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Source: American Museum Novitates, 2001(3336) : 1-8

Published By: American Museum of Natural History

URL: https://doi.org/10.1206/0003-0082(2001)336<0001:NSSAPR>2.0.CO;2

AMERICAN MUSEUM
Novitates

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK, NY 10024
Number 3336, 7 pp., 29 figures June 22, 2001

Ninetis subtilissima Simon, 1890 (Araneae: Pholcidae): Redescription and SEM Ultrastructure

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ABSTRACT

Ninetis subtilissima Simon, 1890 is redescribed and some data on SEM ultrastructure are presented based on specimens collected near the type locality in Yemen.

INTRODUCTION

When Simon (1893) proposed his epochal new classification of spiders, he recognized two subfamilies in the family Pholcidae: Pholcinae, with then 20 genera and about 70 species distributed all over the world; and Ninetinae, represented by a single species from Yemen, that is, *Ninetis subtilissima* Simon, 1890. Since then, several additional ninetine genera have been described, but the type species of the nominotypical genus has never been redescribed. In the most recent treatment of the subfamily (Huber, 2000), only the female of *N. subtilissima* was redescribed because Simon's material in the Museum National d'Histoire Naturelle in Paris includes no male specimen. In 1999 and 2000, one of us (AvH) collected several *Ninetis* specimens in Yemen, only about 60 km from the type locality of *N. subtilissima*. Even though this material differs in certain ways from Simon's figures of the male and from the females in the Paris museum (see below), we tentatively redescribe it here as *N. subtilissima*. Further collecting in Yemen is needed to test our assumption of conspecificity.

METHODS

Methods are as in Huber (2000). Measurements are in millimeters unless noted otherwise. Drawings were done with a camera lucida on a compound microscope (Wild).

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 ISSN 0003-0082 / Price $1.30

Figs. 1, 2. *Ninetis subtilissima* Simon. **1.** Male **2.** Female. Photos courtesy of B. Thaler-Knoflach.

SEM photos were made on a Hitachi S-4700 cold-emission SEM.

