other rhoicinine genera. The new genus *Heidrunea*, is therefore proposed for three new species from central Amazonia.

Material and Methods

The material examined is deposited in the following collections: INPA, Instituto Nacional de Pesquisas da Amazônia, Manaus (C. MAGALHÃES); MCN, Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (E. H. BUCKUP); SMNK, Staatliches Museum für Naturkunde, Karlsruhe (H. HÖFER). The format of the descriptions follows HÖFER & BRESCOVIT (1994), measurements are in millimeters.

Systematics

Heidrunea, new genus

Type species: *H. irmleri*, new species.
Etymology: The generic name is a patronym in honour of the second author's wife for the steady support of his field work in Brazil and is feminine in gender.

Diagnosis: *Heidrunea* is recognized as a rhoicinine genus by the following synapomorphies with other rhoicinine genera: male tibial apophysis absent, conductor of the male palp membranous, female epigynum consisting of a median lobe with short epigynal folds and short lateral lobes. *Heidrunea* can be distinguished from *Rhoicinus* and *Barrisca* by the strongly recurved posterior eye row, where the PLE are widely separated from the PME (see fig. 1), the absence of heavy spines on the cymbium of the male palp (figs 2, 3) and the enlarged base of the spermathecae in females (figs 4b,d,f). In characters of the genitalia it resembles *Barrisca* (see PLATNICK 1979: figs 1-6 for comparison), however *Heidrunea* differs by having a hyaline elongated ventral median apophysis on the tegulum and by lacking sinuous ducts in the male palp (figs 2a, 3a, 7b) and by the presence of the prominent posterior lobe separated by distinct epigynal folds from the lateral margins in the female epigyne (figs 4a,c,e, 7c).

Description: Total length (males and females) between 3.30-5.00. Carapace oval, narrowest anteriorly, widest at coxae II, moderately elevated in the cephalic region and invaginated posteriorly, with a black median band behind PME and covered with short plumose

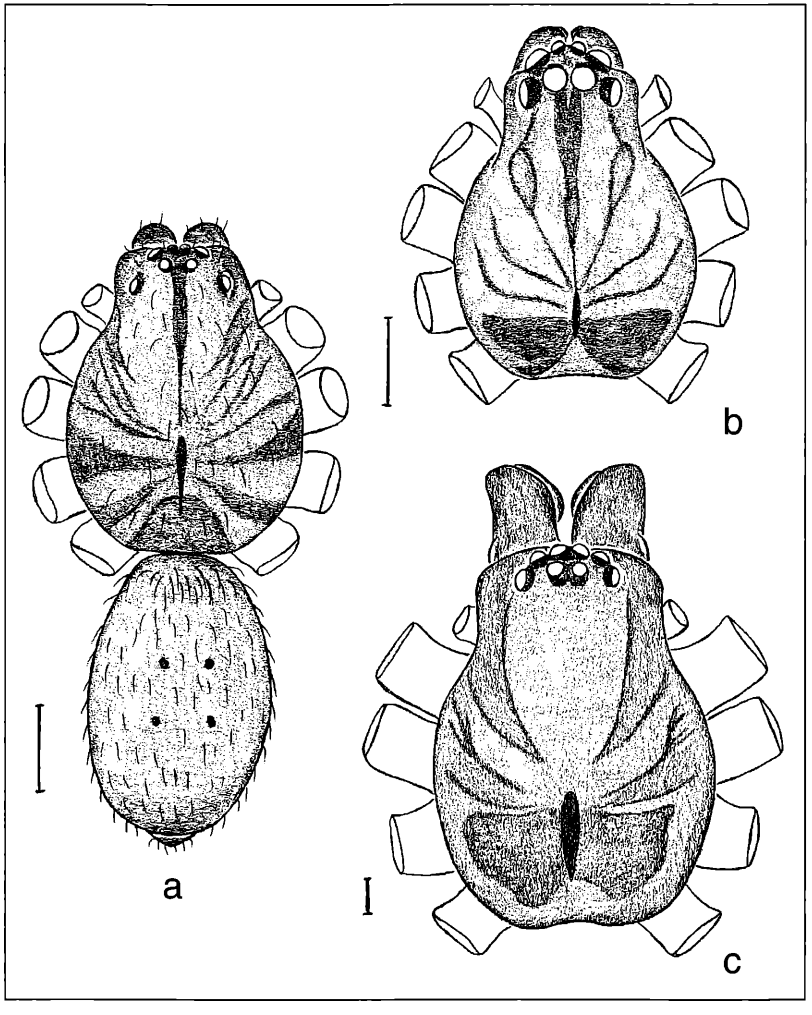

Figure 1. a) *Heidrunea irmleri*, n. sp., body of male, dorsal view; b) *Barrisca nanella* CHAMBERLIN & IVIE, carapace of male, dorsal view; c) *Rhoicinus gaujoni* SIMON, carapace of male, dorsal view. Scale lines: 0.25 mm.

