sources and whose identification is normally a time-consuming effort, are now available thorugh the *DAOA* in short but informative articles, which will become the standard reference for many of these shadowy figures.

The readers of *Suhayl* may be interested in knowing that scientific authors are well represented in *DAOA*. Errors and omissions excepted, I have found the following entries in this respect: medical authors (Al-ʿAzafī, Abū l-Qāsim Muḥammad; Al-Gāfiqī; Ibn ʿAbd Rabbihi, [Abū ʿUṯmān], Ibn ʿAbdūn al-Jabalī, Ibn Abī ʿUmar, Ibn ʿAzrūn); botanists and prhamacologists (al-Gāfiqī, Ibn ʿAbd Rabbihi [Abū ʿUṯmān], Ibn Abī l-Ṣalt, Ibn al-Bayṭār, Ibn Buklāriš), agronomists (Ibn Abī l-Jawād, Ibn ʿArrād, Ibn al-ʿAwwām, Ibn Baṣṣāl), astrologers, astronomers and mathematicians (al-Barqī, al-Biṭrūjī, al-Ḍabbī, al-Ḥawfī, Ibn Abī l-Šukr, Ibn Aflaḥ [Jābir], Ibn Arqam, Ibn Badr, Ibn Bāṣuh); and a group of theologians who produced mathematical work applied to *farāʾiḍ* (al-Faraḍī [Abū Ayyūb], al-Faraḍī [Abū Bakr], al-Faraḍī [Abū Gālib], Ibn ʿAyn al-Zaŷŷāŷ). The anonymous calendaric work of the 13th century *Risālat fī awqāt al-sana* has also an entry (under "Awqāt al-sana, Risāla fī-").

Each article begins with a biographical introduction, followed by a list of the author's works, extant or lost. In the first case, manuscripts and editions are also listed, and the content of every work carefully presented and analysed. At the end of the article, the bibliographical information is divided into Arabic sources and secondary literature. It is well-known that, in the case of scientific authors, biographical information is not abundant, and that on the contrary, problems of manuscripts' attributions and of authorship are quite frequent. In the *DAOA* all these questions are expertly dealt with, and no query from the reader remains unanswered. Jorge Lirola and José Miguel Puerta, who had the idea of creating this work, have done a great service to the scientific community, and not only by their own contribution, but also as coordinators of a collective endeavour. This first volume of *DAOA* was written thanks to the contributions of 72 authors, belonging in their most part to Spanish Universities and centers of research. The list of contributors' names is not only impressive by its number, but also because it shows the increasing weight of the younger generations of Spanish Arabists in the general panorama of the field. As a final note, this is certainly an optimistic one, and we await eagerly for the continuation of the work.

Manuela Marín

İhsanoğlu, Ekmeleddin (Ed.): *Osmanlı Mūsikī Literatürü Tarihi, OMLT (History of Music Literature during the Ottoman Period)*. Istanbul: İslam Tarih, Sanat ve Kültür Araştırma Merkezi (Research Centre for Islamic History, Art, and Culture, IRCICA), 2003. (LXXVII+ 479 pages).

This new study continues the project launched by IRCICA in 1986 to prepare an inventory of Ottoman scientific literature, both handwritten and printed, which would provide a comprehensive idea of the knowledge of science during this period. Syria, Egypt, and the Maghrib which belonged to the Ottoman state from the fifteenth century onwards are included in this study, as in the previous ones. Although the objective is to produce a systematic compilation of the information available in previous studies, this project does not aim to present a full account of the history of the different sciences in the Ottoman period, but to provide access for scholars to the multitude of sources preserved in libraries not only in Turkey but throughout the world.

The entire text is in Turkish, except for a brief introduction in English. However, the main subject headings during the book are

in English or in both English and Arabic, which, together with the good organization of the items, means that the book can be consulted by readers not proficient in Turkish. The English introduction constitutes a good summary of the book's contents and an abridged introduction to the history of music in the Ottoman world, from its beginnings as a part of the Semitic-Iranian tradition, influenced by the Greeks and by the musical traditions of the Turks who embraced Islam, until the adoption of the western musical notation at the end of the nineteenth century, when the Ottomans' interest in music and the number of works written in this field increased rapidly.

The study starts with a general survey of the topic under the title "Introduction to the History of Musical Literature in the Ottoman Period" (pp. XXXI-LXXVII), which includes a number of tables, presenting summaries and statistics, and a list of the collections where the works are kept.

This is followed by a concise presentation of Ottoman music literature, bringing to light the available material preserved in libraries in Turkey and elsewhere. The work includes authors who were permanent residents of the Ottoman state or who spent part of their lives in the Ottoman lands between approximately 1299 and 1922.

The first part of the study (pp. 1-284) is devoted to authors, arranged in chronological order according to their date of death. Pages 278-284 give information on authors whose dates are unknown, and pages 285-382 include works whose authors are unknown, classified in alphabetical order. In total, 713 works are mentioned in the study. Most of them deal with the theory and practice of music, some give information about musical instruments, some deal with the general subjects of music, on the history of music, its treatment and influence, or on musical education, and so on.