TAXONOMY

Ninetis subtilissima Simon, 1890

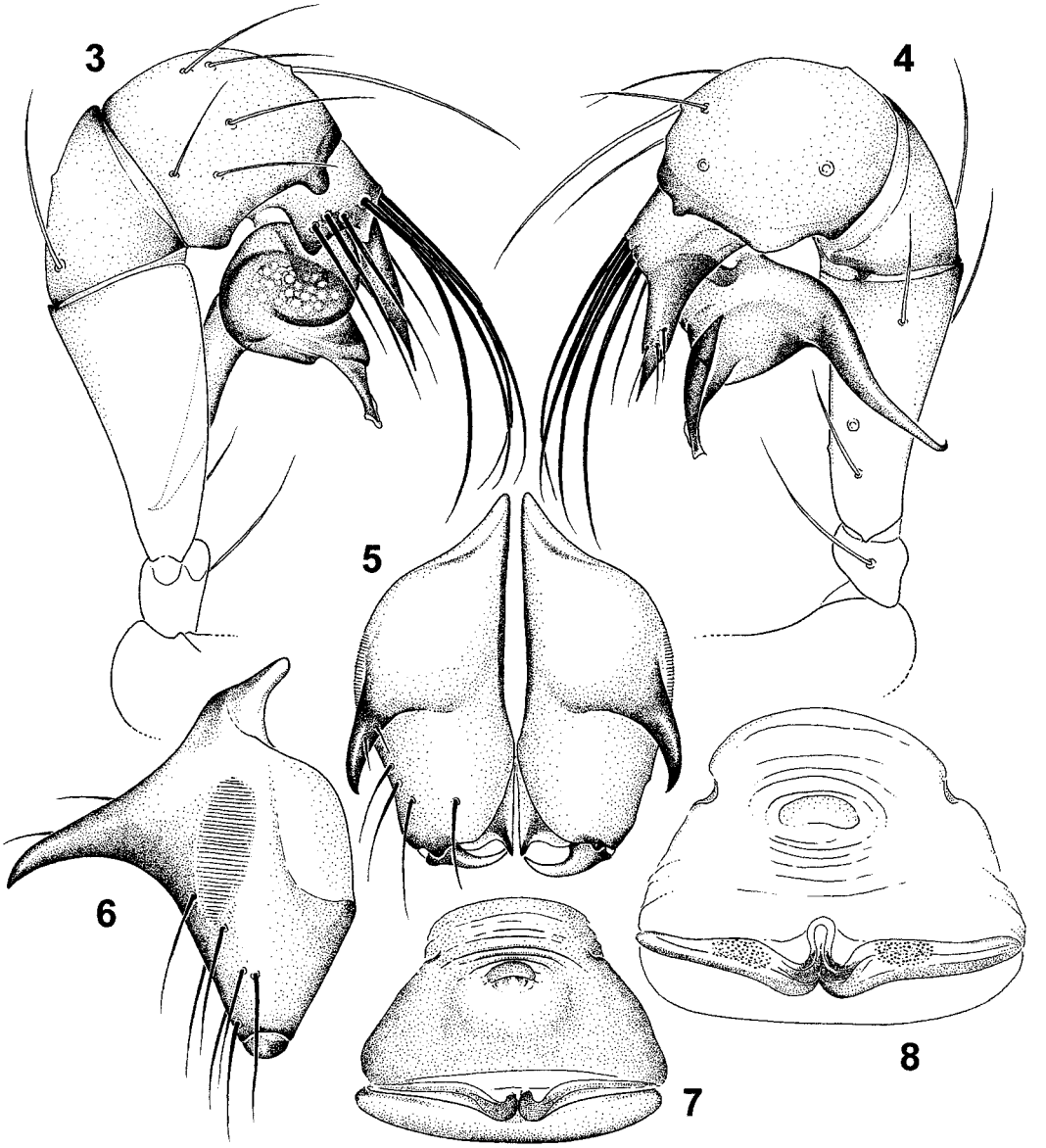
Figures 1–28

Ninetis subtilissima Simon, 1890: 96. – Simon, 1893: 486–487, figs. 487–489. – Fage, 1912: figs. 3a (copied from Simon, 1893), 134. – Bristowe, 1938: 310, figs. 2, 7 (copied from Fage, 1912, and Simon, 1893). – Huber, 2000: 82, figs. 310–314.

TYPES: About four to five adult female and several juvenile syntypes from Al'Adan, Yemen; no date (E. Simon), in MNHN (10788); with Simon's handwritten label ''10788 Ninet. subtilissima E.S. Aden!'', examined (see redescription of this material in Huber, 2000).

DIAGNOSIS: This species is easily distinguished from the two known congeners (*N. minuta* (Berland) and *N. namibiae* Huber) by the short, pointed procursus and the shapes of the bulbal projections, the shape of the male cheliceral apophyses, and the shape of the epigynum (fig. 29).