setae. Thoracic groove longitudinal, long but not deep (fig. 1a). From above, anterior eye row moderately recurved, posterior eye row strongly recurved; from front, both rows recurved. AME dark, the other eyes surrounded by black pigment. AME separated by 1/3 their diameter, by half their diameter from ALE; PME separated by half their diameter, from PLE by more than their diameter; ALE separated widely from PLE. MOQ with the length equal to the anterior width and almost half the posterior width. Clypeal height equal to the diameter of anterior eyes. Chilum absent. Chelicerae robust, showing median lamina and a distinct lateral boss, with 3-4 promarginal and 3 retromarginal teeth. Fangs of chelicerae short, half the length of chelicerae and enlarged at base. Endites rectangular, not sulcated on the external lateral margin, with anteromedian scopula. Labium longer than wide, with anterior margin truncated, notched at base. Sternum as long as wide, slightly invaginated anteriorly, triangular posteriorly, projecting between coxae IV. Legs thin, with short setae, mainly on ventral side of femur and coxae; and plumose setae on prolateral side of metatarsi (fig. 5a,c). Female palp with conical tarsi and the following spination: femur d1-1-1, v1-1-1-1-1; patella d1-1, p0-1-0; tibia d0-1-0, p2-2; tarsus p1-1-1, r0-1-0; tarsal claws large, bearing about eight teeth. Leg formula 4123. Typical leg spination pattern (only surfaces bearing spines listed): femur I d1-1-1, p0-1-1, r0-0-1; II d1-1-1, p0-1-1, r0-1-1; III d1-1-1, p1-1-1, r0-1-1; IV d1-1-1, p1-1-1, r0-0-1; tibia I v2-2-2-0-2, p0-1-1, r0-1-1; II 2-2-2-0-2, p0-1-0, r0-1-0; III IV v2-2-2, p1-1-0, r1-1-0; metatarsus I - II v2-2-2, p0-1-1,

r0-1-1; III - IV v2-2-2, p1-1-1, r1-1-1. Tarsi and metatarsi with scopulae slightly developed. Metatarsi projecting distally over base of the tarsus (fig. 5b). Trichobothria present in one row on tibiae and metatarsi; and two rows on tarsi. Preening combs absent. Tarsi with three claws, superior claws with 10-12 teeth; unpaired claw without teeth (fig. 5d). Trochanters notched. Claw tuft consisting of about six long setae (fig. 5d). Abdomen oval, longer than wide, densely coated by setae, with two pairs of anterior dorsal muscular impressions. Anal tubercle not divided. Six spinnerets (fig. 6a), anterior laterals (ALS) two-segmented, elongated, having two large ampullate gland spigots on mesal margin and more than thirty pyriform gland spigots with elongated shafts (fig. 6b). Posterior medians (PMS) small, one-segmented, with at least one large ampullate gland spigot with a long slender shaft on subdistal margin, few aciniform gland spigots and 3-4 relatively large cylindrical gland spigots with short shafts (fig. 6c). Posterior laterals two-segmented, smaller than anterior laterals, with several aciniform gland spigots (fig. 6d). Cylindrical gland spigots were not observed, if present on PLS, they are covered by the long setae on the margin of the spinnerets. Colulus reduced, with 10-15 setae. Male palpal patellae with a large apical ventral projection (figs 2a, 3a). Tibiae with retrolateral excavation bordered by ventral ledge similar to the one found in *Barrisca* (figs 2b, 3b). Cymbium elongate, narrowed distally, without heavy spines. Palpal bulb with distinct subtegulum. Tegulum projecting behind embolus. Ejaculatory ducts simple, surrounding the ventral face of tegulum. Conductor retrolaterally disposed, heavily sclerotized, flattened and very large. Median apophysis lamelliform, hyaline, elongate, subdistal, in front of the median apophysis. Embolus short, distal-prolateral, enlarged at base and curved at tip (figs 2a, 3a, 7a,b). Epigynum forming a sclerotized plate, divided posteriorly by epigynal folds (ef), with short lateral lobes (ll) and forming a median lobe posteriorly (lp) (figs 4a,c,e, 7c,d). Copulatory openings at confluence of lateral lobes and median posterior lobe. Internally with two median, globose or oval spermathecae, with a terminal receptaculum at base, projecting posteriorly or dorsally. Lateral short curved copulatory ducts attached at base of spermathecae. Fertilization ducts curved, originating from base of spermathecae, close to the origin of copulatory ducts and accompanying them (fig. 4b,d,f).
Composition: Three neotropical species.

Heidrunea irmleri, new species

Figures 2, 4a, b, 5-7

Types: Male holotype from blackwater inundation forest (igapó) at Rio Tarumã Mirím, Amazonas, Brazil, October 20 - November 19, 1971, U. IRMLER, and one female paratype from the same locality, March 9, 1988, H. HÖFER, deposited in SMNK. Other paratypes: one male, with the same data of holotype and one female from the same locality, January 29, 1988, H. HÖFER, both deposited in MCN (24061 and 24062).
Etymology: The specific name is a patronym in honor of the collector of the holotype.

