



In Memoriam: Professor Dr. Yan-Ling Liang (1934–2021)

MARK J. WETZEL^{1,*}, HAIJUN WANG², YONGDE CUI² & HONGZHU WANG²

¹Illinois Natural History Survey, Prairie Research Institute at the University of Illinois Urbana-Champaign, Forbes Natural History Building, 1816 South Oak Street, MC-652, Champaign, Illinois 61820 USA

✉ mjwetz@illinois.edu; <https://orcid.org/0000-0002-4247-0954>

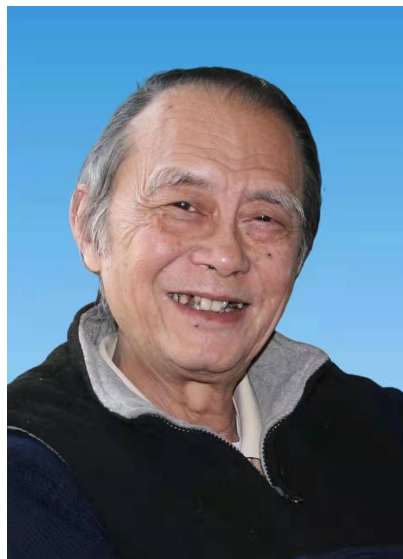
²Institute of Hydrobiology, Chinese Academy of Sciences, No. 7 South Donghu Road, Wuchang District, Wuhan 430072, Hubei Province, China

✉ wanghj@ihb.ac.cn; wanghaijun@ynu.edu.cn; <https://orcid.org/0000-0001-6963-2557>

✉ ydcui@ihb.ac.cn; <https://orcid.org/0000-0003-3529-3192>

✉ wanghz@ihb.ac.cn; <https://orcid.org/0000-0002-7386-7022>

*Corresponding author



Professor Dr. Yan-Ling Liang, our family-like friend, respected colleague, and renowned mentor, passed away suddenly and peacefully in Wuhan, Hubei Province, China, on 8 December 2021, at the age of 88, survived by his wife, two sons, and two grandchildren.

Professor Liang was born in Meizhou (Meichow), Guangdong Province, China, on 24 February 1934. His siblings included one older sister, one older brother, one younger sister, and two younger brothers. Professor Liang lived in Meizhou throughout his early years until graduating from secondary school. He then enrolled in Wuhan University, graduating from there in 1956, and soon after began working at the Institute of Hydrobiology (IHB), Chinese Academy of Sciences (CAS), continuing there for 43 years. Early in his professional career, he studied aquatic oligochaetes under the guidance of the famous oligochaetologist Professor Yi Chen at Nanjing University in Nanjing City, Jiangsu Province (China) (1956–1958), and visited the University of California, Santa Barbara (USA) (1979–1981). After returning to IHB-CAS in Wuhan from the USA, his responsibilities expanded to include Academic Dean of the State Key Laboratory of Freshwater Ecology and Biotechnology (1993–1996), Dean of the IHB Center for Freshwater Ecology (1987–1996), and as the President of Hubei Oceanography & Limnology Society (1996–2008). Professor Liang was a perennial member of the International Symposium on Aquatic Oligochaetes (ISAO) group. In collaboration with other IHB scientists, he was instrumental in organizing and hosting the 10th triennial meeting of ISAO in Wuhan in October 2006, with 66 participants representing 20 countries.

Throughout his career, Professor Liang devoted himself to aquatic ecology and taxonomy of invertebrates, particularly freshwater oligochaetes. His work ethics and dedication to science greatly influenced three generations oligochaete taxonomists, systematists, and aquatic ecologists—in Hubei Province, throughout China, and elsewhere in the World.

In collaboration with colleagues, several of whom were former students, he described one genus and 29 species of aquatic oligochaetes, and one genus and two species of branchiobdellidans as new to science; these are listed below in **Appendix 1**. Citations for publications by Yan-Ling Liang and collaborators in which oligochaetes and branchiobdellidans (Annelida, Clitellata) are discussed, including those in which new taxa are described, are listed in **Appendix 2**.

Professor Liang was a very humble man, sharing his knowledge, wit, humor, and broad insights with us about life—far beyond science and worms. He was always kind and respectful when working with his contemporaries, and equally with younger generations—always willing to teach us with patience and fun. He was proud of his Chinese lineage: Hakka / Hakka Han, associated with the Kejia or K'o-chia ethnic group, 'the guest people', that lived originally in North China before migrating to southern Chinese provinces during the 1270s.