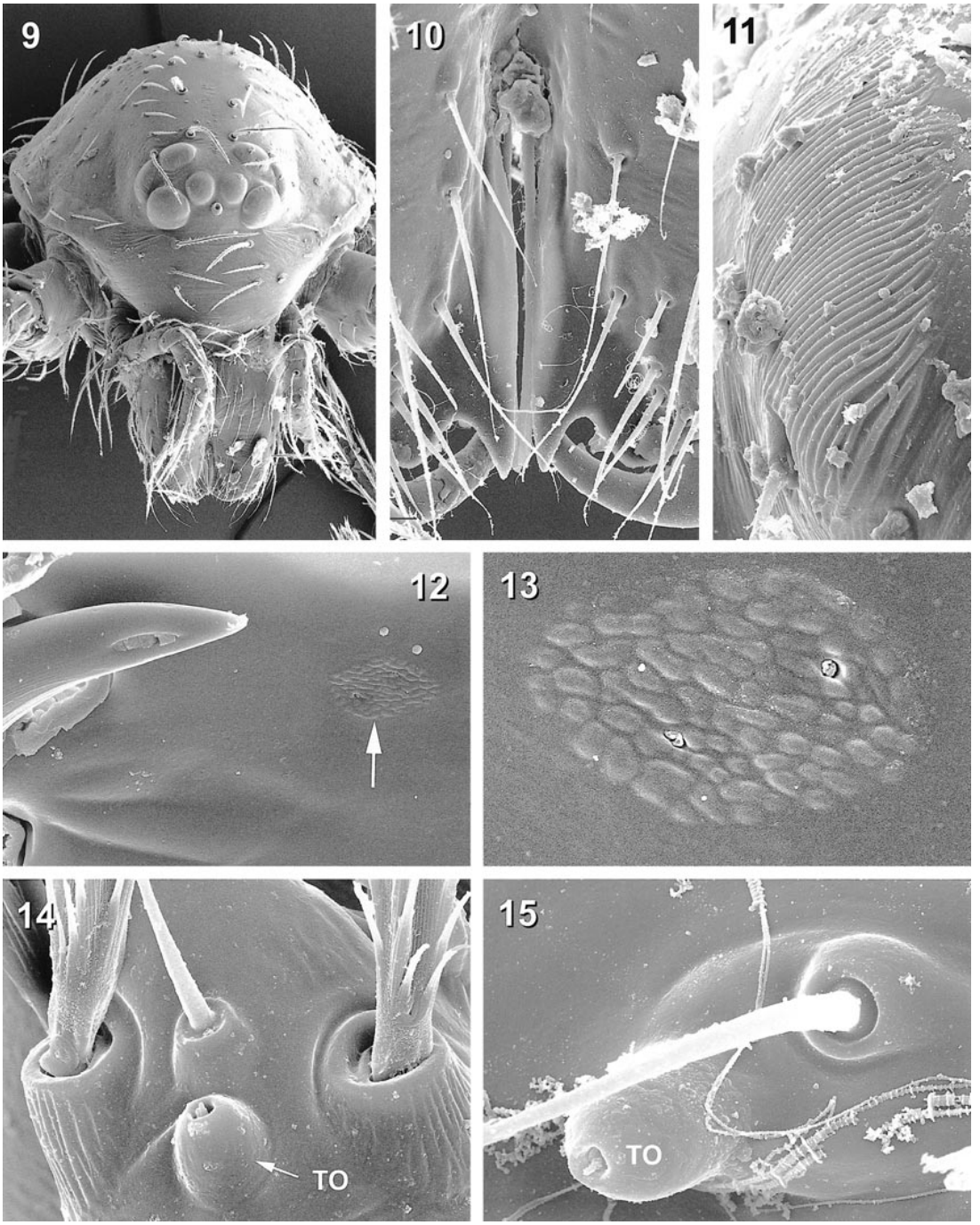
MALE (Ja'ar): Total length 0.9; carapace width 0.45. Leg 1: 2.28 (0.61 + 0.16 + 0.57 + 0.60 + 0.33), tibia 2: 0.47, tibia 3: 0.37, tibia 4: 0.67; tibia 1 l/d: 9.5. Habitus as in figs. 1 and 2 (see also drawings of the very similar *N. minuta* in Huber, 2000: figs. 315–318). Prosoma and legs ochre yellow; opisthosoma gray, with white mark above spinnerets and very indistinct darker spots dorsally. Carapace without thoracic furrow (cf. female: fig. 9). Eye pattern as in female (cf. fig. 9); diameter (in μm; ± 3 μm) AME 30, ALE 65, PME 50, PLE 60; distance PME-PME 50, PME-ALE 30. Chelicerae as in figures 5 and 6, with pair of apophyses frontally and very fine stridulatory ridges laterally (fig. 11); cheliceral laminae as in female (cf. fig. 10); cheliceral glands open through pores at slightly modified fields close to tips of fangs (figs. 12, 13). Sternum with small humps near bases of coxae 1. Palps as figures 3 and 4, with simple procursus that is pointed distally, and genital bulb with two processes: embolus dorsally and pointed (slightly hooked) apophysis ventrally; palpal tarsal organ capsulate with small orifice (fig. 15). Legs without spines, without curved hairs, with very few short vertical hairs; ''normal'' mechanoreceptive hairs of variable shape (e.g., figs. 24, 25); three trichobothria on tibiae, one on metatarsi; trichobothria with simple capsulate basis (fig. 27); retrolateral trichobothrium on tibia 1 at 58%; tarsus 1 apparently with 5 pseudosegments, barely visible as slightly darker rings in light microscope, but not discernible in SEM (figs. 25, 26). Three tarsal claws: superior claws with about 12 teeth, inferior claw with two teeth (fig. 28). Opisthosoma globular, with long hair dorsally. Three pairs of spinnerets, colulus possibly represented by modified area between ALS (fig. 19); ALS with one widened, one pointed, and several cylindrically shaped spigots (figs. 16, 17); PMS with one pair of cylindrically shaped spigots (fig. 18); PLS without spigots. Anal tubercle with multibranched hairs (fig. 22).



