

catalogue as a form that arouses wonder and desire for Being as expansive and inexhaustible.

In his conclusion, Kuchar offers a reading of Donne's "Batter my Heart" that draws together the aspects of devotional "subjection" explored in earlier chapters. He persuasively argues that whereas most critics have read the poem as revelatory of Donne's own psychological conflict, in fact Donne intentionally represents an onto-theologically specific sort of anxiety, which Kuchar reads in terms both of the theology of repentance and regeneration and of Lacanian theories of subjection, this chapter offering the book's most successful coordination of historical context with current theory.

*Divine Subjection* is a stimulating book, and any reservations this reviewer has are a function of its method. The study's central claim about historical causation is of the broad sort, appealing to a paradigm shift that characterized a rather elastic historical "moment" (the early modern period seems to include the fourteenth-century mystic Henry Suso) to explain the psychological trauma triggering devotion. All texts, then, whether responding to the oppression of recusants or the new anatomy, become instances of reaction to desacramentalization. All texts, similarly, are treated as psychological records of the author's trauma and process of subjection. Occasionally it can seem as though Kuchar is not offering new insight into devotional psychology so much as translating it into the terminology of Lacanian psychoanalysis. Nonetheless, at its best, the study delivers on its promise to "estrangle" the dynamics of devotion, and it is admirable for its demonstration that political and scientific forces registered directly on religious consciousness and were experienced as pressures that had to be accommodated as the believer articulated a sense of religious identity. Kuchar's demonstration that religious identity involves the fashioning of desire, as much as of belief, is also of great value.

Jan P. Hogendijk and Abdelhamid I. Sabra, eds. *The Enterprise of Science in Islam. New Perspectives*. Boston: MIT Press, 2003. xxii + 386 pp. \$45.00.  
Review by DARIN HAYTON, HAVERFORD COLLEGE.

Jan Hogendijk and A.I. Sabra have assembled an impressive collection of essays on Islamic science. Contributions range across the Islamic world from Andalusia to northern India. In light of the wide geographic scope, it is

not surprising that a heterogeneous picture of science emerges from these essays. Indeed, one of the key arguments this collection makes is that science varied greatly within the Islamic world. Some of the chapters draw explicit attention to this variation, offering specific examples that reveal the differences. Although the authors in the collection concentrate on medieval Islam, two essays focus on the seventeenth century, and one offers a useful review of modern historiography on the history of mathematics in Andalusia and the Maghrib.

The editors have arranged the essays into pairs around certain shared themes. Rather than follow their organization, I will try to draw attention to two larger themes that tie the essays together: an emphasis on cross-cultural assimilation of knowledge and the importance of the exact sciences. Central to many of the chapters is the question of cross-cultural fertilization. Five essays explore the heritage of Greek science in the Islamic world. Charles Burnett's essay traces the transmission of Ptolemaic astronomy through Arabic culture and into Europe. Two essays reveal the profound transformations in Greek optics that occurred in the Arabic world. Elaheh Kheirandish looks closely at the early transformations of Greek optical terms, especially in the science of vision. She uses the chapter on vision from al-Fârâbî's *Catalogue of the Sciences* to represent the state of the discipline in the tenth century. A.I. Sabra's chapter reveals Ibn al-Haytham's reliance on earlier Greek methods and concepts. Ibn al-Haytham, however, did not simply adopt these methods and doctrines but rather adapted them to fit his own assumptions and goals. In particular, his belief, supported by empirical evidence, that vision was the reception of light rather than its transmission forced him to assign to psychology a new and central role in his theory of vision. Two other chapters focus on Islamic developments on Greek mathematics. Gerhard Endress explores how Islamic philosophers addressed a perceived tension between Ptolemy's astronomy and Aristotle's principle of uniform circular motion. Endress argues that eastern philosopher, e.g., al-Fârâbî and Ibn al-Haytham, tried to find an intermediate position, while Andalusian philosophers tried to reject Ptolemy and construct an Aristotelian astronomy. J. L. Berggren shows how the tenth-century mathematician al-Qûhî looked to the Hellenistic geometers for his inspiration and hoped to continue their project. Finally, two chapters treat the interaction between Indian and Arabic cultures. Paul Kunitzsch's essay sheds new light on the transmission of Hindu-Arabic numerals into the

Islamic world and their subsequent diffusion west. David Pingree's chapter examines how an Indian astronomer appropriated Islamic material and naturalized it for his audience.