His interests were broad and diverse—painting, writing calligraphy, composing verses, making audio amplifiers (especially collaborating with electronic technocrats at the *Tube Factory* in Wuhan), performing as well as listening to diverse music genres, and collecting and carving ink stones and stamps. He made friends absent of prejudice—with artists, common workers, carpenters, farmers, citizens everywhere, and regardless of their socio-economic status, professional involvements, or avocational pursuits. He had so many stories to tell and shared them often with longtime friends as well as people he would meet for the first time. He always embraced the diversity of life and cultures—evident every time he spoke with us, and always with quiet advice and a simple direction forward for all around him. We benefited deeply from his sincere interest in each of us.

To all who knew him, his passing is equal to that of losing a family member. Thankfully, his impact on each of us—as friends, colleagues, and renowned contributor to science—will ensure that the memory of our mentor and family-like friend Yan-Ling Liang remains “immortal”!

The State Key Laboratory of Freshwater Ecology and Biotechnology at the Institute of Hydrobiology, Chinese Academy of Sciences in Wuhan hosts a website (<http://benthos.ihb.ac.cn/Liang%20YL.en.htm>) that summarizes additional information for Professor Liang with pictures highlighting his professional life.

APPENDIX 1. Aquatic annelid genera and species described as new to science by Yan-Ling Liang and co-authors (citations for publications in which these taxa were described are listed in Appendix 2).

- | | |
|--|--|
| <i>Amphichaeta asiatica</i> Liang, 1958; | <i>Limnodriloides bulbopenitus</i> Wang et Liang, 1997; |
| <i>Vejdovskyella simplex</i> Liang, 1958; | <i>Fridericia multisegmentata</i> Wang, Xie et Liang, 1999; |
| <i>Paranais mobilis</i> Liang, 1958; | <i>Enchytraeus athecatus</i> Wang, Xie et Liang, 1999; |
| <i>Pristina acuminata</i> Liang, 1958; | <i>Fridericia chongqingensis</i> Xie, Liang et Wang, 1999; |
| <i>Aulophorus varians</i> Liang, 1958; | <i>Hemienchytraeus planisetosus</i> Xie, Wang et Liang, 1999; |
| <i>Aulophorus heptabranhionus</i> Liang, 1958; | <i>Hemienchytraeus brachytheucus</i> Xie, Wang et Liang, 1999; |
| <i>Branchiodrilus hortensis</i> var. <i>bifidus</i> Liang, 1958; | <i>Bothrioneurum grandisetosum</i> Wang, Xie et Liang, 2000; |
| <i>Nais inflata</i> Liang, 1963; | <i>Fridericia unisetosa</i> Xie, Liang et Wang, 2000; |
| <i>Pristina amphibiotica changtuensis</i> Liang, 1963; | <i>Fridericia paraunisetosa</i> Xie, Liang et Wang, 2000; |
| <i>Caridinophila</i> Liang, 1963; | <i>Bryodrilus longifistulatus</i> Xie, Liang et Wang, 2000; |
| <i>Caridinophila unidens</i> Liang, 1963; | <i>Bryodrilus macrotheca</i> Xie, Liang et Wang, 2000; |
| <i>Stephanodrilus truncatus</i> Liang, 1963; | <i>Enchytraeus chaoyangensis</i> Xie, Liang et Wang, 2000; |
| <i>Allodero prosetosa</i> Liang, 1964; | <i>Marionina changbaishanensis</i> Xie, Liang et Wang, 2000; |
| <i>Sinenchytraeus</i> Liang et Hsü, 1979; | <i>Limnodrilus paramblysetus</i> Wang et Liang, 2001; |
| <i>Sinenchytraeus glacialis</i> Liang et Hsü, 1979; | <i>Fridericia nanningensis</i> Xie, Liang et Wang, 2001; |
| <i>Limnodrilus amblysetus</i> Brinkhurst, Qi & Liang, 1990; | |
| <i>Piguetiella denticulata</i> Liang et Xie, 1997; | |
| <i>Pristinella aequidentata</i> Liang et Xie, 1997; | |
| <i>Chenidrilus</i> Liang et Xie, 1997; | |
| <i>Lumbricillus incisus</i> Wang et Liang, 1997; | |

APPENDIX 2. Citations for publications by Yan-Ling Liang and collaborators in which oligochaetes and branchiobdellidans (Annelida, Clitellata) are discussed. Citations are annotated with the names of taxa newly described therein.

