

**A NEW SPECIES OF THE SPIDER GENUS *MACROTHELE*
FROM THE GAOLIGONG MOUNTAINS, YUNNAN, CHINA
(ARANEAE: HEXATHELIDAE)**

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Abstract.—A new species of mygalomorph spider, *Macrothele yani* NEW SPECIES, is described from the Gaoligong Mountains, Yunnan Province, China.

Key words.—Arachnida, Araneae, Hexathelidae, *Macrothele*, NEW SPECIES, taxonomy, Gaoligong Mountains, Yunnan, China.

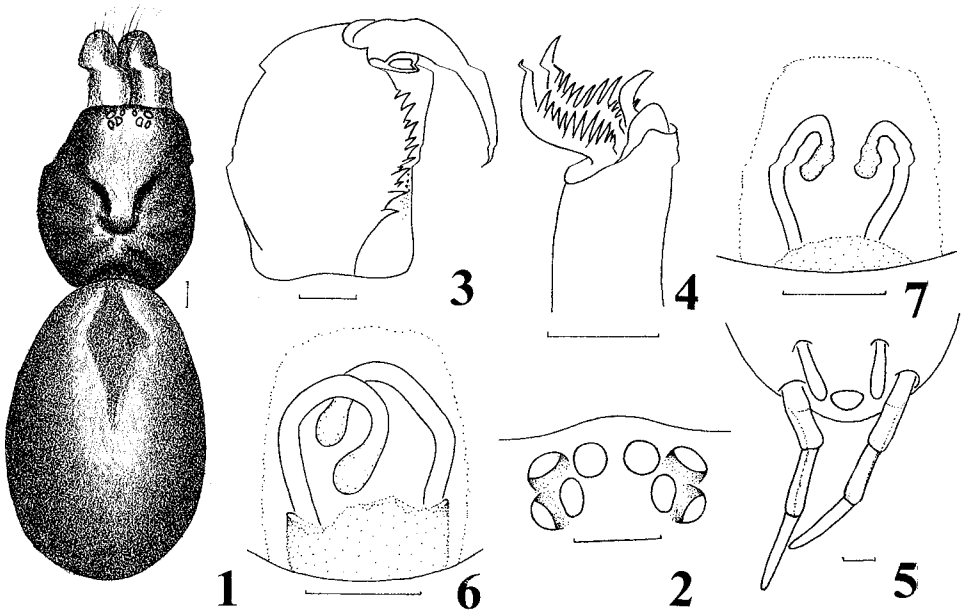
The Hexathelidae were elevated to family rank by Raven (1980). This group of mygalomorph spiders is characterized by the presence of numerous labial cusps. At present, the family Hexathelidae consists of 11 genera (Song et al. 1999). Only six hexathelid species, all *Macrothele*, have been recorded from China: *M. palpator* Pocock 1901 by Pocock (1901), Hu and Li (1986) and Feng (1990); *M. holsti* Pocock 1901 by Pocock (1901) and Shimojana and Haupt (1998); *M. simplicata* (Saito 1933) by Saito (1933) and Lee (1964); *M. guizhouensis* Hu and Li 1986 by Hu and Li (1986); *M. taiwanensis* Shimojana and Haupt 1998 by Shimojana and Haupt (1998); and *M. monocirculata* Xu and Yin 2000 by Xu and Yin (2000). *Macrothele* is characterized by having the posterior sternal sigilla much larger than the anterior and the chelicerae with only a row of teeth on the promargin or with only an additional row of smaller teeth on retromargin (Raven 1980).

We describe a new species from China, *Macrothele yani* NEW SPECIES. The specimens were collected by the second Sino-American expedition to the Gaoligong Mountains in June and July of 2000. This is contribution number 19 from the California Academy of Sciences (CaAS) Center for Biodiversity Research and Information (CBRI) and contribution number 13 from the China Natural History Project (CNHP).

Measurements are in mm. Abbreviations used are as follows: AER = anterior eye row, AL = abdomen length, ALE = anterior lateral eye, AME = anterior median eye, AME-AME = interval between AME and AME, AME-ALE = interval between AME and ALE, AW = abdomen width, CL = carapace length, CW = carapace width, MOQ = median ocular quadrangle width, MOQA = MOQ anterior, OQA = ocular quadrangle anterior, OQP = ocular quadrangle posterior, PER = posterior eye row, PLE = posterior lateral eye, PME = posterior median eye, PME-PME = interval between PME and PME, PME-PLE = interval between PME and PLE, TL = total length.