Diagnosis: *Heidrunea irmleri* may be distinguished from *H. lobrita* by the presence of a projection on the apical border of tibiae and the pyriform embolus, curved at tip (figs 2a, 7a) in the male palp; and the rounded border of the median posterior lobe (figs 4a, 7c,d) in the female epigynum.
Male (holotype): Carapace orange, with cephalic area dark. Chelicerae, labium, endites red-brown. Sternum yellow with orange-brown border. Legs orange. Abdomen grayish-brown. Spinnerets yellowish. Total length 3.50. Carapace 1.80 long, 1.40 wide. Clypeus 0.06 high, equal to AME diameter. Anterior eye row 0.38 long and posterior eye row 0.63. Eye sizes and interdistances: AME 0.06, ALE 0.10, PME 0.10, PLE 0.10; AME-AME 0.02, AME-ALE 0.03, PME-PME 0.05, PME-PLE 0.13, ALE-PLE 0.12. MOQ length 0.15, front width 0.15, back width 0.25. Chelicerae 0.75 long with 3 promarginal and retromarginal teeth. Abdomen 1.70 long, 1.15 wide.
Length of legs: I - femur 1.45/ patella 0.65/ tibia 1.10/ metatarsus 1.05/ tarsus 0.70/ total 4.95/ II - 1.40/ 0.60/ 1.00/ 1.10/ 0.65/ 4.75/ III - 1.30/ 0.50/ 1.00/ 1/10/ 0.60/ 4.50/ IV - 1.70/ 0.60/ 1.40/ 1.70/ 0.80/ 6.20. Leg spination: as in the typical spination pattern. Ventral ledge of palpal tibiae narrow, with apical projection (fig. 2). Conductor oval, flattened and lightly invaginated at tip. Median apophysis not curved, narrowed distally. Embolus pyriform, curvate at tip (figs 2, 7a, b).
Female (paratype): Coloration as in male. Total length 4.80. Carapace 2.00 long, 1.50 wide. Clypeus 0.06 high, with the diameter of the AME. Anterior eye row 0.45 and posterior eye row 0.72. Eye sizes and interdistances: AME 0.06, ALE 0.10, PME 0.09, PLE 0.09; AME-AME 0.02, AME-ALE 0.05, PME-PME 0.07, PME-PLE 0.17, ALE-PLE 0.16. MOQ length 0.13, front width 0.13, back width 0.23. Chelicerae 0.82 long with teeth as in male. Abdomen 2.50 long, 1.60 wide.
Length of legs: I - femur 1.70/ patella 0.75/ tibia 1.30/ metatarsus 1.10/ tarsus 0.75/ total 5.60/ II - 1.60/ 0.70/ 1.20/ 1.10/ 0.70/ 5.30/ III - 1.50/ 0.60/ 1.05/ 1.20/ 4.95/ IV - 2.00/ 0.70/ 1.65/ 2.00/ 0,80/ 7.15. Leg spination: I tibia p1-1-0; II femur r0-0-1; III femur r0-0-1; IV femur p0-0-1. Epigynum with rounded posterior median lobe, lightly sulcated anteriorly, with corrugated surface (figs 4a, 7c, d). Spermathecae oval, with terminal receptaculae projecting dorsally, behind spermathecae. Copulatory ducts long. Fertilization ducts leading to the inner part, curved around the copulatory ducts (fig. 4b).
Variation: Three males: total length 3.30-3.50; carapace 1.60-1.80; femur I 1.40-1.45. Five females: total length 4.20-5.00; carapace 1.80-2.20; femur I 1.50-1.90.

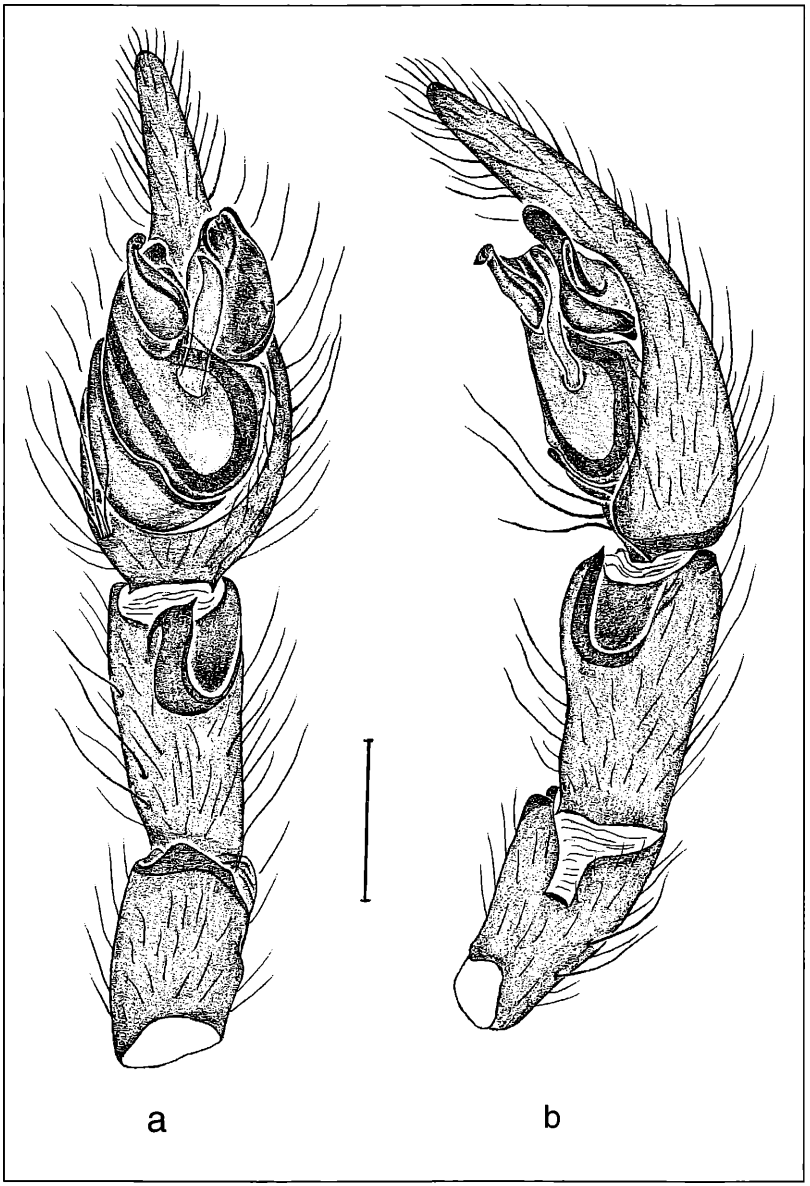

Figure 2. *Heidrunea irmleri*, n. sp., male: a) palp, ventral view; b) retrolateral view. Scale line 0.25 mm.

