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NOTE

Chinese Mathematics: Some Bibliographic Comments

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Historia Mathematica **11,** No. 1 (1984), contained an article by F. J. Swetz and T. S. Ang, "A Brief Chronological and Bibliographical Guide to the History of Chinese Mathematics," pp. 39–56. Their important list includes about 120 works from 1835 to 1982. Even so, there are some additions that should be brought to the attention of readers of *Historia Mathematica*. In the following, authors are listed alphabetically. Russian titles, following the Cyrillic alphabet, are listed separately. All Russian titles are accompanied by an English translation.

Berezkina, E. I. 1982. *Studies in the history of ancient Chinese mathematics. Science and Technology: Humanism and Progress,* Vol. 2. Moscow: Nauka.

Chemla, K. 1982. *Etude du livre "Reflets des mesures du cercle sur la mer"* de Li Ye. Thèse présentée pour l'obtention du Doctorat de 3[e] Cycle, avec 3 appendices. Université de Paris XIII.

Cullen, C. 1982. An eighth-century Chinese table of tangents. *Chinese Science* **5,** 1–34.

Guitel, G. 1975. *Histoire comparée des numérations écrites.* Paris: Flammarion. (See especially pp. 467–545.)

Hoe, J. 1982. Chinese mathematics. Essay review. *Annals of Science* **39,** 491–504.

Hofmann, J. E. 1963. *Geschichte der Mathematik,* Part I, pp. 73–78. Berlin: de Gruyter.

Kogelschatz, H. 1981. Bibliographische Daten zum frühen mathematischen Schriftum Chinas im Umfeld der "Zehn mathematischen Klassiker" (1. Jh.v.Chr. bis 7. Jh.n.Chr.). *Veröffentlichung des Forschungsinstituts des Deutschen Museums der Naturwissenschaften und Technik.* Reihe M. München.

Lam, L.-Y., & Ang, T. S. 1984. Li Ye and his "Yi Gu Yan Duan" [Old mathematics in expanded sections]. *Archive for History of Exact Sciences* **29,** 237–266. (Of course, this work could not have appeared in the list produced by Swetz and Ang.)

Libbrecht, U. 1980. New studies on Chinese mathematics. A review essay. *Chinese Science* **4,** 65–68. This review concerns books by Lam Lay-Yong (1977) and by J. Hoe (1977), and an earlier work by M. Hoe (1972). The important appendix to Hoe's work (1977), presented as a doctoral thesis at the University of Paris VII, including, for example, the French translation of the complete text of "Siyuan Yujian," remains unpublished.

Menninger, K. 1958. *Zahlwort und Ziffer,* Vols. I and II. Göttingen: Vandenhoek & Ruprecht. (See esp. Vol. II. pp. 266–286.)

Tropfke, J. 1980. *Geschichte der Elementarmathematik,* 4th ed. Vol. I: *Arithmetik und Algebra.* Vollständig neu bearbeitet von K. Vogel, K. Reich, und H. Gericke. Berlin/New York: de Gruyter.

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Van der Waerden, B. L. 1980. On the Babylonian mathematics. *Archive for History of Exact Sciences* **23**, 1–46.

——— 1983. *Geometry and algebra in ancient civilizations*. Berlin/Heidelberg/New York/Tokyo: Springer-Verlag. (This book also could not have been included in the list by Swetz and Ang.)

Youschkevitch, A. P. 1967. Recherches sur l'histoire des mathématiques au Moyen âge dans les pays d'Orient. *History of Science* **6**, 41–68. (See also *Historia Mathematica* **11**(1), 56.)

——— 1982. Nouvelles recherches sur l'histoire des mathématiques chinoises. *Revue d'histoire des sciences* **35**(2), 97–110.

Russian text, somewhat modified, in *Voprosy istorii estestvoznaniya i techniki*, 1982, No. 3, 125–136.

Berezkina, E. I. 1963. Iz istorii desyatičnych drobei v Kitae. (Berezkina, E. I. Decimal fractions in China. *Matematika v Shkole* **3**, 9–17.)