The headings start with the order number, followed by the name of the author and the date of death. Where available, biographies and scholarly careers of each author are provided. The works of the author appear in alphabetical order. The title of each work is written in Latin and Arabic characters, and the language of the work (Arabic, Turkish Persian or French) is indicated. Each entry includes information about the work: its incipit; the number of copies with codicological details such as the name of the collection, the call number of the manuscript, number of folios, lines, size, and date of copying, in case of manuscripts, as well as whether the book was printed or not. The colophon is also included if it is available. A related bibliography is given by the authors of the survey at the end of each item.

The volume ends with an exhaustive bibliography of reference works (pp. 383-414) most of it in Turkish, and of catalogues of manuscripts (pp. 414-417), and a series of very useful indexes (pp. 4 19-479) on a range of subjects such as names of persons (pp. 421-439), book titles (pp. 440-455) catalogs, names of persons, place names, book titles in Arabic characters (pp.456-468), place names (pp. 469-472) names of institutions (pp. 473-476), places and institutions mentioned in the colophons, copyists and copy owners (pp. 477-479).

The study also includes 29 reproductions of pages of musical works in the history of music in the Ottoman period.

As regards the languages used, we find works in Turkish (538), Arabic (112), Persian (15), Greek (16) French (8), Turkish- Persian (12), Turkish -Arabic (7), Turkish-Arabic-Persian (3), Arabic-Persian (1) and Latin (1). Since Istanbul was the center of musical activities in the Ottoman Empire it is natural that the majority of works were in Turkish.

The authors have examined studies including articles and books on music located in libraries in 15 countries. They established manuscripts and printed works on Ottoman classical music in 141 collections, 101 of them are located in

Turkey and 40 abroad. It is however a pity that such a comprehensive study cannot include information about works kept at the Istanbul University Library; due to the damage caused by the 1999 earthquake, the Library was still being restored when the present work was compiled. The editors were not able to examine manuscripts and printed copies or to present sufficient information about certain works or their copies.

Apart from this, the account is impressive. The exhaustive treatment of the items together with the accompanying bibliography and indexes make this survey extremely useful for anyone interested in Ottoman music and in Arabic music in general.

This work follows the tradition of previous reference books such as Suter (1900), Sarton (1927-48), Storey (1927), Brockelmann (1937-49), King (1981-1987), Sezgin (1978-2000) among others and continues the excellent series of reference books which identify the sources to be explored in an assessment of the Ottoman contribution to almost five centuries of the history of science.

Emilia Calvo

Abattouy, Mohammed; Renn, Hürgen and Weinig, Paul (Eds.): *Intercultural Transmission of Scientific Knowledge in the Middle Ages: Graeco-Arabic-Latin, Science in Context*, 14 (1/2): 2001, Cambridge University Press. 331 pp.

As the editors explain in the Introduction (pp. 1-12), a workshop dedicated to "Experience and Knowledge Structures in Arabic and Latin Sciences" was held at the Max Planck Institute for the History of Science in 1996 with the participation of specialists from many countries: Menso Folkerts, Sonja Brentjes, Jens Hoyrup, Wilbur Knorr, F. Jamil Ragep, Julio Samsó, Mohammed Abattouy, Charles Burnett, Mathias Schramm and Richard Lorch. The results were published in 2001 in a double issue of *Science in Context*, a journal published four times a year by Cambridge University Press.

The volume begins with an introduction to the translation movements between the East and the West in the Middle Ages. The book deals with transmission from the Greek to the Arabic world in the ninth century as well as from Arabic to the Latin world (from the eleventh to the thirteenth centuries) and it seeks to find answers to questions such as who supported translation, and why. Patronage of the translation movement served to legitimize the Abbāsid dynasty by creating an intellectual continuity with the great empires and cohesion within the various ethnic and cultural factions. The set of articles follow this introduction and are grouped according to subject. The reader will first find articles on the transmission and translation of mathematical texts, then on astronomy, mechanics, and the work programs at the main centres of translation such as Toledo and Sicily. The volume closes with an article by Richard Lorch, who offers several lists of translated works (into Arabic and Latin), and a complete modern bibliography specific to mathematics.

Menso Folkerts begins with "Early Texts on Hindu-Arabic Calculation" (pp. 13-38) in which he gives a description of some mathematical items (i.e. the decimal value system) transmitted from India to the West by the Arabs. The article is of interest because it describes a new manuscript (New York, Hispanic Society of America, HC 397/726) which transmits the complete Latin translation of the arithmetical work of al-Khwārizmī. Since the Arabic original has been lost, the book was known until now only through a fragmentary Latin version.

The article by Sonja Brentjes, "Observations on Hermann of Carinthia's Version of the Elements and its Relation to the Arabic