Eva Orthman & Petra G. Schmidl (eds.), *Science in the City of Fortune. The* Dustūr al-munajjimīn *and its World*. Bonner Islamstudien, Band 39, Berlin, 2017, 295 pp.

As stated in the Preface, a large part of this volume contains the contributions of several authors to an interdisciplinary workshop held at Bonn University in July 2011 (see information on the authors on pp. 292-295). This is preceded by two main articles, authored by both editors, with the collaboration of Mohammad Karimi Zanjani, which provide important information on the *Dustūr al-munajjimīn* and on the unique manuscript of the Paris National Library which has preserved this work. The first article («The provenance and history of the *Dustūr al-munajjimīn* and its manuscript», by Orthman & Schmidl, pp. 13-33) follows the common view that the book was written in the fortress of Alamūt, by an anonymous author during the lifetime of Ḥasan-i Ṣabbāḥ (d. 1124). The manuscript is incomplete and it contains some loose sheets. A set of tables (pp. 20-23) restores the correct order of the pages and indicates the location of the missing ones. As the manuscript has been considered to be an autograph by some scholars, this problem is analysed carefully by Orthman & Schmidl who conclude «that the copy was prepared by a scribe who used a draft which had remained unfinished» (p. 27). The copyist was clearly an Iranian who did his work before A.H. 773/1371-2, a date that appears in one of the margins, but the original draft was written before Ḥasan-i Ṣabbāḥ's death in 1124 and the authors suggest a precise date (A.H. 500/1107) which appears in a comment calculating the value of trepidation for that year.

The second article («The sources and the composition of the *Dustūr al-munajjimīn*») is divided into three sections: «1. Contents and compilation of *maqāla* I-VIII» (Schmidl, pp. 37-79) describes the first eight books of the compilation whose contents are related to astronomy, astrology, mathematics and other topics usually appearing in a *zīj*. Obviously the *Dustūr* is a *zīj* whose materials derive from Eastern Islamic sources written between the eighth and the eleventh centuries which are quoted literally and carefully identified. The sources most frequently quoted are al-Battānī's *zīj*, al-Bīrūnī's *Qānūn* and *Tafhīm* and Kūshyār b. Labbān's *al-Zīj al-jāmiʿ*, although there are many others, some of them corresponding to lost works. This enhances the importance of the *Dustūr*, as it preserves passages from these sources. Surprisingly, Ibn Yūnus *Ḥākimī zīj* (com-

piled shortly before 1009) is not mentioned at all and Schmidl tries to justify this anomaly (pp.48-49). There is very little in the collection that can be considered original.

Schmidl's section continues with a careful description of the contents of books I-VIII which deal with chronology and calendar conversion (I), trigonometry and spherical astronomy (II), mathematical geography (III), solar, lunar and planetary longitudes and latitudes, equation of time, and mathematical astrology (IV), nativities, timekeeping, ascendant and descendant (V), *namūdhār* and determination of dawn and dusk (VI), more mathematical astrology (anniversaries of world-years and nativities, projection of rays and *tasyīr*, VII), fixed stars, zodiacal signs, lunar mansions and *anwā'* (VIII). To her descriptions of the contents of each book, Schmidl adds the sources used in each one of them and emphasizes the practical character of the quotations included in the *Dustūr*, which contain the instructions needed to perform a computation, but no proofs or references to the underlying theory.

The second section of this long article («2. *Maqāla* IX: Mundane astrology», Orthmann, pp. 80-83) describes the contents of book IX, which deals with world astrology (the conjunctions of Saturn and Jupiter as well as other cycles). Interestingly, precession is calculated using al-Battānī's trepidation model, ultimately derived from Theon's description, and does not contain any references to the trepidation models used in Western Islam a short time before the compilation of the *Dustūr*.

