

In Memoriam

李迪 Li Di (1927–2006)



李迪

Li Di, former professor of the history of Chinese mathematics at Inner Mongolia Normal University, Huhehot, China, passed away on October 30, 2006, at the Inner Mongolia Hospital in Huhehot after suffering a myocardial infarction. Historians of Chinese mathematics have lost a wise and kind colleague. His former students, including myself, have lost their beloved mentor, who was always there when they needed his advice.

Like most scholars of his age in China, Li Di was a self-made man. He was born on October 6, 1927, in the part of Manchuria currently known as Yitong Prefecture, Jilin Province. His parents were farmers and the family was very poor. Because of this and the Japanese control over Manchuria, he could not go to school until he was thirteen years of age. He somehow managed to graduate from elementary school, but could not afford to continue his education. Instead, he worked as a farm laborer in order to help the family make ends meet. But whenever possible, he taught himself from books he was able to obtain. When the Communists took over Northeast China in 1948, his family's situation gradually improved. In 1950, he passed the entrance examination for the No. 1 Normal School of Shenyang City and was admitted into the Secondary Education Program. Two years later, he merited a recommendation by the School and studied advanced mathematics at the Northeast Normal University in Changchun, from which he graduated in 1954, and where he taught for the next two years. In August, 1956, he answered the call of the Chinese Communist Government to work in the border areas of China and volunteered to teach at Inner Mongolia Normal College, which was upgraded to a university in 1982 [Li and Guo, 2002, 391–392].

It was in Huhehot, through Li Di's efforts, that a center for the history of Chinese mathematics was created. In the 1950s and 60s, he was the only scholar who studied the history of Chinese mathematics at the College, if not in

the whole of the Autonomous Region of Inner Mongolia. In 1978, when Communist China established its system of degrees in higher education, Li Di was one of the handful of scholars who was granted permission by the Academic Degrees Committee of the State Council to admit graduate students to pursue Master of Science degrees in the history of Chinese mathematics. He was promoted to associate professor the next year, and to full professor in 1983. In order to advance the study of the history of Chinese mathematics and Chinese science in general, Li Di created the Institute for the History of Science at the University of Huhhot in 1983 and served as its Director until 1996. He was instrumental in upgrading the Institute to the status of a department in 2001, after which undergraduate students could be admitted. Mainly because of his outstanding contributions to the history of Chinese science and his influence in this area, in 2006 the department was permitted by the Academic Degrees Committee of the State Council to grant doctoral degrees in the history of science and technology in mainland China.

Li Di was arguably the most prolific author on the history of Chinese science in the past three decades. He authored nearly 20 books (some multivolumed), edited or coedited 30 books, conference proceedings, and collections of papers, and also published more than 400 articles. Although virtually all his publications are in Chinese, many of them are required reading for any international scholar dealing with the topics concerned. His published work covers a wide range of subjects, including scientific biography, the history of geography, the history of agriculture, the history of traditional Chinese medicine, the history of meteorology, and the history of scientific exchanges between China and foreign countries. It is no wonder that Christopher Cullen, Director of the Needham Research Institute at Cambridge, Great Britain, calls him “the polymath historian of science” [Cullen, 2007, 35]. The areas in which Li Di made his most important contributions, however, are the history of Chinese mathematics, the history of Chinese astronomy, and the history of science and technology of Chinese minorities [Guo and Feng, 2007; Xu, 2006]. Here I shall only discuss his work on Chinese mathematics.

Li Di developed an interest in the history of Chinese mathematics when he was still a student at Northeast Normal University. In 1954 he published his first paper, describing some major contributions of ancient Chinese mathematicians. The paper he published the following year, in the *Shuxue tongbao* (*Bulletin of Mathematics*, sponsored by the Chinese Mathematics Society, Nov. 1955, 20–22), on the mathematical contributions of Zu Chongzhi (429–500) and the possible ways in which Zu derived the value of π , is still often cited. Subsequently, Li Di published on Chinese algorithms for calculating areas and volumes of various shapes, the handling of negative numbers by Chinese mathematicians, and the important mathematical works by Zhao Shuang (fl. third century C.E.), Liu Hui (fl. ca. 263), and Ming Antu (?–1764). Li Di was also asked by the Shanghai People’s Press to write popular biographies of Zu Chongzhi (1959), Zhang Sui (683–727, published in 1964), and Guo Shoujing (1231–1316, 1966).