Distribution: Known only from the type locality in central Amazonia, Brazil.

Additional material examined. Brazil. Amazonas, Rio Tarumã Mirím, 1 male, October 20 - November 19, 1971, U. IRMLER (SMNK); 1 male, November 20, 1987, H. HÖFER, collected in pitfall trap (INPA); 2 females, February 12 - March 11, 1988, in pitfall trap (SMNK); 2 females, March 4, 1988, in pitfall trap (SMNK; INPA); 1 female, March 14, 1988, in ground-photoeclector (SMNK 332); all collected by H. HÖFER.

Heidrunea arijana, new species

Figures 3, 4c,d

Types: Male holotype and female paratype from mixed water inundation forest at Lago Janauari, Manaus, Amazonas, Brazil, November 17 - December 21, 1971, U. IRMLER, collected in ground-photoeclector, deposited in SMNK.

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

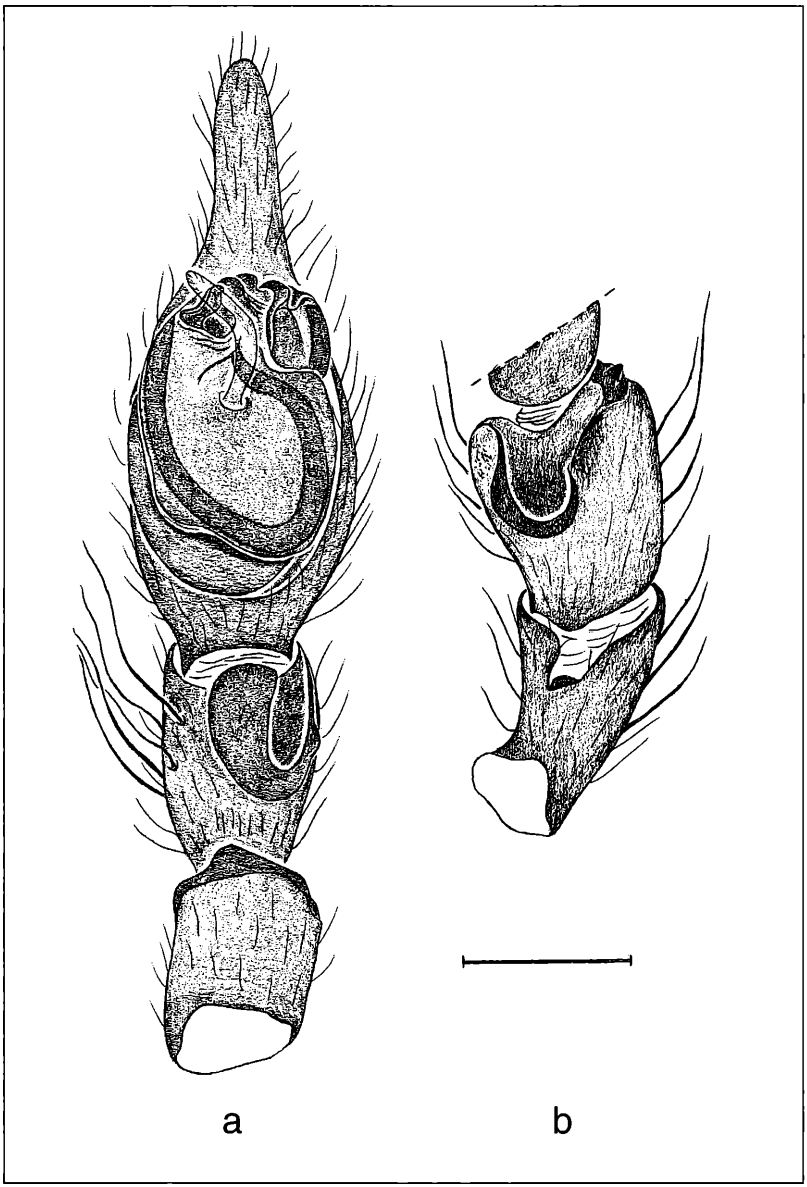

Figure 3. *Heidrunea arijana*, n. sp., male: a) palp, ventral view; b) retrolateral view of tibia and patella. Scale line 0.25 mm.

Diagnosis: *Heidrunea arijana* may be distinguished from *H. irmleri* by the very dilated ventral ledge of palpal tibiae and the reduced, curved embolus (fig. 3) in the male palp. Females resemble *H. lobrita*, but may be distinguished by the rounded and sinuous border of median posterior lobe (fig. 4c) and the voluminous spermathecae (fig. 4d) in the female epigynum.

Male (holotype): Coloration as in *H. irmleri*. Total length 3.70. Carapace 1.90 long, 1.55 wide. Clypeus 0.06 high equal to the diameter of the AME. Anterior eye row 0.47 long and posterior eye row 0.68 long. Eye sizes and interdistances: AME 0.06, ALE 0.10, PME 0.10, PLE 0.11; AME-AME 0.02, AME-ALE 0.06, PME-PME 0.06, PME-PLE 0.15, ALE-PLE 0.11. MOQ length 0.17, front width 0.16, back width 0.26. Chelicerae 0.82 long with 3 promarginal and 4 retromarginal teeth. Abdomen 2.00 long, 1.30 wide.

