to a modern audience. Shea and Bascelli offer more extensive notes and a wider-ranging introduction than previous English translations, though readers will still be rewarded by consulting the comprehensive scholarly apparatus accompanying Pantin's translation.

Certain editorial choices hint at Shea and Bascelli's strong stance vis-à-vis current Galileo scholarship. The Latin "*nuncius*" in Galileo's title can signify both "message" and "messenger"; the choice depends on whether translation is guided by usage or authorial intent. Shea opts for the latter and argues, following Edward Rosen ("The Title of Galileo's *Sidereus nuncius*," *Isis*, 1950, *41*:287–289), that Galileo's early drafts and later writings indicate that he intended "message." Adhering to the interpretations of Galileo's first readers, in contrast, previous translators rendered "*nuncius*" as "messenger" (Pantin, pp. xxxii–xlv).

More contentious is the image on the front cover, a reproduction from the recently discovered M-L copy of the *Sidereus nuncius*, now owned by Martayan Lan Rare Books in New York. In place of the printed engravings found in most extant copies of the 1610 edition, the M-L copy has hand-painted watercolors. In his *Galilei der Künstler* (Akademie, 2007), Horst Bredekamp has argued that these images were drawn by Galileo and represent the earliest surviving records of his telescopic observations. Other scholars, however, have questioned Bredekamp's interpretation and even the authenticity of the images (and the M-L copy itself). (For a discussion in print see Owen Gingerich, "The Curious Case of the M-L *Sidereus Nuncius*," *Galilaeana*, 2009, *6*:141–165). Readers interested in Galileo's use of visual evidence should be aware that the images in Shea's translation have been digitally altered and placed on a black background, rather than the greyish backdrop of the early modern engravings. In addition, their layout has been modified, so that the second and third engravings, which appear on facing pages of the 1610 edition (fols. 9v–10r), are here placed on the same page (p. 61).

For the more informed reader, Shea and Bascelli's decision to avoid repeating background information on Galileo's biography and accepted Aristotelian-Ptolemaic astronomy may come as a welcome relief. Nonspecialists interested in situating Galileo's text within the larger philosophical and theological concerns of his readers, however, may find van Helden's translation (particularly pp. 87–113) more useful. These small quibbles aside, Shea and Bascelli have produced a very readable translation accompanied by detailed notes and commentary informed by Shea's long engagement with Galileo's thought.

RENÉE RAPHAEL

Anthony Gerbino; Stephen Johnston. *Compass and Rule: Architecture as Mathematical Practice in England, 1500–1750*. With a contribution by **Gordon Higgott**. Foreword by **Jim Bennett** and **Amy Meyers**. 208 pp., illus., bibl., index. New Haven, Conn./London: Yale University Press, 2009. $65 (cloth).

The book under review accompanied and appeared on the occasion of an exhibition with the same title at the Museum of the History of Science, Oxford (2009), and the Yale Center for British Art, New Haven (2010). But it is not simply an exhibition catalogue. Rather, it includes a veritable monograph about the origin of the architect (in the modern meaning of the term) in early modern England (Pt. 1), whereas the catalogue itself is given in the form of a "checklist" (Pt. 3). The volume also contains an essay by Gordon Higgott entitled "Geometry and Structure in the Dome of Saint Paul's Cathedral" (Pt. 2).

Anthony Gerbino and Stephen Johnston's main claim is that the development of mathematical practices within the building trade is the key to an adequate understanding of the origin and early development of the profession of the modern architect. Moreover, they hold that this development of mathematical practices was essentially dependent on that of mathematical instruments that served—often at the same time—for designing and drawing, surveying and leveling, measuring and calculating, and constructing. The book offers, in particular, highly interesting and instructive views of the relationship of artisanal and learned practices in the early modern era, some of which may even appear provocative. For example, the authors show convincingly that mathematical practices were an essential part of the building trade since the Middle Ages and that the well-known emphasis Renaissance architects laid on mathematical abilities was thus neither new nor a mere rhetorical means of elevating the social standing of this profession. To give another example, the authors portray Christopher Wren, whose career and architectural work are center stage in *Compass and Rule*, as a truly hybrid expert: he was both a famous expert in learned mathematics and natural philosophy and, at the same time, an outstanding expert on a broad spectrum of practical

fields—from designing mathematical instruments down to issues of carpentry.