When the Cultural Revolution started in 1966, the academic environment in China changed dramatically. Academic journals immediately ceased to publish, and research was prohibited. Many renowned scholars, including the historian of Chinese mathematics Qian Baocong (1892–1974), were branded as “Reactionary Academic Authorities” and suffered both mentally and physically. Li Di, although prohibited from conducting research, was not a target of the political movement. Thanks to his “nobody” status and because he lived in a remote part of China, he was able to use his time wisely. While other people were oppressed by politics, he was able to read widely and study ancient Chinese mathematical and astronomical books in his private library. When he was on business trips or personal visits outside of Huhhot, he used such opportunities to collect manuscripts, rare books, and old journals on Chinese mathematics and astronomy that had been discarded by individuals and institutions. As a result, he was able to accumulate an extraordinary library of works on the history of mathematics, a resource for the future that would serve both his own interests and those of his future students. The collection also shaped his own scholarship, which came to focus on primary sources and materials to which no historians had previously had access. In 2003, he was recognized as one of the “Top Ten Book Collectors in the Autonomous Region” for the quality and size of his collections by the News and Publishing Bureau of the Inner Mongolia Autonomous Region. On June 12, 2006, participants of the China Mathematical Tour sponsored by the Mathematical Association of America had the privilege of seeing this collection in his home after listening to his lecture about counting tools from Tibet and of the Naxi ethnic minority group.

When the Cultural Revolution finally ended in 1976, Li Di immediately began to publish his research in journals and to participate in international conferences, including the series of international conferences on History of Science and Technology in China initiated by Joseph Needham (1900–1995). In 1984, Li Di published a book entitled *A Brief Account of the History of Chinese Mathematics* (Liaoning People’s Press). This book, despite its title, runs to 437 pages and not only summarizes Li Di’s own research results over the previous three decades, but also incorporates the latest accomplishments of his colleagues, including his former students. One of the important features of this book

is the material it incorporates on the basis of artifacts and archeological discoveries, tracing the origins of Chinese mathematics to the Paleolithic period. Another important part of the book is its account of the development of modern Chinese mathematics down to the 1940s. It was well received among professional historians of mathematics in China and was recently translated into Japanese [Li, 2002].

In the 1980s and 90s, Li Di, together with his colleagues, most notably Bai Shangshu (1921–1995) of Beijing Normal University, Shen Kangshen of Hangzhou University (now part of Zhejiang University), and Li Jimin (1938–1993) of Northwest University in Xi'an, in cooperation with the internationally acclaimed mathematician and historian of Chinese mathematics Wu Wenjun of the Chinese Academy of Sciences, raised the standards for studying Chinese mathematics to higher and higher levels. In a series of studies on the history of Chinese mathematics edited by Wu, *The Nine Chapters of Mathematical Procedure and Liu Hui* (Beijing Normal University Press, 1982); *Qin Jiushao and the Nine Sections of Mathematics* (Beijing Normal University Press, 1987); *Studies on Liu Hui* (Shaanxi People Education Press and Chiuchang Press, 1993); and the *Collected Papers on History of Chinese Mathematics* (Shandong Education Press, vols. 1–4, 1985–1996), Li Di contributed many original and valuable papers. For instance, in his short biography of the important 13th-century mathematician Qin Jiushao, he corrects several mistakes regarding Qin's life based on new material he had discovered. In another paper, he argues that it was Wang Xun, not Guo Shoujing, who should be credited with having carried out the mathematical work for the famous *Shoushi* Calendar (1281).

Li Di, in collaboration with the above-mentioned leading historians of Chinese mathematics, also promoted the teaching of history of mathematics in higher education in mainland China. The Education Department of China sponsored workshops on the history of mathematics, one held at Beijing Normal University in 1984, and another at Xuzhou Normal College in Jiangsu Province in 1986. Li Di was one of the primary lecturers in both workshops. In addition, he was instrumental in writing two college textbooks, *A Brief History of Chinese Mathematics* and *A Brief History of Mathematics in Foreign Countries* (Shandong Education Press, 1986 and 1987, respectively). Meanwhile, Li Di and some of his students published a general survey of the history of mathematics (Fujian Education Press, 1993). Perhaps inspired by the popular source books for mathematics edited by David E. Smith and Dirk J. Struik, Li Di (with Bai and Shen) conceived the project of publishing a series of source books on Chinese mathematics. The volume entitled *A Guide to Selected Readings on Traditional Chinese Mathematics* (Hubei Education Press, 1999) was authored by himself.

