

a somewhat cursory approach to the analysis of the inscriptions, which may be due either to the derivation of the book from the lecture format or to the necessarily preliminary nature of the endeavor, to present a comprehensive view of Persian epigraphy. Because the book is not envisioned as a straightforward catalogue but rather as a discursive exposition of the collected inscriptions, it leaves the reader wishing for more detailed and interpretive discussion especially of some of the more significant examples cited. For instance, the epic-style poetic inscription on the marble panels of the twelfth-century Ghaznavid palace of Mas'ud III represents a high point in the use of literary texts for the cultural modulation of royal architecture. O'Kane provides the gist of this major inscription and a brief discussion of its relevance by referencing the Persianate affinities of the Ghaznavid court. Given the substantial nature of the poetry recovered at this site and the importance of its context, however, a more in-depth consideration of the actual text, its placement in the architectural space, and its role in the articulation of courtly ideals would have enhanced our understanding of epigraphy as a key cultural phenomenon.

Even as O'Kane effectively acknowledges the social and political background to the story of Persian epigraphy in the medieval and early modern periods of the greater Persianate world, he particularly stresses the concurrent development of Sufism as the propelling force behind many, if not most, poetic inscriptions. Such a connection seems more evident for the later material covered in this study. For the earlier (that is, pre-Mongol) period, however, the detection of mystical intent in epigraphy is a delicate operation and calls for a more considered evaluation of the poetic language as well as the relationship of the inscription to its visual and material context. The vast corpus of ceramics (both vessels and tiles) bearing poetic inscriptions and dating between the late twelfth and early fourteenth centuries still awaits a systematic assessment of the nature of the literary and visual composition of these works and the changes that occurred over time. Such a task lies well beyond the scope of even the most ambitious monograph and requires a sustained effort between scholars and institutions. In addition to inviting further explorations of underlying factors in the development of Persian epigraphy, this book may provoke greater interest in hitherto neglected subjects as the rapport between Arabic and Persian inscriptions and the connection between inscriptions and the media on which they appear.

The Appearance of Persian on Islamic Art is an invaluable resource for anyone interested in the deployment of the New Persian language in the wider arena of objects and buildings. O'Kane is to be commended for accounting for so much of the surviving epigraphic output and for assembling an extensive bibliography and index. Aside from a few technical glitches (notably

in the alphabetization of the bibliography), this book is indispensable for gaining a broad perspective on epigraphy in the eastern Islamic world.

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Theodosius Sphaerica: Arabic and Medieval Latin Translations. Edited by PAUL KUNITZSCH and RICHARD LORCH. Boethius, vol. 62. Stuttgart: FRANZ STEINER, 2010. Pp. vii + 431. €64.

Paul Kunitzsch and Richard Lorch have provided the first critical editions of one of the Arabic versions of Theodosius's *Spherics* and of Gerhard of Cremona's Latin translation made on the basis of this. These are accompanied by a "mathematical summary" that does not attempt to translate the full literal meaning of the source texts, but conveys the mathematical argument.

Theodosius's *Spherics* was written around the end of the second century B.C.E as a compilation and reorganization of basic material in spherical geometry and spherical astronomy. By late antiquity it had secured a place in the curriculum of teachers of the exact sciences as a treatise of the so-called Little Astronomy used as a preparatory course to reading Ptolemy's *Almagest* for students who had mastered elementary geometry. In the Islamic middle ages it continued to serve in this role in the compendium of mathematical and astronomical treatises known as the "Middle Books," or "Intermediaries." *Spherics* is in three books, of which the first is purely geometrical and the second two deal with topics applicable to spherical geometry but still expressed in an almost purely geometrical idiom. The first book treats the properties of lesser circles and great circles on a sphere that are analogous with the properties of the chords and diameters on a circle in *Elements* III; the second book explores those properties of lesser circles and great circles of a sphere that are analogous with those of circles and lines in *Elements* III, which leads to a theory of tangency and theorems dealing with the relationships between great circles and sets of parallel lesser circles. This book ends with a number of theorems of purely astronomical interest having to do with the horizon, the equator, and the always visible, and always invisible, circles. The third book deals with what we would call the transformation of coordinates, or the projection of points of one great circle onto another, and concludes with theorems that can be interpreted as concerning the rising and setting times of arcs of the ecliptic.