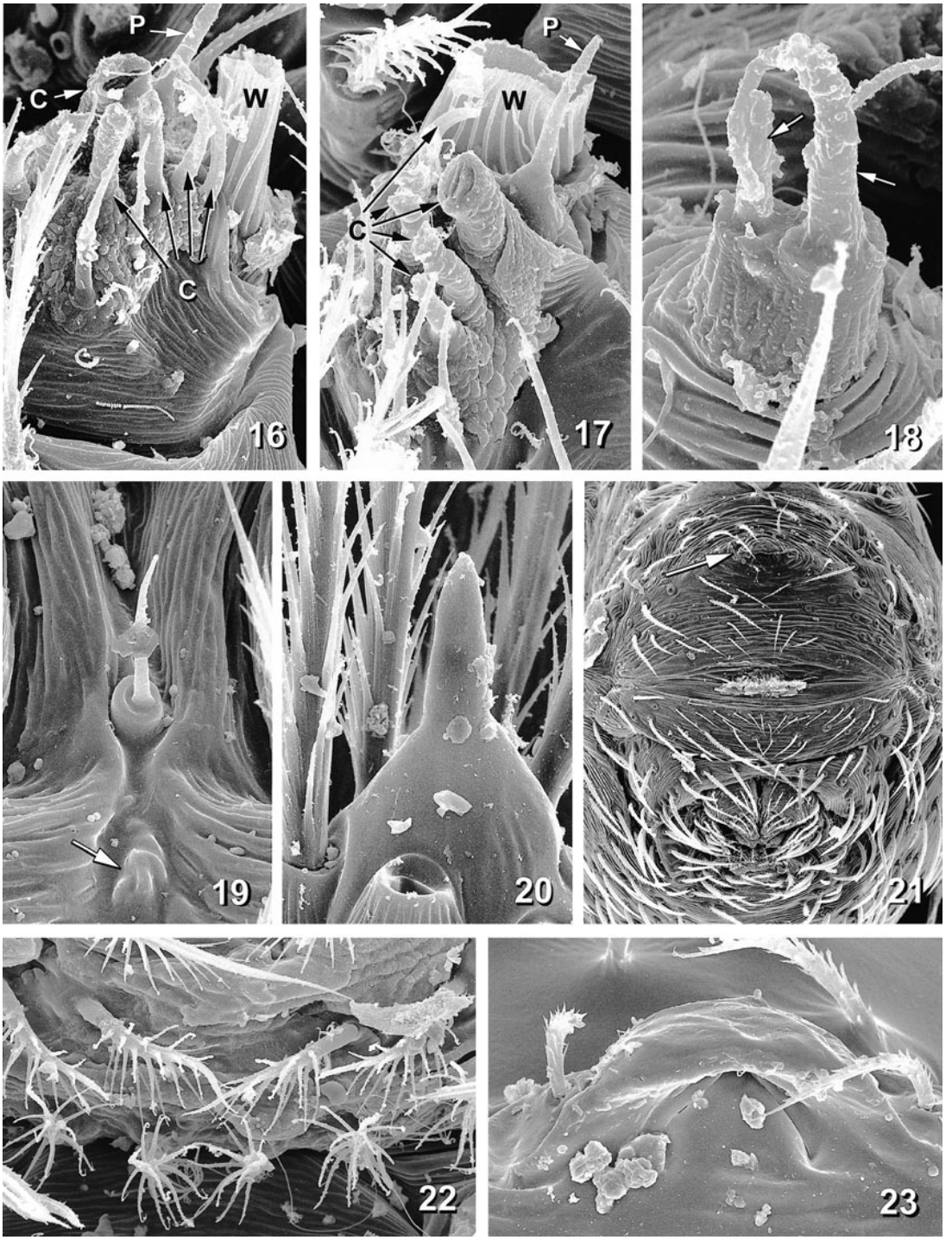
Figs. 3–8. *Ninetis subtilissima* Simon. **3.** Left male palp, prolateral view. **4.** Left male palp, retrolateral view. **5.** Male chelicerae, frontal view. **6.** Male chelicerae, lateral view. **7.** Epigynum, ventral view. **8.** Epigynum, dorsal view.

FEMALE (Ja'ar): In general very similar to male. Carapace width 0.48; tibia 1: 0.60. Palpal tarsal organ as in figure 14. Tip of palp with strong spine (fig. 20). Epigynum consisting of posterior plate and large frontal plate with median pocket opening posteriorly (figs. 7, 21, 23); dorsal view as in figure 8. See Huber (2000) for redescription of female syntypes.