MACROTHELE YANI XU, YIN AND GRISWOLD, NEW SPECIES
(Figs. 1–7)

Types.—Holotype, female: CHINA. YUNNAN PROVINCE. FUGONG COUNTY. Gaoligong Mountains, Fugong, 26°32' N, 98°31' E, elev. 1150 meters,



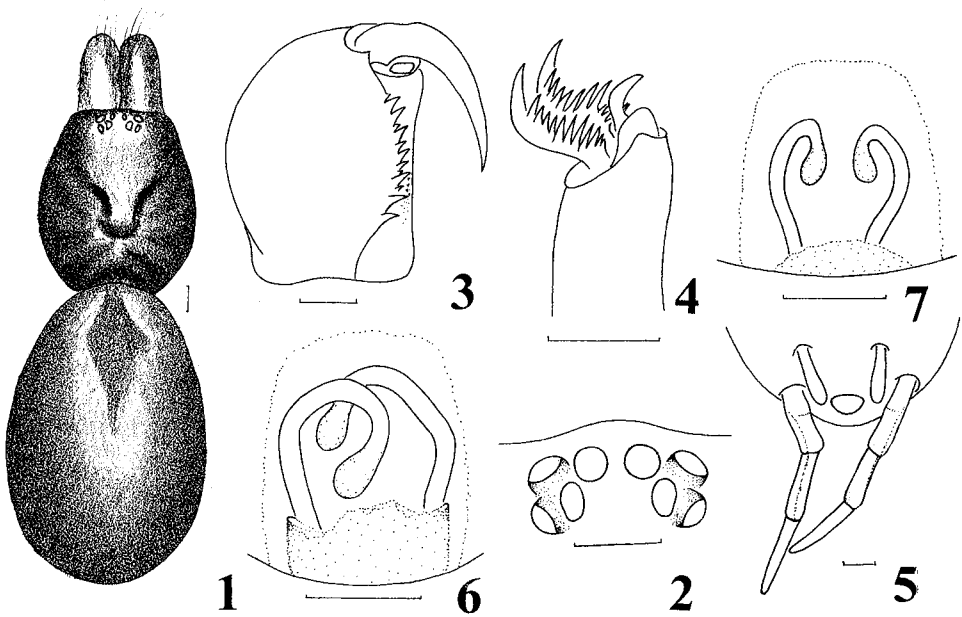
Macrothele yani sp. nov.

Figures 1–6. *Macrothele yani* NEW SPECIES. 1. Body, dorsal. 2. Eyes, dorsal. 3. Chelicera, median. 4. Tarsal claw of leg. 5. Spinnerets, ventral. 6. Female receptacula. 7. Subadult female receptacula. Scale bars: 1, 2, 3, 5, 6 = 1.00; 4, 7 = 0.5.

24 July 2000, collected by Yan Hengmei; deposited in the College of Life Science, Hunan Normal University (HNU).

Description.—Female: Carapace brown, covered with white hairs. Thoracic groove obvious (Fig. 1). Head region slightly elevated. Eyes in a compact group (Fig. 2). AER almost straight and PER recurved. Eye region width (1.69) greater than twice its length (0.77). Fovea semicircular and deep. Radial grooves obscure. Lateral margins of thoracic region dark, with long dark hairs. Sternum brown, covered with dark hairs and with three pairs of sigillae. Chelicera dark brown. Base of fang with short, minute depression on dorsal side. Chelicera with thirteen promarginal teeth (the first, fourth and ninth smaller) and several very small retromarginal teeth (Fig. 3). Labium wider than long, yellow-brown and with numerous cusps. Maxillae yellow-brown, with black cusps on inner angle. Palp and legs brown. Tarsal claw of palp with a single pectinate row of teeth. Legs with three tarsal claws, upper claws with 11 pectinate teeth in a single row (Fig. 4). Tarsus of leg I with 14 ventral rough bristles in regular double rows, metatarsus with double rows of 4–5 bristles, tibia with 4 ventral bristles (one median, three apical). Tarsus of leg II with 10 or 12 bristles in regular ventral double rows, metatarsus with 7 ventral bristles (double rows of 3–4 bristles) and one prolateral, tibia with 3 ventral bristles (one median and two apical) and one prolateral. Abdomen oval, gray-brown and with cardiac pattern slightly darker, reaching from anterior to middle. Two pairs of spinnerets. Anterior spinnerets wider distally than at base. First and second segments of posterior spinnerets with longitudinal ventral ridge in the middle, apical segment of posterior spinnerets digitiform (Fig. 5). Initial part of receptaculum oval and connected to vulva by strongly bent receptive tube, basal tube covered by membrane (Fig. 6). In subadult stage, bending of receptive tube also pronounced (Fig. 7). Individual variation: left and right tube intersecting or not.