- Liang, Y.L. (1958) On some new species of Naididae from Nanking including remarks of certain known species. *Acta Hydrobiologica Sinica*, 1958, 41–58. [in Chinese and English]. Taxa described in this paper: *Amphichaeta asiatica* sp. nov. Liang, 1958; *Vejdovskyella simplex* sp. nov. Liang, 1958; *Paranais mobilis* sp. nov. Liang, 1958; *Pristina acuminata* sp. nov. Liang, 1958; *Aulophorus varians* sp. nov. Liang, 1958; *Aulophorus heptabranhionus* sp. nov. Liang, 1958; *Branchiodrilus hortensis* var. *bifidus* sp. nov. Liang, 1958.
- Liang, Y.L. (1962) On some naids and tubificids from North-Eastern China. *Acta Hydrobiologica Sinica*, 2, 14–26. [in Chinese with English abstract]
- Liang, Y.L. (1963) Studies on the aquatic Oligochaeta of China, I. Descriptions of new naids and branchiobdellids. *Acta Zoologica Sinica*, 15(4), 560–570. [in Chinese with English summary] Taxa described in this paper: *Nais inflata* sp. nov. Liang, 1963; *Pristina amphibiotica changtuensis* ssp. nov. Liang, 1963; *Caridinophila* gen. nov. Liang, 1963; *Caridinophila unidens* sp. nov. Liang, 1963; *Stephanodrilus truncatus* sp. nov. Liang, 1963.
- Liang, Y.L. (1964) Studies on the aquatic Oligochaeta of China. II. On some species of Naididae from Sinkiang with description of a new species, *Allodero prosetosa*. *Acta Zoologica Sinica*, 16(4), 643–652. [in Chinese with English abstract] Taxa described in this paper: *Allodero prosetosa* sp. nov. Liang, 1964.
- Liang, Y.L., Hsü, C.F. & Chang, T.N. (1979) A new genus and species of Enchytraeidae from Tibet. *Acta Zootaxonomica Sinica*, 4(4), 312–315. [in Chinese with English abstract] Taxa described in this paper: *Sinenchytraeus* gen. nov. Liang et Hsü, 1979; *Sinenchytraeus glacialis* sp. nov. Liang et Hsü, 1979.
- Liang, Y. (1979) Studies on the aquatic Oligochaeta of China. III. Aquatic Oligochaeta of the Huama Lake. *Oceanologia et Limnologia Sinica*, 10(3), 273–281. [in Chinese with English abstract]
- Liang, Y.L. (1984) Annual production of *Branchiura sowerbyi* (Oligochaeta: Tubificidae) in Donghu Lake, Wuhan, China. *Chinese Journal of Oceanology and Limnology*, 2(1), 102–108.
<https://doi.org/10.1007/BF02888398>
- Liang, Y. (1987) Preliminary study of the aquatic Oligochaeta of the Changjiang (Yangtze) River. *Hydrobiologia*, 155, 195–198.
<https://doi.org/10.1007/BF00025651>
- Brinkhurst, R.O., Qi, S. & Liang, Y. (1990) The aquatic Oligochaeta from the People's Republic of China. *Canadian Journal of Zoology*, 68(5), 901–916. Taxa described in this paper: *Limnodrilus amblysetus* sp. nov. Brinkhurst, Qi & Liang, 1990.
<https://doi.org/10.1139/z90-131>
- Erséus, C., Sun, D.Y., Liang, Y.L. & Sun, B. (1990) Marine Oligochaeta of Jiaozhou Bay, Yellow Sea coast of China. *Hydrobiologia*, 202(1-2), 107–124.