———1970. Kitai. Istoriya matematiki s drevneishich vremen do načala XIX stoletiya, I, 156–179. (Berezkina, E. I. *Mathematics in China*, in: History of Mathematics from Antiquity to the beginnings of XIXth century, I, pp. 156–179. Moscow: Nauka.)

Vasiliev, L. S., Bykov, F. S., Youschkevitch, A. P., Startsev, P. A., Berezkina, E. I. 1960. Dzh. Nidem. Nauka i tsivilizatsiya v Kitae. (Vasiliev, L. S., et al., Review of J. Needham's *Science and civilization in China*, Vols. 1–3, *Problemy vostokovedeniya* **4**, 195–201.)

Raik, A. E. 1961. O vyčislenii nekotorych obiemov v drevnekitaiskom traktate "Matematika v devyati knigach." (Raik, A. E. On the determination of certain volumes in the ancient Chinese treatise: "Mathematics in nine books"; reconstruction of the solution of problems 18–20 of book 5. *Istoriko-Matematicheskie Issledovaniia* **14**, 467–472.)

———1967. Očerki po istorii matematiki v drevnosti. Glava 4. Kitaiskaya matematika. (Raik, A. E. *Studies on the history of mathematics in antiquity*. Chap. 4: Chinese mathematics, pp. 277–328. Saransk: Mordovsk. izdat.)

Youschkevitch, A. P. 1955. O dostizheniyach kitaiskich učenych v oblasti matematiki. (Youschkevitch, A. P. On the contributions of Chinese scholars to mathematics. *Istoriko-Matematicheskie Issledovaniia* **8**, (1955), 539–572; see J. Needham, *Science and civilization in China*, Vol. 3, p. 2. Cambridge: Cambridge Univ. Press, 1959.)

——— 1961. Istoriya matematiki v srednie veka. Glava I. Matematika v Kitae. Moskva: Gos. izdat. fiz.-mat. literaturi, 19–106. (Youschkevitch, A. P. 1964. *Geschichte der Mathematik im Mittelalter*, pp. 9–88. Leipzig. Teubner.) Other translations exist in Romanian (1983), Polish (1969), Japanese (1971), Czechish (1977), and Hungarian (1982). It should be noted that one should read "Iz" instead of "Izvestija": Swetz and Ang, p. 51, lines 2 and 6.

In closing, two remarks should be made about the article of M. K. Siu in *Historia Mathematica* **8**(1), 61–66, cited by Swetz and Ang. In order to calculate the sum $1 + 4 + 9 + \cdots + n^2$, Liu Hui in 1261 used the rule

$$s = n(n + 1)(n + \tfrac{1}{2})/3.$$

For Yang Hui $n = 6$. M. Siu gives some information on the history of this problem in China and the proper reconstruction of the rule based on the determination of the quantity of blocks constituting the pyramidical piles or their analogs. It should be noted that:

1. The summation of the series $1 + 2 + \cdots + n$ is accomplished, for $n = 10$, according to the rule

$$s = (\tfrac{1}{3})(1 + 2n) \sum^{n} k;$$

that is to say,

$$s = (\tfrac{1}{3})(1 + n)n(n + \tfrac{1}{2})$$

in one cuneiform text from the Seleucid period (i.e., B.C.). Rules of the same kind were found in China, for the first time it seems by Shen Kuo, in 1086 (see the article by K. Siu, p. 63).

2. The reconstruction of K. Siu is almost the same as that proposed by the late S. Ya. Lourie in a footnote to his Russian translation of O. Neugebauer's *Vorlesungen über Geschichte der antiken mathematischen Wissenschaften,* Vol. I (1934). Neugebauer, O. Lektsii po istorii antičnych matematičeskich nauk, I. Moskva-Leningrad: ONTI, 1937, 193–194. The explanation of Neugebauer himself is more complicated. See also K. Vogel's *Vorgriechische Mathematik,* Vol. II, p. 37, footnote 2. Hannover/Paderborn, 1959.