GEORGE SALIBA, **Islamic Science and the Making of the European Renaissance**. Cambridge, MA and London: MIT Press, 2007. Pp. xi + 315. ISBN 978-0-262-19557-7. £24.95 (hardback).
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Outside of a handful of specialists, and in spite of a number of excellent publications on the subject in recent years, 'Islamic science' remains a hazy concept for most people. It tends to be thought of as an intermediary between Greek scholarship and the Renaissance mind. Muslim scholars are frequently described as preservers and transmitters of ancient knowledge, with any major contributions of their own regarded predominantly as adding to and complementing Greek sciences rather than as independent achievements. According to this view, the whole preserved package was supposedly passed on to the West during what Charles Homer Haskins described as the 'Renaissance of the twelfth century' – after which Muslim science soon stagnated.

George Saliba, professor of Arabic and Islamic studies at Columbia University, now paints a rather different picture by putting scientific developments into a much broader intellectual and cultural context. Some of the ideas put forward will be known to readers of his Arabic publication of 1998 on the same subject, but the basis has been expanded considerably here. Divided into seven chapters, and charting the development of the Islamic scientific tradition from its beginnings, through a period of innovation, and towards an age of decline, the book takes the reader on a fascinating journey through Islamic science – where, by 'science', in the context of his major argument pertaining to Copernicus and the European Renaissance, Saliba almost exclusively means 'astronomy'.

Much has been said about the flourishing scientific culture during the reign of the Abbasids from AD 750, largely coinciding with the Carolingians in Western Europe and thus also of interest as a period of exchange between East and West. However, the question of how this scholarly community had developed into such vibrancy and been enabled both to deal adequately with and to develop the influences from the ancient civilizations has remained largely obscure. Contrary to received wisdom, which saw the appropriation of foreign science as a result of outside forces through the contact following the expansion of Islam, Saliba now argues that this process must have started earlier, namely during the reign of the Umayyads between AD 660 and 750. The ground for this fertile work may have been laid inadvertently by the 'Arabization' of the administration in the late seventh century. These changes left the now largely redundant well-educated speakers of Greek and Persian looking for a new sphere of influence, which was soon to be provided by a deep engagement with scientific texts. According to Saliba, this engagement enabled scholars not only to translate texts quickly but also to appropriate, discuss and critique the 'new' ideas in depth, leading to the establishment of a thriving independent astronomical tradition.

It is in this context that Saliba discusses an aspect of Islamic science that may be surprising to many general readers, namely the fact that religion and science were not fundamentally opposed to each other, but frequently intrinsically linked. Indeed, some of the leading religious authorities were also the leading astronomers of their time. The close links between religious requirements and major developments in astronomy have previously been described by David King as 'science in the service of religion', and it is indeed this phenomenon that Saliba discusses in detail, based on a large corpus of original texts.

The book's sixth chapter, on the 'Copernican connection', is where Saliba discusses the bold promise of his title, namely the connection between Islamic science and the making of the European Renaissance. In Saliba's view, the 'classical narrative' wishes us to believe that Renaissance (and thus modern) thought is a natural extension of Greek science. However, as he demonstrates, the lunar model used by Copernicus in the mid-sixteenth century was in every aspect identical to that discussed by the famous Damascene astronomer Ibn al-Shāṭir in the late

fourteenth century. This connection had been made by scholars before, but Saliba casts the net much wider, incorporating treatises by other Arabic astronomers as well as instruments and examining possible routes via which this knowledge might have reached Copernicus and ultimately enabled him to devise his heliocentric model. It is in this context that Saliba suggests a fundamental difference between the Islamic world and Europe's engagement during the Middle Ages and the engagement that took place during the Renaissance. While the former engagement depended on texts being translated, Renaissance scholars actively became arabists and thus no longer depended on somebody else's translations. Saliba finds it most striking that Renaissance inquirers into nature were apparently looking to the Islamic world for the latest in scientific activities rather than looking to the Greek classical sources. This does not belittle the enormity of Copernicus's intellectual leap; rather, it adjusts our sense of the sources that he may have used.

The book's final chapter discusses yet another perceived fact about Islamic science: that it stagnated and declined after the thirteenth century. Saliba shows that this was by no means the case. In fact it was only through the redistributions of power and commerce after the European discovery of the New World in the modern era that Islam (and Islamic science) – as well as Chinese and Indian traditions – became increasingly marginalized, a development that Saliba establishes in a period of about two hundred years before AD 1700.

The book would have benefited substantially from a strong editorial hand, and many readers might have welcomed a glossary of specialist terms, names and relevant dates, which would have made the arguments far more penetrable to the non-specialist. *Islamic Science and the Making of the European Renaissance* is nevertheless a fascinating study that should appeal to the specialist and general reader alike. Although not quite as iconoclastic as it represents itself at times, it is certainly deserving of the widest attention as a basis for future discussion of an intriguing subject.

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Matthew McLean, **The *Cosmographia* of Sebastian Münster: Describing the World in the Reformation**. Aldershot: Ashgate, 2007. Pp. viii + 378. ISBN 978-0-7546-5843-6. £60.00 (hardback).
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In the early fifteenth century, the Florentine humanist Jacopo d'Angelo applied the title *Cosmographia* to his translation of Ptolemy's *Geography*, preferring this name to a straightforward Latinization of the Greek. According to d'Angelo, 'cosmography' had previously been applied to non-mathematical descriptions of the world, and in particular to Pliny's *Natural History*. But d'Angelo considered Ptolemy's work more deserving of the name than Pliny's, for Ptolemy had truly founded his description of the Earth on knowledge of the heavens, justifying a titular reference to the universe as a whole. D'Angelo's rebaptism persisted into the incunable period, but it was not destined to last. Subsequent humanists reverted to 'geography' as the proper title for Ptolemy's text and the subject it dealt with. They did not, however, eliminate 'cosmography' as a literary category; and cosmographic works proliferated during the sixteenth and seventeenth centuries. Typically these texts dealt with the intersection of astronomy and geography – the mathematical principles required to describe or map the Earth – but some authors presented their subject as truly the sum of the two disciplines. A few, emulating the geographical writings of Strabo in particular, elaborated cosmographies of encyclopedic scope that attempted to deal with the peoples, places, languages, customs, events, natural phenomena and resources of the world.