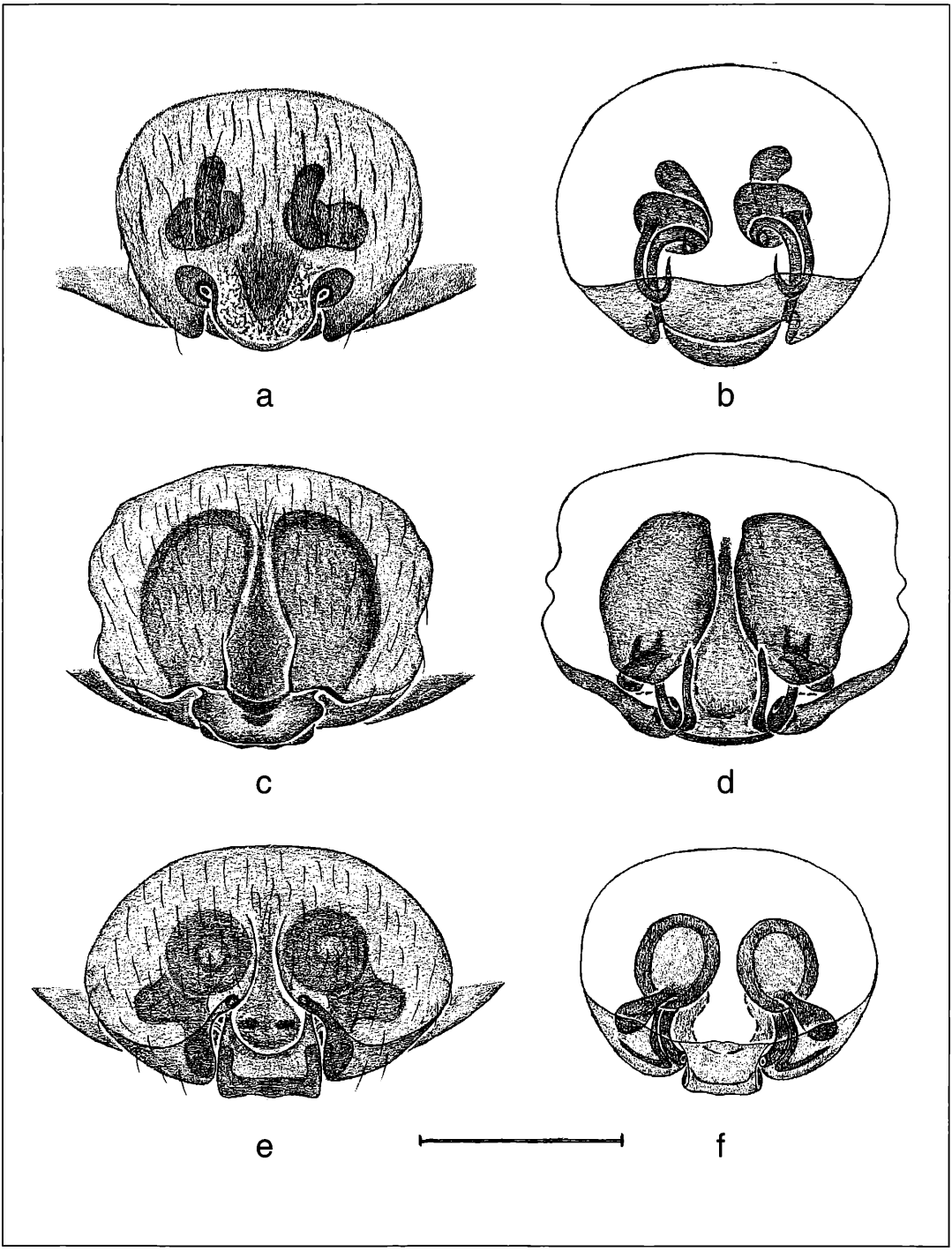

Figure 4. Female epigynae: a) *Heidrunea irmleri*, n. sp., ventral view; b) dorsal view; c) *Heidrunea arijana*, n.sp., ventral view; d) dorsal view; e) *Heidrunea lobrita*, n. sp., ventral view; f) dorsal view. Scale line: 0.25 mm.

