

(39) Taxation: error in ticketing

A field of 1 *mù*: tax it at 1 *dōu* for 10 *bù*. The overall tax is 2 *shí* 4 *dōu*. Now it is wrongly ticketed at 2 *shí* 5 *dōu*; it is desired to increase or cut down the number of *bù*. Question: how much should the increase or decrease be? Reply: 9 *bù* and $\frac{3}{5}$ *bù* for 1 *dōu*. Method: take the mistaken ticketing as the divisor; take the given field as the dividend.

The mathematical calculations are a bit confusing because the problem seems to assume an original field size of 10 *bù* x 2.4 *shí* (1 *shí* = 10 *dōu*) whereas *bù* is usually a square measure. But what is revealing is that it seems far better to increase the tax rate to accommodate to the tax actually taken than to return the excess tax to the unfortunate owner. Problem (27) is a similar problem where too much duty has been charged and so the nominal field size is adjusted accordingly!

(15) The woman weaving

In a neighbouring village there is a woman good at weaving, who doubles her [production each] day. In weaving, [she] says: ‘On the fifth day, I [had] woven five *chí*.’ Question: on the day she began weaving and the subsequent ones, how much [was produced] in each case?

This is one of those questions which clearly has no practical application but where the mathematical interest is paramount. As such, perhaps the solution can be left to the reader!

The *Suàn shù shu* is clearly one of those significant historical texts that is going to be pored over by scholars to identify links between its mathematics and that of later works, and also for the information it provides or confirms about the commercial life of the early Hàn dynasty. It also provides useful subsidiary information equally for philologists and political historians. But the accessibility of the text in Cullen’s, translation and the pleasing nature of many of the problems, makes the *Suàn shù shu* a must for every school or college where mathematics teachers want to challenge and delight their students. And it is free!

Chris Weeks

Raymond Mercier, *Studies on the transmission of medieval mathematical astronomy*, Ashgate Variorum, 2004. ix + 315 pp., £59.50. ISBN 0-86078-949-7

This volume usefully collects eleven of the author’s studies on the legacy of Ptolemaic astronomy, written over the last thirty years, with a new introduction surveying his field. As an indication of what is to come, this thirty-page survey (‘The transmission of the Hellenistic legacy of astronomy: an introduction’) begins with a discussion of the technical procedures involved in the reconstruction of mathematical methods underlying medieval astronomical tables and then moves on to a brief historical overview, covering Sanskrit, Arabic, Hebrew, Byzantine Greek, and Latin. It ends with a small section called ‘Unity in diversity’, tracing one particular planetary precept through the Sanskrit, Arabic, and Latin traditions.

The works reissued here are listed below, with dates of first publication in brackets. The book ends with brief addenda and corrigenda, and indices of manuscripts and authors (ancient, medieval, and modern).

- ‘Studies in the medieval concept of precession’, in two parts (1976–77)
- ‘Accession and recession: reconstruction of the parameters’ (1996)
- ‘From *tantra* to *zij*’ (2000)
- ‘The meridians of reference of Indian astronomical canons’ (1987)
- ‘The parameters of the *zij* of Ibn al-A’lam (1989)
- ‘Astronomical tables in the twelfth century’ (1987)
- ‘The lost *zij* of Al-Sufi in the twelfth-century tables of London and Pisa’ (1991)
- ‘The Greek “Persian Syntaxis” and the *Zij-i Ilkhani*’ (1984)
- ‘The astronomical tables of George Gemistus Plethon’ (1998)
- ‘The date of the *Mahasiddhanta*’ (1993)

As might be inferred from these titles, Mercier is primarily concerned with textual and technical reconstruction rather than with historical context. The mathematical theory and techniques are rendered unproblematised into symbolic algebra, and while ancient authors are frequently name-checked it is not Mercier’s concern to explore their historicity or agency. Authors simply give authority and chronology, a means to place the texts in the astronomical tradition; rarely are the texts used to illuminate the life, motivation, or context of the authors. This reconstructionist methodology has a venerable tradition — of which Neugebauer, Kennedy, and Pingree are perhaps the most renowned practitioners — and is an essential first step in the analysis of fearsomely complex and often intractable sources. Sadly, however, it often seems to be the last step too: historians of late antique and medieval mathematical sciences have been slow to join the historiographical revolution by integrating their work with the historians of other intellectual, political, or social aspects of the places and periods they study. The historians of empire have started to reach out across the divide — Dimitri Gutas’s *Greek thought, Arabic culture* (Routledge 1998) and Thomas Allsen’s *Culture and conquest in Mongol Eurasia* (Cambridge 2001) both do a brilliant job at describing the political context and cultural motivations for mathematics, astronomy, and astrology in the eighth–thirteenth century Middle East and Central Asia. These comments are by no means a criticism of Mercier’s meticulous and revealing studies; rather they are meant as a plea for a new generation of historians of medieval mathematics to follow their counterparts in ancient studies and to look outside the text.

Eleanor Robson

Robert N Smart, *Biographical register of the University of St Andrews, 1747–1897*, University of St Andrews Library Publications, 2004. 1007 pp., £90. ISBN 0-900896-18-X

Historians have frequent cause to be thankful for the labours of father and son J and J A Venn, who compiled the multi-volume register of Cambridge students, *Alumni Cantabrigienses ...* (The father, John Venn, is the mathematician and logician who gave us Venn Diagrams, as well as being a historian of Cambridge University.) But other universities are less well served. For some, there are published lists of graduates or of matriculated students with limited biographical information; and for some there are collections of eulogies of eminent alumni. But until now no other