The authors present their views of the origin and early development of the modern architect in eight chapters, each covering only fifteen to twenty pages. Despite this limited space, they manage to unfold a rich picture of the mathematical practices of the building trade up to the eighteenth century by taking advantage of the exhibit the book documents and explains. In discussing in considerable depth particular instruments, maps, or drawings of special significance, the authors treat the topic at hand in a manner that is exemplary and general at the same time. They begin with the drawing practices of medieval master masons (Ch. 1), then focus on the impact that fortification design under Henry VIII (Ch. 2) and a new culture of mathematical instruments under Elizabeth I (Ch. 3) exerted on these practices, transforming them into those of the modern architect: the production and employment of plans to scale, combined views, complex arithmetic techniques, and so forth. Chapter 4 studies the (very limited) influence the classicism of the Italian Renaissance had on the English building trade. Chapters 5 and 6 are devoted to Wren, particularly to his work on Saint Paul's Cathedral. Chapters 7 and 8, finally, focus on the interplay of architecture, mathematics, and new mathematical instruments in the period after the Great Fire and in addition provide an outlook on the reign of the architectural amateur George III.

The book is lavishly illustrated with high-quality color images and is supplemented by a useful bibliography and index. It is to be hoped that not only historians of architecture but also historians of science will recognize its high value.

WOLFGANG LEFÈVRE

Peter Harrison. *The Fall of Man and the Foundations of Science*. xi + 300 pp., bibl., index. Cambridge: Cambridge University Press, 2007.

In *The Fall of Man and the Foundations of Science*, Peter Harrison offers a provocative reappraisal of the relationship between the Protestant Reformation and the rise of modern science. He contends that "the myth of Adam and the idea of a Fall were ubiquitous features of seventeenth-century discussions of knowledge and its foundations, particularly in the English context" (p. 248). Since Augustine, Christians had believed that the Fall of Adam and Eve in the Garden of Eden had brought about a profound change in the nature and capabilities of human beings. In Paradise, Adam had had perfect knowledge of all creatures, signified by his ability to give all of them names, and he had had dominion over the natural world. However, both Adam's knowledge of nature and his control over it were diminished after he sinned. For Augustine, the Fall was an unmitigated disaster, and he was extremely pessimistic about the cognitive abilities of postlapsarian human beings. However, medieval thinkers, most notably Thomas Aquinas, held that human reason was not damaged by the Fall. Scholastic writers were much more optimistic than Augustine about the human capacity to acquire knowledge about the natural world. Harrison argues that the revival of Augustinian theology by the Protestant reformers in the sixteenth century led to a fundamental rethinking of the nature and capabilities of postlapsarian human beings.

Many sixteenth- and seventeenth-century thinkers were skeptical about the human ability to know the natural world. This skepticism was particularly prevalent among seventeenth-century English Calvinists, like Robert Boyle, Francis Bacon, and Joseph Glanvill. However, according to Harrison, their distrust of human sensory and cognitive abilities did not lead them to abandon the study of the natural world. Rather, it led to careful consideration of how human beings could make up for the defects caused by the Fall. If our senses had been dulled by the Fall, then we could use instruments like the microscope and the telescope to restore our vision to something like its original perfection. If our reason was flawed, then knowledge would have to be gained through the painstaking labors of many individuals collecting natural histories and performing and witnessing experiments. The boldest claim of the book is that "experimental science arose out of a renewed awareness that the attainment of knowledge was not a natural, easy process, but rather one that called for the imposition of external constraints: rigorous testing of knowledge claims, repeated experiments, communal witnessing, the gradual accumulation of 'histories,' the use of artificial instruments to amplify the dim powers of the senses, and the corporate rather than individual production of knowledge" (p. 51).

Harrison's elucidation of the ways in which Protestant understandings of the Fall shaped the development of natural philosophy in general and experimental philosophy in particular is highly persuasive. The Fall certainly had a central place in both elite and popular discourse in the sixteenth and seventeenth centuries. It played a key role in theological debates about salvation and the doctrines of justification and