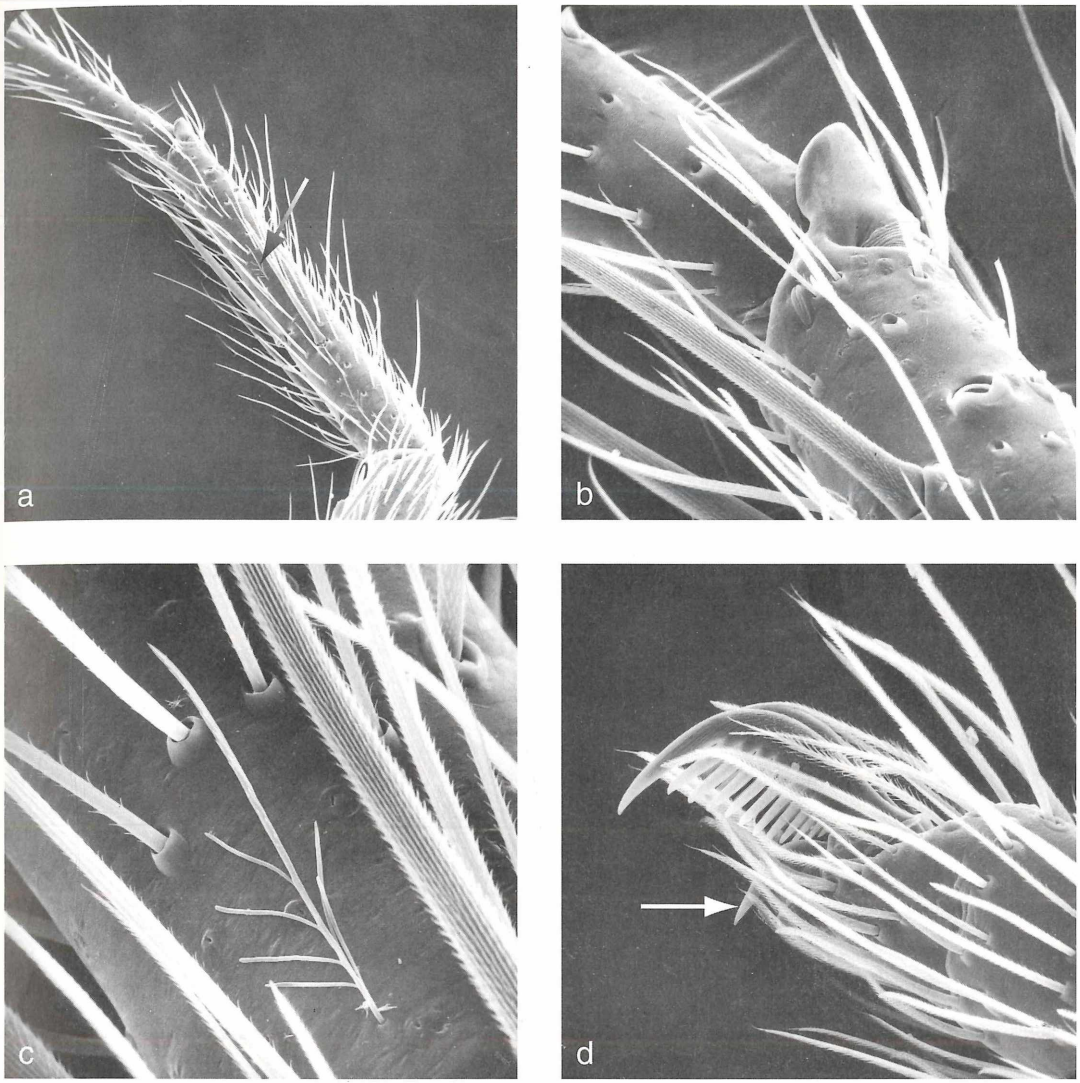

Figure 5. *Heidrunea irmleri*, n. sp., male, leg I: a) metatarsus (arrow indicates plumose setae), 90x; b) distal projection of metatarsus, 450x; c) plumose setae (detail), 900x; d) apex of tarsus I (arrow points to inferior tarsal claw), 450x.

Length of legs: I - femur 1.60/ patella 0.80/ tibia 1.35/ metatarsus 1.30/ tarsus 0.75/ total 5.80/ II - 1.50/ 0.70/ 1.25/ 1.30/ 0.70/ 5.45/ III - 1.50/ 0.60/ 1.00/ 1.20/ 0.55/ 4.85/ IV - 1.70/ 0.60/ 1.50/ 1.80/ 0.70/ 6.30. Leg spination: I femur p1-1-1, r0; tibia p0-1-0; II femur p1-1-1, r0; tibia r1-1-0; III femur p0-1-1-1; IV femur p0-1-1, r0-1-1. Palpal tibiae with dilated ventral ledge, without apical projection (fig. 3). Conductor subquadrangular, with a conical and rounded tip. Median apophysis curved, rounded distally. Embolus short, curved, with a broad base and conical tip (fig. 3a).

Note: Both palps of the holotype are expanded, not permitting illustration of the retrolateral view of the tegulum. Female (paratype): Coloration as in male. Total length 4.70. Carapace 1.80 long, 1.60 wide. Clypeus 0.11 high, 1/3 larger than the diameter of the AME. Anterior eye row 0.51 long, posterior eye row 0.78 long. Eye diameters and interdistances: AME 0.07, ALE 0.10, PME 0.09, PLE 0.11; AME-AME 0.03, AME-ALE 0.08, PME-PME 0.10, PME-PLE 0.20, ALE-PLE 0.13. MOQ length 0.15, front width 0.17, back width 0.26. Chelicerae 0.90 long, with teeth as in male. Abdomen 3.00 long, 2.00 wide.

