and typos also mar the final product: "an nonexistent lover" (187), "Don Quixote itself contain many" (208), and the most offensive to this reader, "Texts A&M University" (!) (227). But these errors are minimal and do not detract much from this valuable tool. All in all, a fine accomplishment, and one that equals the sum of its elegant parts.

Jürgen Renn, ed. *Galileo in Context.* Cambridge: Cambridge University Press, 2001. 431pp. $25.00. Review by LUCIANO BOSCHIERO, UNIVERSITY OF NEW SOUTH WALES.

In 1654, Vincenzio Viviani, one of Galileo Galilei's last students in Tuscany, wrote a biography of his teacher. In this work, Viviani seemingly exaggerated Galileo's exploits as an experimenter. For example, Viviani claimed that in Galileo's youth he dropped heavy objects from the leaning tower of Pisa to prove his anti-Aristotelian theory regarding heavy falling bodies. Similarly, Viviani described how Galileo observed a swinging chandelier inside Pisa's Cathedral, an observation that, according to Viviani, led Galileo to think of the motion of the pendulum. Despite the likelihood that these events never actually occurred in Galileo's life–they were never mentioned in any of Galileo's own publications and manuscripts–readers of Viviani's biography about Galileo are led to believe that the famous Pisan mathematician was the first natural philosopher to practice an 'experimental science.' In fact, this is the image that historians of science have traditionally employed when describing Galileo's life and works. It is precisely this traditional image, based on simplistic accounts of Galileo's exploits, that Jürgen Renn attempts to discard once and for all in this collection of essays, entitled *Galileo in Context*.

With this aim in mind, Renn introduces the seven essays in this book and promises, as the title suggests, a rich contextual analysis of Galileo's works. Moreover, it must be noted that by 'context', Renn does not mean merely the analysis of social, religious, and political 'factors' that supposedly impinged on Galileo's life as he composed his writings. Instead, he insists that 'context' is about the production and dissemination of knowledge as part of a social dynamics: "a cultural system of knowledge, that is, the shared knowledge of the time with its social structures of transmission and dissemination, its material representations, and its cognitive organization" (2). So Renn is calling for detailed analyses of Galileo's intellectual, practical, political, and religious skills and commitments based on his education and training.

The contextualist aim set out by Renn in the introduction is immediately met in the opening article by Lefèvre, "Galileo Engineer: Art and Modern Science." Lefèvre shows that it is no longer acceptable to regard Galileo purely and simply as a philosopher. Rather, historians should consider that Galileo was educated and trained as a practical mathematician and engineer. Such considerations reveal that Galileo's interests in solving dynamical problems in physics, such as the laws of free fall, stemmed from his knowledge of practical mathematics and from his skills in traditional disciplines such as statics and mechanics. Therefore, Lefèvre argues that contrary to Alexandre Koyrè's belief that Galileo was simply a natural philosophical theorist uninterested in the practical applications of knowledge, Galileo actually employed many of the skills and commitments that he learnt from traditional practical mathematics and engineering, to solve dynamical problems in physics. In other words, a deeper understanding of Galileo's works is achieved by taking a greater interest in the context of sixteenth-century skills and commitments in practical knowledge.

While Lefèvre's paper is an excellent example of contextual history of science, the following essay in Section One provides for an even greater understanding of Galileo's commitments to practical mathematics and engineering. In "Hunting the White Elephant: When and How did Galileo Discover the Law of Fall?" Renn, Damerow, and Rieger begin by describing their aim to identify when Galileo discovered his law of free fall and the parabolic shape of the projectile trajectory. However, through some compelling manuscript evidence, including data accumulated from recent analyses of the composition of the ink used in Galileo's manuscripts, these authors find that it is far too simplistic to state that Galileo made these discoveries on any single date, or as a result of a single crucial experiment. Instead, they state that Galileo's anti-Aristotelian arguments were based on his accumulation of practical skills and commitments during his education. That is, throughout his early career he made claims regarding the trajectory of a projectile according to tools gained from traditional mathematical disciplines such as statics.