A second theme that ties these essays together is a focus on the exact sciences—nine of the twelve essays treat mathematics, astronomy or optics. In addition to the chapters mentioned above, Jacques Sesiano's chapter on magic squares and Yvonne Dold-Samplonius's chapter on calculating surface areas and volume both concentrate on Islamic computational techniques. Ahmed Djebbar's chapter moves away from the content of Islamic science while remaining focused on the history of the exact sciences. It provides a much-needed survey of modern scholarship on the history of mathematic and related disciplines.

The two chapters on the seventeenth century focus on the translation and subsequent use of a specific fifteenth-century astronomical handbook, the *Zīj* of Ulūgh Beg, who ruled Samarkand in the early fifteenth century. Pingree traces its revision and translation in seventeenth-century Dehli. He argues that the Sanskrit translation of the *Zīj* presented the planetary data within the framework of Islamic astronomy. The values and names were native to the Islamic tradition but foreign to Hindu astronomy. Unsurprisingly, the translation failed to find a receptive audience amongst the Hindu astronomers at the Moghul court in Dehli. As a result, the translator, Nityānanda, composed an apology to justify his use of Islamic astronomical techniques and recalculated the data in terms that Hindu astronomers could understand. Pingree focuses on the two chapters from this apology that reveal how Nityānanda converted the Islamic astronomical data into Hindu data. Julio Samsó again uses Ulūgh Beg's *Zīj* as the point of departure for his essay. His central question is how and when did the more sophisticated and complex astronomy of the eastern Islamic world begin to influence Maghribi astronomers. He finds evidence of the *Zīj*'s use and adaptation in seventeenth-century Tunis. By examining the tables for the motion of the moon, Samsó reveals how seventeenth-century Maghribi astronomy, at least in Tunis, relied on the earlier *Zīj*, that is, the more complex eastern Islamic astronomy.

The chapters in this volume are impressive for their erudition and technical sophistication. They are not, however, for the timid or the uninitiated. Two issues are worth mentioning. First, most of the essays are laden with complex diagrams and mathematical equations that many readers will find

challenging and perhaps daunting. Detailed analyses of planetary data along with derivations of the formulae used to calculate that data certainly deepen our knowledge of these sciences and demonstrate that the authors have a remarkable command of their subjects. Such analyses, unfortunately, also limit the book's appeal. Related to this issue is the preference for the mathematical sciences. Some readers might wish that greater attention had been directed at other aspects of Islamic science, such as alchemy, geography, instruments and medicine. The single essay on medicine, while very good, fails to do justice to this important aspect of Islamic science. Second, the editors have chosen not to standardize the transcriptions of Arabic names. For nearly two decades, historians of science have been urging scholars who study Islamic science to adopt a standard in order to minimize the difficulties facing nonspecialists. The variations in spelling, while seemingly minor, are likely to cause difficulties for readers who are unfamiliar with Arabic or the names of people cited.

Scholars who have some familiarity with Arabic science will certainly benefit from and enjoy this book. Together, the chapters provide a compelling picture of the practice of the mathematical sciences in the Islamic world. They indicate the sophistication and diversity of those sciences. At the same time, the essays reveal that the study of Islamic science is a thriving and vibrant discipline within the history of science.

Robert Appelbaum and John Wood Sweet, eds. *Envisioning an English Empire: Jamestown and the Making of the North Atlantic World*. Philadelphia: University of Pennsylvania Press, 2005. xv + 368 pp. + 20 illus. \$59.95. Review by JANET MOORE LINDMAN, ROWAN UNIVERSITY.

The founding of Jamestown is a dramatic, if oft told, story in early American history. The struggle of British colonists to survive hunger, disease, poor planning, political instability, and Indian hostility are part of a legendary and well-worn narrative. A recent publication, *Envisioning an English Empire*, shines new light on this familiar topic by offering multifarious analyses of the major actors, events, and primary sources surrounding the Virginia colony. This book is the result of a National Endowment for the Humanities Summer Institute entitled "Texts of Imagination and Empire: The Founding of