<https://doi.org/10.1007/BF02208131>
- Liang, Y.L. & Xie, Z.C. (1992) Chapter 7. Annelida, Mollusca and Tardigrada, I. Oligochaeta, i. Oligochaeta Plesiopora. In: Yin, W.Y. et al. (Eds.) *Subtropical Soil Animals of China*. Science Press, Beijing, pp. 194–201. [In Chinese]
- Xie, Z.C., Liang, Y.L. & Wu, T.H. (1996) Diversity of zoobenthos in lakes in the medium reaches of Changjiang River. *Acta Hydrobiologica Sinica*, 20 (supplement), 103–113. [in Chinese with English abstract]
- Liang, Y.L. & Xie, Z.C. (1997) Aquatic Oligochaeta from Wuling Mountains area. In: Song, D.X. (Ed.) *Invertebrates of Wuling Mountains Area, Southwestern China*. Science Press, Beijing, pp. 383–394. Taxa described in this paper: *Piguetiella denticulata* sp. nov. Liang et Xie, 1997; *Pristinella aequidentata* sp. nov. Liang et Xie, 1997; *Chenidrilus* gen. nov. Liang et Xie, 1997. [in Chinese with English abstract]
- Wang, H.Z. & Liang, Y.L. (1997) Analyses of distribution and faunal relationship of inland-water microdrile Oligochaeta (Annelida) in the world and China. *Acta Hydrobiologica Sinica*, 21 (supplement), 93–102. [in English with Chinese abstract]
- Wang, H.Z. & Liang, Y.L. (1997) Two new species of Oligochaeta (Annelida) from King George Island, Antarctica. *Oceanologia et Limnologia Sinica*, 28 (supplement), 177–184. [in Chinese with English abstract] Taxa described in this paper: *Lumbricillus incisus* sp. nov. Wang et Liang, 1997; *Limnodriloides bulbopenitus* sp. nov. Wang et Liang, 1997.
- Liang, Y.L. & Wang, H.Z. (1998) Microdrile oligochaetes (Oligochaeta, Annelida). In: Yin, W.Y., et al. (Eds.), *Pictorial keys to soil animals of China*. Science Press, Beijing: pp. 90-98, 476-480.
- Liang, Y.L., H.Z. Wang & Xie, Z.C. (1998) Studies on the aquatic Oligochaeta of China. IV. Diagnoses of new records and rare species of Naididae and Tubificidae. *Acta Hydrobiologica Sinica*, 22, 54–61. [in Chinese with English summary]
- Wang, H.Z. & Liang, Y.L. (1998) History and current situation of microdrile (Oligochaeta, Annelida). In: Niu, D.S. (Ed.) *Retrospect and prospect of biosystems research in China*. China Forestry Publishing House, pp. 49–57. [in Chinese]
- Wang, H.Z., Xie, Z.C. & Liang, Y.L. (1999) Records of Enchytraeidae (Clitellata) from the People's Republic of China. *Hydrobiologia*, 406, 57–66. Taxa described in this paper: *Fridericia multisegmentata* sp. nov. Wang, Xie et Liang, 1999; *Enchytraeus athecatus* sp. nov. Wang, Xie et Liang, 1999.
https://doi.org/10.1007/978-94-011-4207-6_6
- Wang, H.Z., Xie, Z.C., Wu, X.P. & Liang, Y.L. (1999) A preliminary study of zoobenthos in the Poyang Lake, the largest freshwater lake of China, and its adjoining reaches of Changjiang River. *Acta Hydrobiologica Sinica*, 23 (supplement),