This demonstrates the following two points: firstly that Galileo was trained according to the technical knowledge of the late sixteenth-century engineers. Secondly, although mathematicians were not considered by the sixteenth-century natural philosophical community to be legitimate creators of natural knowledge, Galileo still became determined to use practical mathematics to solve traditional Aristotelian problems in physics. In other words, Galileo believed that his skills in mathematics could be used to produce natural knowledge, therefore raising the status of mathematicians to the level of natural philosophy: "Galileo succeeded in giving his treatise an anti-Aristotelian twist that made it possible for him to pose an a natural philosopher" (73).

This means that Galileo was far from an ideal example of an early experimental scientist. Although he undoubtedly performed experiments, this does not mean that he used some type of inductivist experimental method. Instead, he relied more on his conceptual framework of nature, including his abilities as an engineer-scientist, to accumulate natural knowledge: "he trusted a proof which he believed to be true within his theoretical framework more than the outcome of an experiment" (131).

The remaining two sections of the book go on to offer some equally convincing arguments about the need to apply detailed contextual accounts of the history of science. The arguments presented in Section Two regarding Galileo's skills as a draftsman are relevant to how he was able to strengthen the credibility and acceptance of his work with the help of the visual arts (H. Bredekamp, "Gazing Hands and Blind Spots: Galileo as Draftsman"; S. Booth & A. van Helden, "The Virgin and the Telescope: The Moons of Cigoli and Galileo"). Similarly, in Section Three, Mario Biagioli discusses how Galileo secured a position in the Tuscan Court by shrewdly crafting the presentation of his work in such a manner as to maximise its acceptance and minimise the potential for competitors to undermine him ("Replication or Monopoly? The Economics of Invention and Discovery in Galileo's Observations"). Also in Section Three, Paolo Galluzzi examines how Galileo's claims were accepted, rejected, and modified by his contemporaries and followers ("Gassendi and *l'Affaire Galilée* of the Laws of Motion"). Meanwhile, Rivka Feldhay highlights the inaccuracies in recent historiographies regarding Galileo's confrontation with the Inquisition in 1633 ("Recent Narratives on Galileo and the Church or The Three Dogmas of the Counter-Reformation"). So all these papers provide detailed accounts of the social, political, and religious processes involved in the production and dissemination of natural knowledge in the early seventeenth century and continue to justify Renn's aim to build an accurate and truly contextual account of Galileo's life and works. As Renn, Damerow, and Rieger put it in their conclusion–probably the most important paper in this book–Galileo's works were "the outcome of a complex human interaction determined by both tradition and innovation" (126).

In summary, this is not only a book that demands attention because of its great scholarly work on Galileo, but it also presents some pertinent historiographical issues. Most of these papers could have benefited from a greater use of the recent erudite work by Peter Dear, who also discusses the emergence of physico-mathematics in the seventeenth century and the importance of practical mathematics to the Scientific Revolution. Nevertheless, in the Appendix Renn still does an excellent job of bringing our attention to the brilliant studies undertaken by some famous late nineteenth-century and early twentieth-century historians of Italian science, Raffaello Caverni, Antonio Favaro, and Emil Wohlwill. The writings by these authors may have been forgotten by many historians today, but Renn shows that they have contributed greatly to our understanding of Galileo's work on projectile motion, and are now helping recent scholars, such as the contributors to *Galileo in Context*, to accumulate thorough and contextual accounts of Galileo's achievements.

Lane Furdell. *The Royal Doctors 1485-1714: Medical Personnel at the Tudor and Stuart Courts.* Rochester, NY: Elizabeth University of Rochester Press, 2001. 315 pp. $65.00. Review by KAROL WEAVER, PURDUE UNIVERSITY.

Elizabeth Lane Furdell's *The Royal Doctors 1485-1714: Medical Personnel at the Tudor and Stuart Courts* is a traditional history of England's royal medical practitioners. Furdell provides biographies of figures in the history of British medicine, and offers retro-