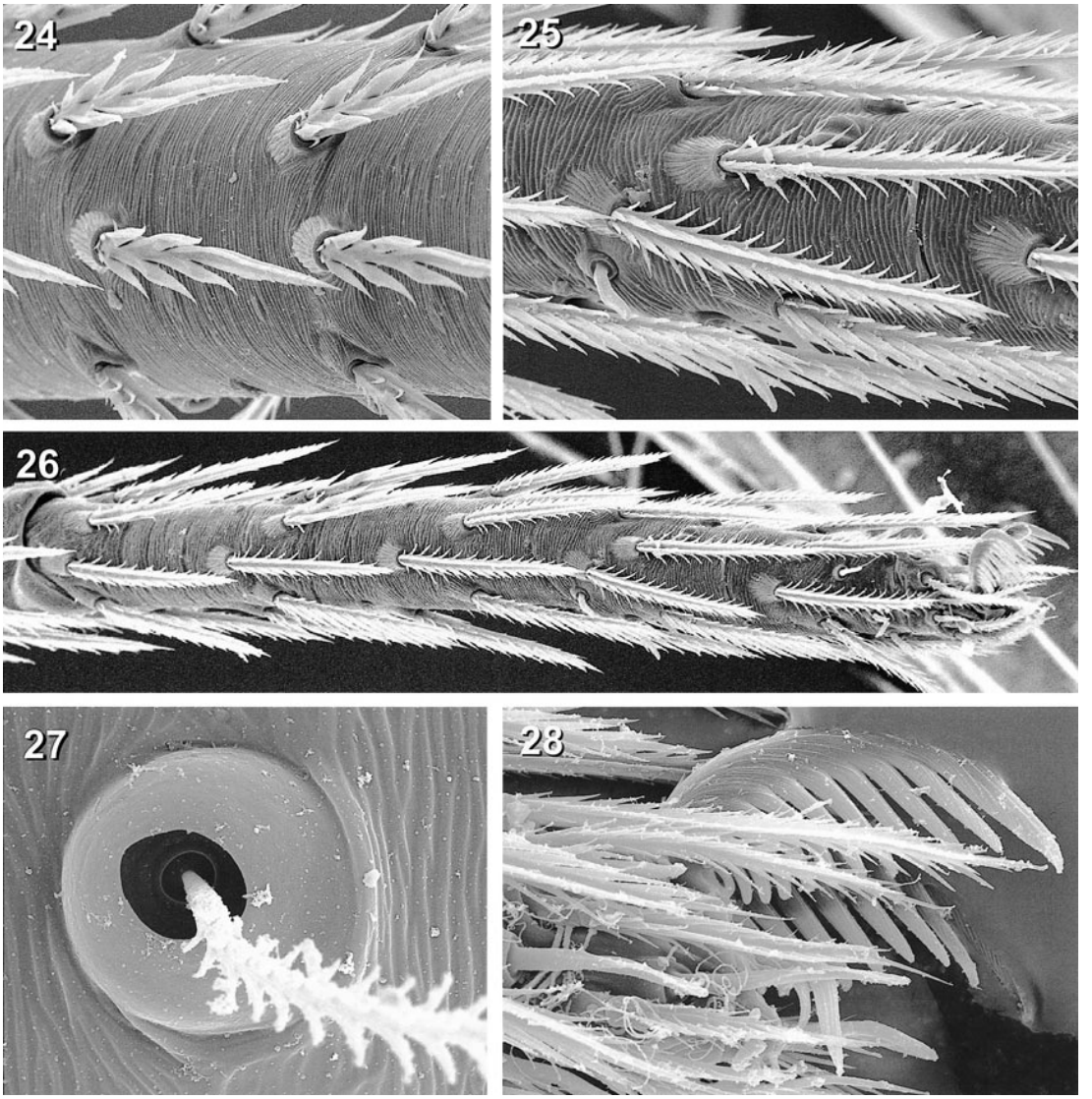
BIOLOGY: The specimens from Ja'ar were shaken out of old Sudan grass plants in a garden within the town. The spiders ran rapidly when disturbed and built flimsy webs when kept in glass tubes.