132–138. [in English]

- Xie, Z.C., Liang, Y.L. & Wang, H.Z. (1999) Taxonomical studies on *Fridericia* (Enchytraeidae, Oligochaeta) along the Changjiang (Yangtze) Basin. *Acta Hydrobiologica Sinica*, 23 (supplement), 158–163. [in English] Taxa described in this paper: *Fridericia chongqingensis* sp. nov. Xie, Liang et Wang, 1999.
- Xie, Z.C., Wang, H.Z. & Liang, Y.L. (1999) Studies on the Enchytraeidae (Oligochaeta, Annelida) of China. I. On new species and new records of the genus *Hemienchytraeus*. *Acta Hydrobiologica Sinica*, 23(4), 352–358. [in English with Chinese abstract] Taxa described in this paper: *Hemienchytraeus planisetosus* sp. nov. Xie, Wang et Liang, 1999; *Hemienchytraeus brachythecus* sp. nov. Xie, Wang et Liang, 1999.
- Liang Y.L. & Wang, H.Z. (2000) Annelida, Oligochaeta, Microdrile oligochaetes. In: Yin, W.Y. et al. (Eds.), *Pictorial Keys to Soil Animals of China*. Science Press, Beijing, pp. 90–98, 473–478.
- Wang, H.Z., Xie, Z.C. & Liang, Y.L. (2000) Seasonal dynamics and vertical distribution of enchytraeid guild in Luojiashan, Wuhan, China. In: Yin, W.Y. et al. (Eds.), *Pictorial keys to soil animals of China*. Science Press, Beijing, pp. 182–191.
- Wang H.Z., Xie, Z.C. & Liang, Y.L. (2000) A new terrestrial species of *Bothrioneurum* (Tubificidae, Oligochaeta) from Hunan Province, China. *Species Diversity*, 5(1), 7–12. [in English] Taxa described in this paper: *Bothrioneurum grandisetosum* sp. nov. Wang Xie et Liang, 2000.
<https://doi.org/10.12782/specdiv.5.7>
- Xie, Z., Liang, Y. & Wang, H. (2000) Two new species of *Fridericia* (Enchytraeidae, Oligochaeta) from Changbaishan Mountain, Jilin Province, China. *Species Diversity*, 5(1), 53–58. [in English] Taxa described in this paper: *Fridericia unisetosa* sp. nov. Xie, Liang et Wang, 2000; *Fridericia paraunisetosa* sp. nov. Xie, Liang et Wang, 2000.
<https://doi.org/10.12782/specdiv.5.53>
- Xie, Z., Liang, Y. & Wang, H. (2000) A taxonomic study of *Bryodrilus* (Enchytraeidae, Oligochaeta) from Changbaishan Mountain, China. *Species Diversity*, 5(2), 93–101. [in English] Taxa described in this paper: *Bryodrilus longifistulatus* sp. nov. Xie, Liang et Wang, 2000; *Bryodrilus macrotheca* sp. nov. Xie, Liang et Wang, 2000.
<https://doi.org/10.12782/specdiv.5.93>
- Xie, Z.C., Liang, Y.L. & Wang, H.Z. (2000) *Enchytraeus chaoyangensis*, a new terrestrial culture species (Enchytraeidae, Oligochaeta) from northeastern China. *Acta Hydrobiologica*, 42, 69–72. [in English] Taxa described in this paper: *Enchytraeus chaoyangensis* sp. nov. Xie, Liang et Wang, 2000.
- Xie, Z.C., Liang, Y.L. & Wang, H.Z. (2000) A new species of *Marionina* (Oligochaeta: Annelida: Enchytraeidae). *Acta Zootaxonomica Sinica*, 25(2), 143–146. [in Chinese with English abstract] Taxa described in this paper: *Marionina changbaishanensis* sp. nov. Xie, Liang et Wang, 2000.
- Xie, Z.C., Wang, J. & Liang, Y.L. (2000) Composition and faunal similarity of aquatic oligochaetes in different waters in the Changjiang River Basin. *Acta Hydrobiologica Sinica*, 24(5), 451–457. [in Chinese with English abstract]
- Wang, H. & Y. Liang, Y. (2001) A preliminary study of oligochaetes in Poyang Lake, the largest freshwater lake of China, and its vicinity, with description of a new species of *Limnodrilus*. *Hydrobiologia*, 463(1-3), 29–38. [in English] Taxa described in this paper: *Limnodrilus paramblysetus* sp. nov. Wang et Liang, 2001.
https://doi.org/10.1007/978-94-010-0597-5_4
- Xie, Z., Liang, Y. & Wang, J. (2001) *Fridericia nanningensis*, a new terrestrial enchytraeid species (Oligochaeta) from southwestern China. *Proceedings of the Biological Society of Washington*, 114(1), 275–279. [in English] Taxa described in this paper: *Fridericia nanningensis* sp. nov. Xie, Liang et Wang, 2001.
- Wang, H.Z. & Liang, Y.L. (2002) Seasonal dynamics and vertical distribution of enchytraeids in Luojiashan, Wuhan, China. *Natura Jutlandica, Occasional Papers*, 2, 17–24.
- Yan, Y.J. & Liang, Y.L. (2002) Abundance and production of *Limnodrilus hoffmeisteri* (Oligochaeta: Tubificidae) in an algae-dominated lake, Lake Houhu (Wuhan, China). *Chinese Journal of Oceanology and Limnology*, 20(1), 81–85. [in English]
<https://doi.org/10.1007/BF02846615>
- Yan, Y.J. & Liang, Y.L. (2004) Energy flow of *Branchiura sowerbyi* (Oligochaeta: Tubificidae) in a shallow macrophyte-dominated lake, Biandantang Lake. *Chinese Journal of Oceanology and Limnology*, 22(4), 403–407. [in English]
<https://doi.org/10.1007/BF02843636>