presence of a man without her husband's (or brother's) being present. Although the problem is seldom mentioned in the *Trattati d'abaco* tradition, which often had a place for problems in recreational mathematics, Franci points to numerous treatments, some with deviant interpretations of the "jealousy" condition, and some with extension to more couples than three.

T. Levy (pp. 307-326) presents a concise and informative survey (with a generous bibliography) of medieval mathematics in Hebrew in Spain, Provence, Italy and Byzantium. Special reference is made to the translations from Arabic, but something of the complexity of this rich tradition is also described.

In B. van Dalen's "Islamic and Chinese Astronomy under the Mongols" (pp. 327-356) we find a good summary of present knowledge of the exchange of astronomical ideas between Chinese and Islamic scholars, inter alia in calendrical matters. Islamic *zījes* were admired by the Chinese astronomers for their accuracy; and several were translated into Chinese. Chinese influence on Islamic science may be seen, for instance, in the establishment of the Persian solar-lunar calendar. At the end of the article is a section on methods of investigating relationships between tables, one of van Dalen's specialisms.

M. Bagheri's paper (pp. 357-368) is on the depression of the horizon, or the question of how much more of the heaven does one see because of one's height. He appends an Arabic text, which he gives reasons for ascribing to Jamshīd al-Kāshī, with English translation.

A. Volkov (pp. 369-410) describes the Vietnamese arithmetical work *Toan phap dai thanh*, a treatise in the Chinese style attributed to Luong The Vinh (15c.). Some of the problems it contains are on such standard mathematical procedures as root extraction or the determination of the areas of figures, but there are also sections on land taxation and numerical divination. Chinese sources are indicated, but it is hard to specify them.

M. Folkerts (pp. 411-428) discusses mathematical problems in three collections in Regiomontanus' hand (including the unedited collection in MS Plimpton 188). Some of the problems might be described as recreational mathematics; others are algebraic or geometrical. Most have an Italian origin. Many reappeared in later German treatises. Thus Regiomontanus, who spent some years in Italy, may be seen as an important figure in the transmission of mathematical ideas from Italy to central Europe.

The last paper (pp. 429-453) is an account by D. Pingree of the Sanskrit renderings of de la Hire's *Tabulae astronomicae* in the eighteenth century. The first, in verse, was the most popular, but contained only rules. Only the third version attempted to give the geometrical basis. The paper describes how the tables were brought into Indian culture.

Richard Lorch

S.M. Razaullah Ansari (ed.), *History of Oriental Astronomy. Proceedings of the Joint Discussion-17 at the 23rd General Assembly of the International Astronomical Union, organised by the Commission 41 (History of Astronomy), held in Kyoto, August 25-26, 1997.* Astrophysics and Space Science Library, vol. 274. Kluwer Academic Publishers. Dordrecht/ Boston/ London, 2002, XIII+ 282 pp.

This volume compiles the Proceedings of a Symposium on Oriental Astronomy (mainly Chinese, Japanese and Korean, but also Islamic and Indian) during Medieval and Modern times. The collection contains 19 papers accompanied by an introduction written by the editor, a full programme of the meeting (p. 245), a detailed summary of the *c.v.* of the contributors (pp. 247-259) and a good alphabetical index of names, titles of works and subjects. Of the 19 papers, four are significant for the History of Islamic Astronomy:

Benno van Dalen ("Islamic Astronomical Tables in China. The Sources for the Huihui li", pp. 19-31) and Michio Yano ("The First Equation Table for Mercury in the *Huihui li*", pp. 33-43) are conducting a joint research project into the *Huihui li* or *Huihui lifa*, a Chinese translation, made in 1382-1383, of an Islamic (most probably Iranian) *zīj*: the original Arabic or Persian text seems to have been preserved in a MS of the library of the Pulkovo Observatory, described in 1882 by A. Wagner, which was still there at the time of the fire of 1997 and may have been destroyed then. This Chinese *zīj* is the result of the work undertaken in the Islamic Astronomical Bureau, an institution founded in 1271 in Peking whose first director was a certain Zhamaluding (identified with Jamāl al-Dīn Muḥammad ibn Ṭāhir ibn Muḥammad al-Zaydī) who had arrived in China in 1267. To the materials gathered from the lost Arabic or Persian source, the *Huihui li* added the results of fresh observations, made towards the end of the thirteenth century, which included a catalogue of 277 stars with new coordinates independent of the Ptolemaic ones. Van Dalen's paper presents a description of the various sources which contain information on the *Huihui li*. Among them we find the famous *zīj* of al-Sanjufīnī, completed in 1366 in Tibet and studied during the last fifteen years by E.S. Kennedy and B. van Dalen: it includes a large number of tables in common with the *Huihui li*. This work was introduced in Korea in the first half of the $15^{th}$ c. and two adaptations for its use in this country were prepared ca. 1430 and in 1442. Other Chinese sources containing information about the *Huihui li* are much later ($17^{th}$ - $18^{th}$ c.).