In 1984, Li Di, Wu Wenjun, Bai Shangshu, Shen Kangshen, and Li Jimin agreed to collaborate in writing a 10-volume work on Chinese mathematics. As soon as they had sent their proposal to Beijing Normal University Press, a contract was signed. But for a variety of reasons, no volumes had been published yet when Li Jimin and Bai Shangshu passed away in 1993 and 1995, respectively. Eventually, thanks to the combined efforts of Li Di and Shen Kangshen in particular, this magnificent 10-volume set of books providing a *Comprehensive Series on the History of Chinese Mathematics* was published between 1998 and 2004. In addition to serving as one of the assistant editors for the entire series, Li Di was the editor for volumes I, VI, and VII and the second appendix volume. He also edited volume III, although it is credited to Bai. In all, the *Comprehensive Series* is a monumental academic work on Chinese mathematics. It represents a grand synthesis of the subject up to the end of the 20th century. The second appendix volume, edited and written largely by Li Di, is a catalog of Chinese mathematical books, including translations of Western works. This catalog provides invaluable information on different versions of the books and their location. It is a must-have reference work for any serious researcher interested in the history of Chinese mathematics.

While writing his contributions to the *Comprehensive Series*, Li Di often felt that his own views on certain topics or aspects of Chinese mathematics could not be discussed there in detail due to the framework and structure of the collaborative work. Sometimes he even agreed to accept other scholars' views that were contrary to his own, for the sake of consistency of the entire series. In the winter of 1994, he agreed with Jiangsu Education Press in Nanjing to produce a four-volume study of the history of Chinese mathematics as a revised and expanded version of the book he had published in 1984. The first volume, *A General History of Chinese Mathematics*, which covers the period from ancient times to the 10th century, was published in 1997. The second volume, on mathematics during the Song and Yuan dynasties, from approximately the 11th to the mid-14th century, appeared two years later, and the third volume, devoted to mathematics in the Ming and Qing dynasties (1368–1911), was published in 2004. In early July of 2005 (the photograph published here was taken then), when I visited Li Di at his home, he confided to me that he intended to prepare the manuscript of the fourth volume, which was planned to cover Chinese mathematics during the Republic (1912–1949). Unfortunately, due to the priorities he set for other projects, this manuscript remains incomplete. A glance at the three volumes already published, however, immediately reveals the enormous complexity

of the undertaking, and as a whole this project represents one of the major contributions Li Di has made to the history of Chinese mathematics.

Because of the mission and cultural setting of the Inner Mongolia Normal College (later University), Li Di also focused on the contributions of Chinese minorities to mathematics. Ming Antu, probably the most important Mongolian mathematician of the 18th century, was a subject of Li Di's research for 40 years. Among other problems, Ming studied three formulas for infinite series introduced to him by the French Jesuit Pierre Jartoux (1669–1720), and Ming's work laid the foundation for the Chinese study of infinite series in the first half of the 19th century. Li Di published extensively on Ming's life and his mathematical works, including an article on a manuscript in Ming's hand that Li Di discovered recently. His book, *A Biography of the Mongolian Scientist: Ming Antu* (Inner Mongolia People's Press, 1978), was revised and enlarged for a Mongolian edition published by Inner Mongolia Science and Technology Press in 1992. The Manchu emperor Kangxi (1654–1722) was another Chinese minority figure whom Li Di studied. He examined Kangxi's role in the introduction of Western mathematics into China and also discovered a number of mathematical instruments used in his court, including the Pascal calculating machines now preserved in the Palace Museum in Beijing. This discovery has generated several interesting articles, including one written in English with Bai Shangshu and Michael R. Williams [Li et al., 1992].

Not only did Li Di contribute greatly to the range and depth of the history of Chinese mathematics through his teaching and writings, but also he was active in promoting the subject. He was one of the founding members of the Chinese Society for the History of Mathematics, which was created in 1981, and he served as Deputy Director of the Board of the Society from 1985 to 1998. He also represented China as a member of the International Commission on the History of Mathematics beginning in 1998. He not only organized more than a dozen national or international conferences on the history of Chinese mathematics, but also founded a new journal in 1990, *Shuxueshi yanjiu wenji* (Collected Papers of Research on the History of Mathematics), published jointly by Inner Mongolia University Press and Chiuchang Press in Taipei. The Chinese Society for the History of Mathematics adopted this series as its official journal under a new title: *Research on History of Mathematics* [Bréard et al., 2003, 463].