The publication of an Arabic text of *Spherics* allows us to make some comparisons with the Greek version, which may, in turn, shed some light on each. The most obvious difference is in the numbering of propositions. The Arabic tradition has an extra enunciation and proof

sketch following I.8, which causes all of the numbers in the rest of the book to be greater by one proposition. At the end of Book I the Greek text contains two trivial theorems—I.22(g) and I.23(g)—that are absent from the Arabic versions. In Book II, II.11(g) and II.12(g)—which are two cases of the same arrangement—are presented as a single proposition in the Arabic tradition, II.11(a). The next two propositions have been alternated, so that II.12(a) = II.14(g) and II.13(a) = II.13(g). Following this, the numbering in the rest of the book differs between the two traditions by one proposition—II.14(a) = II.15(g), etc. It is possible to argue that some of these differences may have been due to additions made in the Greek tradition after the ninth century. For example, the final Greek theorems of the first book are almost certainly late additions, and splitting I.11 into I.11(g) and I.12(g) was probably the work of a later editor.

With a few noteworthy exceptions, most of the rhetorical differences between the Greek and the Arabic text appear to be additions to the Arabic to make the text more intelligible from a mathematical perspective. In the Arabic we find more definitions—for example, of the distance of a circle from the center of a sphere, or of the inclination of two planes. We find a proposition sketch, I.9(a), which with I.7 and I.8 gives a complete account of the fact that there is a single line associated with every circle in a sphere that passes through the two poles of the circle, the center of the circle, the center of the sphere, and is perpendicular to the circle. There are numerous places where the Arabic text contains a line or two of argument not found in the Greek text. Very occasionally an argument is reworked. All of these appear to be “corrections” to the text that were carried out from a mathematical perspective. This is consistent with the claim made in a number of sources that Thābit ibn Qurra corrected the treatise (pp. 2–3). On the other hand, a fair number of the passages that the editors of the Greek editions (Heiberg and Czinzenheim) had marked as interpolations are translated in the Arabic. This serves as a reminder that any attempt to sort out the true source text from the interpolated form in which we have received it will always depend on fairly subjective judgments about the original authors’ style.

The edition on hand provides a short introduction describing the little we know about the Arabic transmission of Theodosius’s *Spherics*, a description of the Arabic manuscripts that contain one of the two translations or close revisions of these, a list of the Latin manuscripts, and a statement of editorial principles (pp. 1–10). This is followed by the critical editions on facing pages: probably the correction by Thābit ibn Qurra of a translation by Qusṭā ibn Lūqā, and Gerhard’s translation of this (pp. 12–312). The diagrams, which are essentially the same in the two editions, are established by the agreement of the Greek manuscript Vatican gr. 204 (Czinzenheim’s edition), the Arabic Ahmet III 3464 and Lahore M. Nabī Khān, and the Latin Paris BnF lat.

9335 (see p. 238). A number of scholia and lemmata are also edited: some mathematical remarks by al-Hasan ibn Saʿīd and lemmata relating to the early history of Greek trigonometry (pp. 313–27). A thorough critical apparatus is provided for the diagrams (pp. 328–41). The content of the work is reproduced in English in a mathematical summary (pp. 343–427). The enunciation of each proposition is translated literally from the Arabic text, followed by a summary using some symbolic abbreviation. The book ends with a bibliography, but lacks an index.

This book results from an ongoing project of Kunitzsch and Lorch to study the history of spherical geometry in the medieval period. It is a welcome addition to scholarship on transmission of mathematics in this period, and helps to shed new light on one of the most canonical mathematical texts of that era.

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Towards a Cultural History of the Mamluk Era. Edited by MAHMOUD HADDAD, ARNIM HEINEMANN, JOHN L. MELOY, and SOUAD SLIM. Beirut: ORIENT-INSTITUT, 2010. [Distributed by Ergon Verlag Würzburg.] Pp. xii + 164 + 152 (Arabic), illus. €68.

Conference publications are notoriously difficult to review. It is rare that such volumes are of uniform quality, especially on a broad topic. In the present volume some papers are as short as five pages and others as long as thirty-six. The eighteen articles in this volume were originally presented at a conference held at the University of Balamand, cosponsored by the Orient-Institute in Beirut, on the theme “Towards a Cultural History of Bilād al-Shām during the Mamluk Era: Prosperity or Decline, Tolerance or Preservation.” Ten of the articles are in English, one in French, and seven in Arabic. The articles are arranged in five parts: (1) Religious Communities and Their Interaction; (2) Fields of Cultural Production: Arts; (3) Fields of Cultural Production: Literature; (4) Fields of Cultural Production: Science; and (5) Cultural Contexts of Political Practice and Social Relations. The English and the Arabic sections both contain a complete list of the contents, and topical indices are included for both sections.

True to its stated aim, this volume does provide a set of papers about the Mamlūk period in Bilād al-Shām, an area that is not nearly as well studied, at least in English, as the Mamlūk era in Egypt. Half of the articles deal with either Christian communities or relations between Christians and Muslims. Among the topics addressed are the responses to the early fourteenth-century Christian apologetic *Letter from Cyprus* by Ibn Taymiyya and