Michio Yano's paper describes the tables of the computation of the planetary equation of anomaly in the *Huihui li*, which have an interesting characteristic, for they give the equation of anomaly at the apogee instead of at mean distance (used in the tradition of the *Handy Tables*), a table for the difference of the equation of anomaly in the apogee and the perigee and, finally an interpolation function. This seems to be the same structure as that found in Kūshyār ibn Labbān's *Jāmiᶜ Zīj* (G. van Brummelen, "Mathematical Methods in the Tables of Planetary Motion in Kūshyār ibn Labbān's *Jāmiᶜ Zīj*", *Historia Mathematica* 25 (1998), 265-280), as well as in the aforementioned *Zīj* of al-Sanjufīnī. It also reminds me strongly of the technique used by Ibn al-Bannā' to compute the equation of anomaly for Saturn and Jupiter (see J. Samsó and E. Millás, "The computation of planetary longitudes in the *zīj* of Ibn al-Bannā', *Arabic Sciences and Philosophy* 8 (1998), 259-286) and it reappears (applied to all the planets) in the tables of John Vimond (see my review of Chabás and Goldstein, *The Alfonsine Tables of Toledo* in this issue of *Suhayl*). The bulk of Yano's paper concentrates, however, on the computation of the equation of the centre for Mercury. It is well known that the *Almagest* separates this equation into two components: $c_3$ (value of the equation considering that the centre of the equant coincides with the centre of the deferent) and $c_4$ (the correction needed in order to shift the actual position of the centre of the equant). The tradition represented by the *Handy Tables* gives directly the value of the equation ($q$) on the basis that $q = c_3 + c_4$. Curiously enough the *Huihui li* gives an equation of the centre for Mercury that is not $q = c_3 + c_4$, but $q = c_3 - c_4$. It is not surprising to discover the same feature in the Sanjufīnī *zīj*, but it is amazing to find that exactly the same mistake is to be found in al-Bīrūnī's *al-Qānūn al-Masʿūdī*.

The volume also includes two papers dealing with the introduction of modern European astronomy in India: David Pingree ("Philippe de La Hire at the Court of Jayasimha", pp. 123-131) and S.M. Razaullah Ansari ("European Astronomy in Indo-Persian Writings", pp. 133-144). Savai Jayasimha II or Jay Singh is the well known maharaja of Amber (1699-1743) who gathered an important collection of Sanskrit, Persian and Arabic astronomical MSS, as well as printed European books. Among them we find the 1727 Paris reprint of La Hire's *Tabulae astronomicae*, brought to him from Portugal in 1730, among other European books and astronomical instruments, by the Jesuit missionary Manuel de Figueredo, who arrived with a Portuguese astronomer, Pedro da Silva. David Pingree's paper analyses all the information available about the influence of this work in India, which marks the beginning of the introduction of European astronomy in this country. La Hire's tables were copied by hand by Joseph du Bois and at least two Sanskrit versions of it were made. Computations of lunar longitudes made with them were compared to lunar observations made at the observatory of Jaypur and to positions calculated with Ulugh Beg's *Zīj-i Jadīd* between 1727 and 1737. Discrepancies between the observed and computed positions led Jay Singh to ask (1732) for clarifications, and this led to the arrival (1734) of two other Jesuit astronomers (Fathers Boudier and Pons) equipped with modern astronomical instruments, including a 17-foot telescope. A group of Muslim astronomers, in Jay Singh's court, worked from the 1720's on the compilation of the Persian *Zīj-i-Muḥammad Shāhī*, finished about 1735. A good part of this *zīj* is based on Ulugh Beg's *Zīj-i Jadīd* but two papers by Mercier (1984) and van Dalen (2000) have established that the mean motion tables are the result of an adaptation of those of La Hire to the Muslim calendar.

Ansari's paper completes Pingree's information during the second half of the eighteenth and the first half of the nineteenth century: it deals with Indian scientists who came into contact with the scholar-administrators of the East India Company and some of them had the opportunity to visit England and other European countries and returned with updated knowledge about the recent developments of modern astronomy. Ansari summarizes the works of five of these scientists, most of which have been preserved in manuscripts in Persian, written particularly during the first half of the nineteenth century. It is remarkable to see that an adequate knowledge of contemporary astronomy does not imply the abandonment of the Islamic (and Hindu) traditions: an author such as Mirzā Abū Ṭālib (1752-1805-6), who has a detailed knowledge of European astronomy of the early 19th c., when he deals with transits of Venus and Mercury across the solar disk, refers to observations of the same kind made by Ibn Sīnā, Ibn Bājja and Quṭb al-Dīn al-Shīrāzī. Similarly, Ghulām Ḥusayn Jawnpūrī (1790-1862), who made observations of Pallas with a telescope in 1826, wrote, in 1818, a book on the construction and use of the astrolabe.

J. Samsó

Charles Burnett, Keiji Yamamoto, Michio Yano, *Al-Qabīṣī (Alcabitius): The Introduction to Astrology. Editions of the Arabic and Latin texts and an English translation*. Warburg Institute Studies and Texts, 2. The Warburg Institute - Nino Aragno Editore. London- Turin, 2004,