Measurements.—Holotype female: TL (19.77), CL (7.77), CW (6.63), AL (11.66), AW (8.23), ALE (0.43), AME (0.37), AME-AME (0.17), AME-ALE (0.11), PLE (0.37), PLE-ALE (0.11), PME (0.40),



Macrothele yani sp. nov.

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PME-PME (0.71), PME-PLE (0.09), MOQ length (0.74) < width, OQA (0.86) < width OQP (1.17).
Leg formula: 4123.

Measurements of legs are as follows:

	Femur	Patella + Tibia	Metatarsus	Tarsus	Total
I	5.49	7.31	4.06	2.29	19.15
II	5.03	7.14	4.00	2.40	18.57
III	4.69	6.29	4.57	2.17	17.72
IV	5.83	7.89	6.06	2.86	22.64

Male.—Unknown

Diagnosis.—We have compared the new species with the six other species of *Macrothele* from China. *M. yani* NEW SPECIES is most similar to *M. holsti* but differs as follows: 1) the receptacular tube of *M. yani* is strongly bent towards the middle and base (Fig. 6), but that of *M. holsti* is only slightly bent laterally; 2) the abdomen of *M. holsti* has five pairs of darker oblique, transverse bands extending from a darker dorsomedian line, while that of *M. yani* has only a darker cardiac pattern (Fig. 1); 3) the sternum of *M. yani* has three pairs of sigillae, but that of *M. holsti* only two pairs (Shimojana & Haupt 1998).

Etymology.—The new species is named after Professor Heng-mei Yan, who collected the type specimen.

Natural History.—*Macrothele yani* were collected in sheet webs on shady embankments along roads and trails, surrounded by weedy vegetation.

Additional Material Examined.—CHINA. YUNNAN PROVINCE. GONGSHAN COUNTY. Gaoligong Mountains, Bingzhongluo, 28°01' N, 98°22' E, elev. 1800 meters, 7 July 2000, 1 subadult female, collected by Yan Hengmei (HNU).

Distribution.—China (Yunnan).

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LITERATURE CITED

- Feng, Z. Q. 1990. Spiders of China in color. Hunan Science and Technology Publishing House, Hunan.
- Hu, J. L. & F. J. Li. 1986. On two species of *Macrothele* from China (Araneae: Dipluridae). *Acta Zootaxonomica Sinica*, 11(1): 35–39.
- Lee, C. L. 1964. Spiders of Formosa (Taiwan). Taichung Jun. Teachers College Publications, Taichung Jun.
- Pocock, R. I. 1901. On some new trap-door spiders from China. *Proc. Zool. Soc.*, London, 1901: 207–215.
- Raven, R. J. 1980. The evolution and biogeography of the mygalomorph spider family Hexathelidae (Araneae, Chelicerata). *J. Arachnol.*, 8: 251–266.
- Saito, S. 1933. Notes on the spiders from Formosa. *Trans. Sapporo Nat. Hist. Soc.*, 13(1): 34.
- Shimojana, M. & J. Haupt. 1998. Taxonomy and natural history of the funnel-web spider genus *Macrothele* (Araneae: Hexathelidae: Macrothelinae) in the Ryukyu Islands (Japan) and Taiwan. *Species Diversity*, 3: 1–15.

- Song, D. X., M. S. Zhu & J. Chen. 1999. The spiders of China. Hebei Science and Technology Publishing House, Shijiazhuang.
- Xu, X. & C. M. Yin. 2000. A new species of genus *Macrothele* (Araneae: Hexathelidae) from China. *Acta Laser Biology Sinica*, 9(3): 200–202.

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