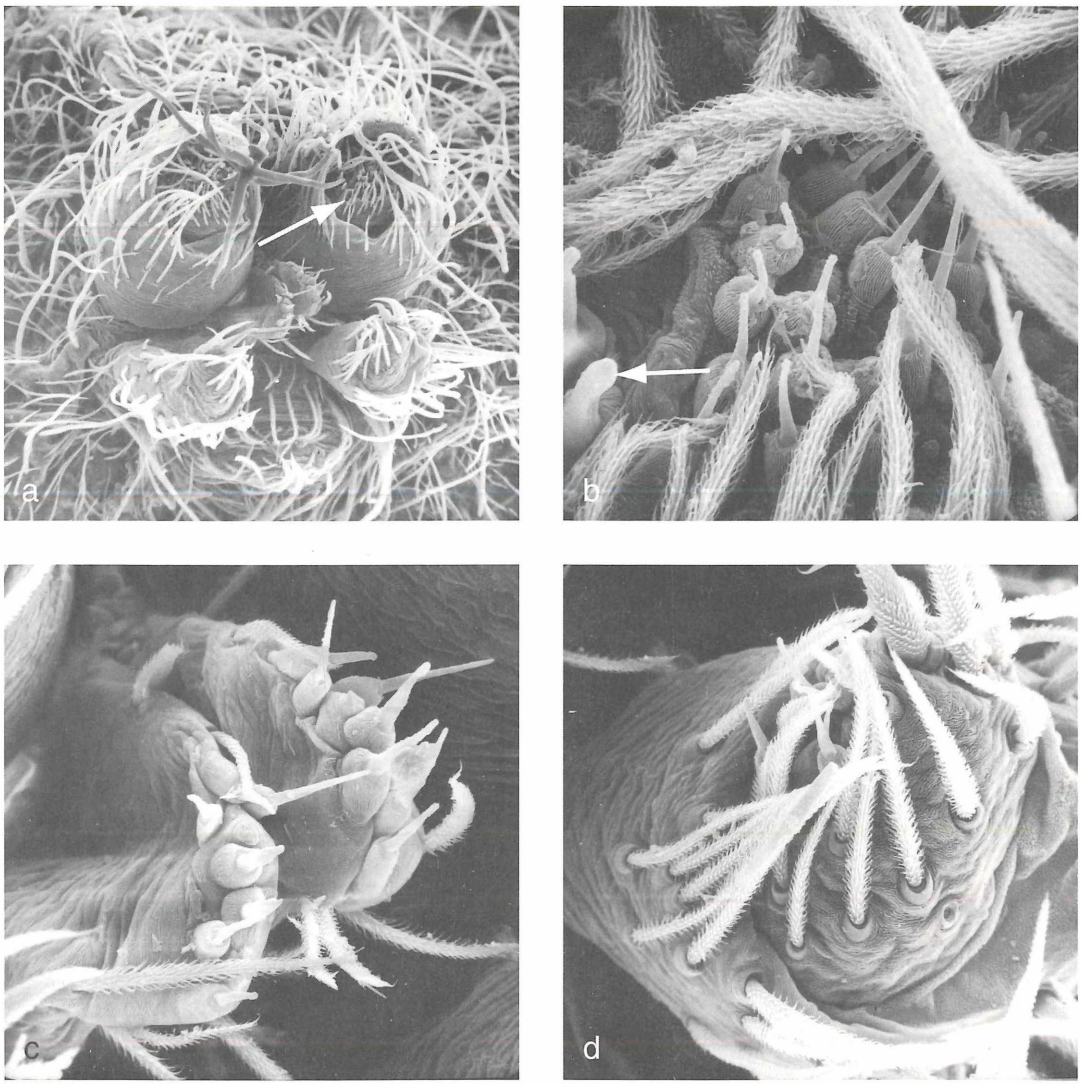

Figure 6. *Heidrunea irmleri*, n. sp., female, spinnerets: a) spinning field (arrows points to major ampullate spigot), 180x; b) left ALS (arrow points to major ampullate spigot), 1800x; c) PMS, 900x; d) left PLS, 900x.

Leg measurements: I - femur 3.40/ patella 0.75/ tibia 1.30/ metatarsus 1.30/ tarsus 0.75/ total 7.50/ II - 3.20/ 0.70/ 1.20/ 1.20/ 0.70/ 7.00/ III - femur 3.00/ the others segments missing/ IV - femur 3.70/ the others segments missing. Leg spination: I tibia p0-1-0, r0-1-0; II tibia p0-1-0, r0-1-0; III and IV missing. Epigynum with rounded and sinuous border of median posterior lobe, notched at base and with laterally projecting lobes. Center of epigynum with a large and deep groove (fig. 4c). Spermathecae oval and voluminous, with terminal receptaculae projecting posteriorly. Copulatory ducts short and coiled. Fertilization ducts elongated and not curved (fig. 4d).

Other material examined: None.
Distribution: Known only from the type locality in central Amazonia, Brazil.