Nathan Sivin, Professor of Chinese Science and Medicine at the University of Pennsylvania, wrote in his 1987 preface to Li Di's *Collected Papers on the History of Chinese Science and Technology*: "As one authority on the history of science in China, Professor Li Di is recognized for his wide range of studies by historians of Chinese science in the world. His important contributions to the history of Chinese mathematics and astronomy, as well as to studies of scientific instruments, are well-known to all scholars in the field" [Sivin, 1991]. Over the past two decades Li Di's productivity has been prodigious, and his impact upon the history of Chinese mathematics correspondingly substantial. In recognition of his many accomplishments, he was made a corresponding member of the International Academy of History of Science in 2002, and an honorary permanent member of the International Society for History of East Asian Science, Technology, and Medicine in 2005.

Inner Mongolia Normal University has also recognized Li Di's extraordinary service and the outstanding contributions he made both to his academic fields and to the University. On August 28, 2006, between sessions of the Fourth International Symposium on Ancient Chinese Books and Records of Science and Technology and the *Chongzhen* Calendar, the University held a special ceremony to celebrate the 50th anniversary of his teaching and his 80th birthday (according to the Chinese tradition celebrated at the *beginning* of the 80th year of life). Participants in the Symposium from all parts of the world, including his many former students, paid their respects and expressed their gratitude and admiration on this special occasion. In retrospect, it was a very fitting tribute to his life of scholarship.

Li Di is survived by his wife, Liu Fengrong, two daughters, and two grandchildren. His elder daughter, Lisha, is married to Guo Shirong, Li Di's former student and current Chair of the Department of History of Science and Management of Science and Technology, Inner Mongolia Normal University. His other daughter, Jiasha, resides in Guangzhou.

Li Di supervised 32 graduate students, the majority of whom have written their theses on the history of Chinese mathematics [Guo and Feng, 2007, 97]. In addition to Guo Shirong, there are many others who are active in teaching and whose research on the history of Chinese mathematics continues the legacy that Li Di established. Among these are Luo Jianjin of Inner Mongolia Normal University, Li Zhaohua of Tianjin Normal University, Feng Lisheng of Qinghua University, and Ji Zhigang of Shanghai Jiaotong University. A light in the world of the history of Chinese mathematics has gone out, but the torches Li Di has lit continue to burn. Li Di will be sorely missed not only by his family but also by his former students and colleagues throughout the world.

Acknowledgments

The author thanks Joseph W. Dauben, Dolores DeLuise, and Guo Shirong for their invaluable comments and suggestions on previous versions of this article.

References

- Bréard, A., Dauben, J.W., Xu, Y., 2003. The history of Chinese mathematics: The past 25 years. *LLULL* 26, 429–474.
- Cullen, C., 2007. The *Suàn shù shū* 算數書, “Writings on reckoning”: Rewriting the history of early Chinese mathematics in the light of an excavated manuscript. *Historia Mathematica* 34, 10–44.
- Guo, S., Feng, L., 2007. *Li Di xianshen yu zhongguo kejishi* 李迪先生與中國科技史 (Mr. Li Di and the History of Chinese Science and Technology). *Ziran kexueshi yanjiu* 自然科學史研究 (Studies in the History of Natural Sciences) 26 (1), 90–101.
- Li, D., 2002. *中國的數學通史* (A General History of Chinese Mathematics). Translated by Otake Shigeo and Lu Renrui. Morikita, Tokyo.
- Li, D., Bai, S., Williams, M.R., 1992. Chinese calculators made during the Kangxi Reign in the Qing Dynasty. *IEEE Annals of the History of Computing* 14 (4), 63–67.
- Li, P., Guo, S., 2002. Li Di. In: Minde, C. (Ed.), *Zhongguo xiandai shuxuejia zhuan* 中國現代數學家傳 (Biographies of Contemporary Chinese Mathematicians), vol. 5. Jiangsu Education Press, Nanjing, pp. 391–404.
- Sivin, N., 1991. The Chinese preface, dated June 7, 1987. *Zhongguo kexue jishushi lunwen ji* 中國科學技術史論文集 (Collected Papers on the History of Chinese Science and Technology). Inner Mongolia Education Press, Huhehot.
- Xu, Y., 2006. *Zhongguo kejishi jia Li Di xianshen de shengping yu yeji*, 中國科技史家李迪先生的生平與業績 (Historian of Chinese Science and Technology Li Di: His life and contributions). *Zhonghua kejishi tonghaohui huikang* 中華科技史同好會會刊 (Archive of the Association for the History of Science, Taipei) 10, 115–120.

Yibao Xu
Department of Mathematics,
Borough of Manhattan Community College,
The City University of New York,
199 Chambers Street, New York, NY 10007, USA
E-mail address: xuyibao@hotmail.com

Available online 21 April 2007