The third section («3. *Maqāla X: historiography»,* Zanjani & Orthmann, pp. 84-113) describes the contents of book X which deals with world history and uses Arabic sources from Iran, Iraq and Egypt, dated between the eighth and the twelfth century. Literal quotations appear in the first part of the book and are later replaced by mixed summaries of different sources and original compositions. Much of the information appears in tabular form in which colours are used to denote, for example, the sources used or chronological data. History, in the *Dustūr*, begins with Adam, and follows the Bible until Moses and, later, the kings of Israel. This continues with the pre-Islamic history of Iraq and Egypt (the Ptolemaic dynasty), the Roman and Byzantine empires, Iran, India, and the kings of Yemen. Then, the narrative turns to Prophet Muḥammad, his ancestors and life and includes horoscopes of the Saturn-Jupiter great conjunction of year 571 which announced the advent of Islam (derived from Māshā'allāh), of the birth of the Prophet also in 571 (derived from al-Battānī), and of the conjunction which indicated the sending of the Prophet (according to al-Battānī, the conjunction of

610, the year in which Muḥammad first preached). The *Dustūr* also contains a horoscope of the birth of Jesus and another one for al-Qā'im. The history continues with the Shiite imams, the three first caliphs, while the Umayyad and Abbasid caliphs are omitted.

Two more papers analyse specific astronomical topics in the *Dustūr*: Benno van Dalen («The Malikī calendar in the *Dustūr al-munajjimīn*», pp. 117-135) proves that our source uses the Malikī epoch (15 March 1079) combined with the Julian year and that the same practice appears in Muḥammad b. Ayyūb al-Ḥāsib al-Ṭabarī's *Mufrad zīj* (ca. 1100). Van Dalen shows that the Malikī calendar, in its proper sense, was used in *zīj*es like the *Huihuilifa* (1383), al-Sanjufīnī's *zīj* (1366), al-Wābkanawī's *Muḥaqqaq zīj* (ca. 1320) and others.

A second astronomical paper is signed by Johannes Thomann («"Few things more perfect': Ḥabash al-Ḥāsib's criterion for the visibility of the lunar crescent and the *Dustūr al-munajjimīn*», pp. 137-170) who analyses the use, in the *Dustūr*, of the highly elaborate procedure described in Ḥabash's *zīj* to predict the visibility of the new moon (it involves 64 calculation steps) and remarks that the author's concern with this kind of problem seems to be out-of-step with the standard Ismaili practice of using a calculated calendar with fixed lengths of the months. This is followed by an appendix on the use of the calendar in Egypt in the age of the Fatimid Caliph al-Ḥākim (996-1021).

The rest of the volume deals with «The world of the *Dustūr al-munajjimīn*»: the papers by Osamu Otsuka («The Dustūr al-munajjimīn as a source of early Ismaili history», pp. 173-187) and Malihe Karbassian («The *Dustūr al-munajjimīn* and its approach to the pre-Islamic history of Iran: a preliminary study», pp. 189-197) are good complements to Zanjani & Orthmann's analysis of book X. Delia Cortese («Lost and found: the *Sargudhasht-i sayyid-nā*. Facts and fiction of Ḥasan-i Ṣabbāḥ's travel to Egypt vis-à-vis the political and intellectual life of 5th/11th century Fatimid Cairo», pp. 199-221) analyses Ḥasan-i Ṣabbāḥ's stay in Cairo between 1078 and 1080. David Durand-Guédy («The Ismailis of Isfahan. A Reassessment», pp. 223-261) studies the relation between Ḥasan-i Ṣabbāḥ and the *dā'ī* Aḥmad b. ʿAṭṭāsh (d. 1107) and the presence of Ismailism in Isfahan, especially between 1092 (death of Niẓām al-Mulk) and 1107. Wilferd Madelung («Ismaili astrology in Naṣīr al-Dīn al-Ṭūsī's *Safīnat al-aḥkām*», pp. 263-271) analyses the Ismaili astrological sources used by al-Ṭūsī for the compilation of the *Safīnat al-aḥkām*, written during his stay in Alamūt (1265-1246). Al-Ṭūsī was skeptical about the veracity of astrological predictions, but was ordered to write the book by the local authorities. Paul E. Walker («Science in the service of the

Fatimids and their Ismaili *da'wa*», pp. 273-291) reviews the cultural policy of the Egyptian Fatimids and their promotion of science (especially medicine, astronomy and astrology) but remarks that the scientists at their service were unrelated to the *da'wa*, which represented the Ismaili doctrine of the state.

To sum up: this is an excellent collection of papers which will become an outstanding guide for future research on this source. The *Dustūr* definitely deserves a further analysis of the quotations included in the first nine books which may give us information about lost works of astronomers of the Mashriq.

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