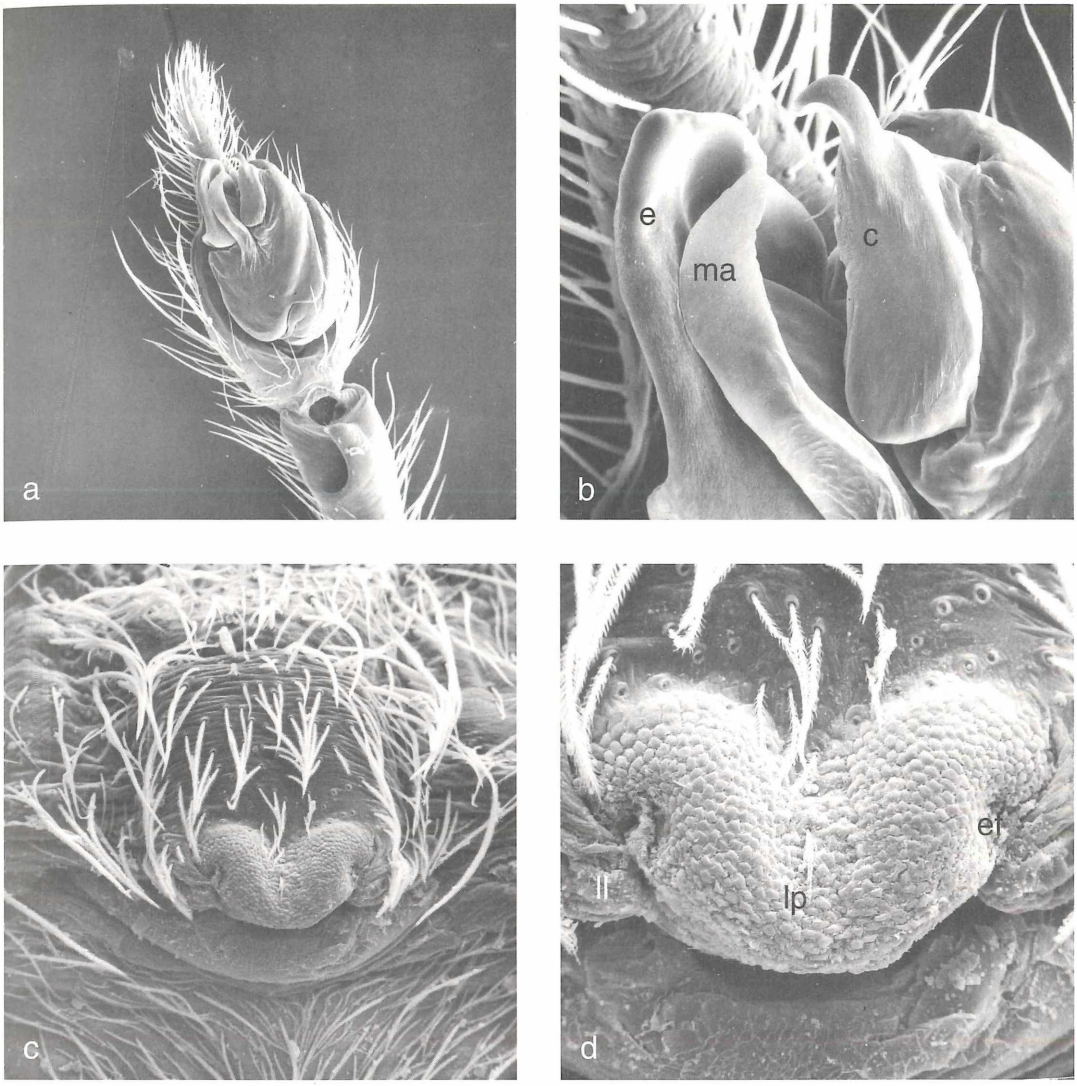

Figure 7. *Heidrunea irmleri*, n. sp., male: a) left palp, ventral view, 90x; b) same, detail of apex (c, conductor; e, embolus; ma, median apophysis), 450x; female: c) epigynum, ventral view, 180x; d) same (major magnification: median posterior lobe, lp; lateral lobes, ll; epigynal folds, ef), 450x.

***Heidrunea lobrita*, new species**
Figures 4 e,f

Types: Female holotype from igapó forest at Rio Tarumã Mirím, Amazonas, Brazil, November 25, 1976, J. ADIS, collected by an arboreal funnel trap, deposited in SMNK. Paratype: one female from the same locality of holotype, January 6, 1977, H. HÖFER, collected by an arboreal funnel trap, deposited in MCN (24063).
Etymology: The specific name is an arbitrary combination of letters.

Diagnosis: *Heidrunea lobrita* may be distinguished from females of *H. irmleri* and *H. arijana* by the subquadrangular border of the median posterior lobe (fig. 4e) in the female epigynum.
Male: Unknown.
Female: Coloration as in *H. irmleri*. Total length 4.30. Carapace 1.90 long, 1.50 wide. Clypeus 0.07, equal to the diameter of the AME. Anterior eye row 0.47 long and posterior eye row 0.80 long. Eye sizes and interdistances: AME 0.07, ALE 0.10, PME 0.10, PLE 0.10; AME-AME 0.02, AME-ALE 0.06, PME-PME 0.10,

PME-PLE 0.16, ALE-PLE 0.18. MOQ length 0.17, front width 0.17, back width 0.27. Chelicerae 0.95 long with 3 promarginal and 4 retromarginal teeth. Abdomen 2.60 long, 1.80 wide.
Length of legs: I - femur 1.60/ patella 0.70/ tibia 1.20/ metatarsus 1.20/ tarsus 0.70/ total 5.40/ II - 1.55/ 0.65/ 1.10/ 1.10/ 0.65/ 5.05/ III - 1.50/ 0.55/ 1.00/ 1.20/ 0.65/ 4.90/ IV - 1.80/ 0.60/ 1.55/ 1.80/ 0.80/ 6.55. Leg spination: I femur p1-1-1, r0; tibia p1-1-0; II femur p1-1-1, r0; tibia p0-1-1; III femur p0-1-1-1, r0-1-1-1; IV femur p0-1-1, r0-1-1. Epigynum with subquadrangular median posterior lobe. Central groove of epigynum smaller than in *H. arijana* (fig. 4e). Spermathecae globose, with oval terminal receptaculae, projecting posteriorly. Copulatory ducts short. Fertilization ducts curved to the outer part (fig. 4f).
Variation: Four females: total length 3.30-4.30; carapace 1.55-2.00; femur I 1.30-1.60.

Distribution: Known only from the type locality in central Amazonia, Brazil.
Other material examined: Brazil, Amazonas, Rio Tarumã Mirím (igapó forest), 1 female, October 29, 1971, U. Irmler (SMNK); 1 female, December 4 - 28, 1971, U. Irmler (INPA).

Acknowledgements
We thank Dr. J. Wunderlich and Dr. J. Adis for making available material and Dr. N. Platnick for loaning spiders of *Barrisca nanella* for comparison. We are grateful to Prof. Dr. L. Beck for organizing and to the German Academic Exchange Service (DAAD) for funding the journey and research period of the first author in Germany. We heartily thank Mr. Zibat of the „Abteilung für Elektronenmikroskopie" of the university in Karlsruhe for making the scanning electron micrographs. Dr. C. Griswold and Dr. P. Sierwald reviewed the manuscript and made very valuable comments.

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