Figs. 9–15. *Ninetis subtilissima* Simon. **9.** Female prosoma, frontal view. **10.** Female cheliceral laminae, frontal view. **11.** Stridulatory files on male chelicera. **12.** Location of cheliceral gland openings (arrow) near tip of fang. **13.** Detail of fig. 12, showing two pores. **14.** Female palpal tarsal organ (TO). **15.** Male palpal tarsal organ (TO).



Figs. 16–23. *Ninetis subtilissima* Simon. **16, 17.** Male ALS showing widened (W), pointed (P), and cylindrically shaped (C) spigots. **18.** Male PMS, showing two spigots (arrows). **19.** Putative remnant of colulus (arrow) and sensillum between ALS. **20.** Tip of female palp. **21.** Female opisthosoma, showing epigynum and spinnerets (arrow points to pocket). **22.** Hairs on anal tubercle. **23.** Pocket on epigynum, posterior view.



Figs. 24–28. *Ninetis subtilissima* Simon. **24.** Hairs on tibiae (female tibia 2). **25.** Hairs on tarsi (female tarsus 2). **26.** Female tarsus 2 (note the apparent absence of pseudosegments). **27.** Trichobothrium base (female palpal tibia). **28.** Tarsal claws (female tarsus 1).

MATERIAL EXAMINED: YEMEN: Al'Adan: Syntypes above. Ja'ar: 1 ♂ 2 ♀, July 11, 1999 (A. van Harten), in American Museum of Natural History (AMNH); same locality and collector, May 15, 2000, 2 ♂ 17 ♀, temporarily in collection of first author (eventually in AMNH).

NOTES: In contrast to the two known congeners (*N. minuta* (Berland) and *N. namibiae* Huber), but in agreement with most other ninetines, *N. subtilissima* has stridulatory ridges on the male chelicerae. However, the striation is extremely fine and difficult to see in light microscopy, and scanning electron micrographs of chelicerae of the other two species have not been made.

The figures herein differ in some respects from Simon's (1893) figures of the males and from Huber's (2000) figures of the epigynum. Most notably, the long bulbal apophysis

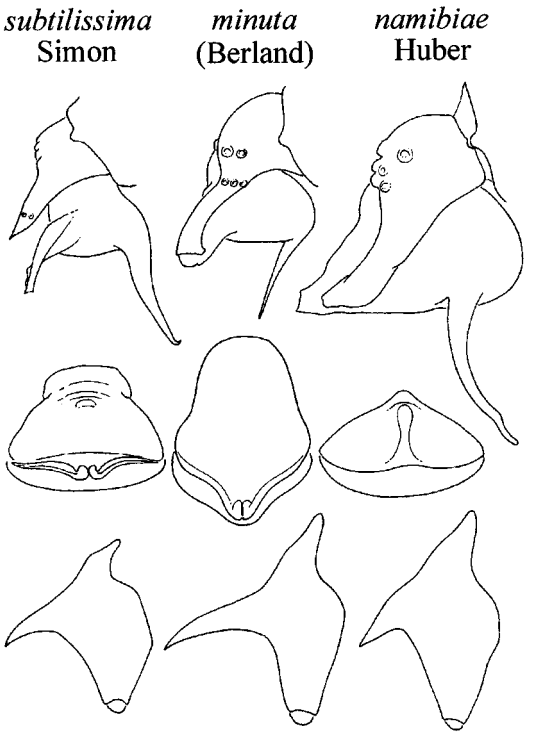


Fig. 29. *Ninetis* spp., diagnostic characters. **Upper row:** Left procursi and bulbs, retrolateral views. **Middle row:** Epigyna, dorsal views. **Lower row:** Chelicerae, lateral views. Illustrations in each row drawn to same scale. Drawings of *N. minuta* and *N. namibiae* copied from Huber (2000).

is strongly curved in Simon's fig. 488, while it is almost straight in the new material. Also, the male cheliceral apophyses seem more slender in Simon's fig. 489. In general, however, Simon's illustrations are not reliable tools for species identification. The differences between the epigyna of the females from Ja'ar and the female syntypes are minimal and within the usual range of intraspecific variation. Therefore, we provisionally interpret the differences as resulting from either misdrawing or intraspecific variation, or from both.

ACKNOWLEDGMENTS

We thank Barbara Thaler-Knoflach for her pictures taken from live specimens, and Norman Platnick, Gustavo Hormiga, and Christa Deeleman-Reinhold for comments on the manuscript. This note was written while the first author was a Kalbfleisch Research Fellow at the American Museum of Natural History, New York.

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