Galileo, Scientific Entrepreneur

Paula E. Findlen

The life and work of the early 17th-century mathematician and astronomer Galileo Galilei have been presented in many different guises, depending on which aspects of his highly publicized and controversial career authors have chosen to explore. Historians fascinated with his work as an observational astronomer have examined Galileo as an instrument-maker, discoverer, and inaugurator of a new approach to understanding the heavens. Historians interested in his contributions to physics and mechanics have explored the long evolution of his ideas and experiments culminating in the appearance of his Two New Sciences (1638). Scholars from many disciplines have also found Galileo’s work to be a fascinating example of the interconnections between the arts and sciences, since he drew liberally upon Renaissance literary and artistic traditions to construct a more accessible form of knowledge. Most famously, however, we have studied Galileo because of his 1633 trial and condemnation by the Roman Catholic Church for advocating heliocentrism. This crucial episode has cast a long shadow on the Church for advocating heliocentrism. This second major economy, reflecting Galileo’s growing sense of Rome as a critical audience for his observations and theories, concerns truth and authority. In his final chapter, Biagioli explores the circumstances that led Galileo to present nature as a “book.” What kind of book was nature in comparison with Scripture? Who should read and interpret it? Arguing that the true recipient of his 1615 letter was Cardinal Robert Bellarmine rather than the Grand Duchess Christina of Lorraine, Biagioli offers a close reading of this important text. He examines its failure to persuade theologians that others should be qualified to interpret this aspect of God’s creation for them, while also analyzing Galileo’s rhetorical strategies that might account for the seemingly serendipitous emergence of the scientific interpreter of nature: “Galileo fashioned himself as the reader whom God had not planned to exist, but whose existence he had not explicitly forbidden either.”

Galileo is the centerpiece of the book, but Biagioli has not written a study focused solely on him. Almost 30 pages in the chapter on the construction of scientific authority as an “investment process” discuss the early Royal Society as a corporate counterpart to Galileo’s highly personal efforts to manage the problems of secrecy, distance, and authority. The account of Galileo’s image-making also draws on other examples of scientific illustrations from the 17th century. While this material enriches Biagioli’s presentation, I am less confident about the broader methodological premise of the book. Although there is plenty of good

Galileo’s Instruments of Credit

Telescopes, Images, Secrecy

by Mario Biagioli


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specific information about Galileo in this study, Biagioli prefers to examine Galileo less as a historical actor and more as an object of meditation for contemporary science studies, certain aspects of literary theory [namely, in his discussion of the “Letter to the Grand Duchess Christina,” Jacques Derrida (2)], and attendant theoretical reflections on such subjects as networks, distance, blackboxing (simply citing references in support of a position), inscription, and supplementation. The author’s goal, I suspect, is to debate key aspects of the theoretical formulation of science studies with material drawn from the Galileo archive.

Throughout the book, Biagioli constantly compares Galileo’s activities with modern-day examples of scientific practice and entrepreneurship, drawing liberally from his readings in contemporary science studies and debates about intellectual property. This approach surely has its virtues, but readers not immersed in either of these literatures will at times be puzzled, perhaps even put off, by the construction of the author’s arguments. By theorizing Galileo so explicitly, Biagioli has made him of greater interest to some readers. But I suspect the author has also sacrificed the power of a historical narrative, which he could have written by digging more deeply into the documents of Galileo’s own world in order to give us a richer and more context-specific account of the nature of invention and entrepreneurship at the end of the Renaissance.

Galileo’s Instruments of Credit is worth reading, both to see where studies of Galileo are going and to understand the uneasy but always interesting relationship between the history of science and contemporary science studies. Although lacking the unifying thesis and narrative power of the author’s earlier book (1), it nonetheless offers a number of interesting insights into how to understand the uses of instruments and images in early modern science. I hope Biagioli will pursue in greater detail the historical dimensions of the issues he has raised.

References

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EXHIBITS: HISTORY OF SCIENCE

Islamic Inventiveness

John Pickstone

Most universities include staff and students from many ethnic backgrounds; they often know something of the contributions from their own cultural traditions to the common heritage of science and technology. Sometimes they interact with professional historians of science, and a guest lecture or two is the usual result. But one such interaction, 30 years ago, grew into the lively exhibition 1001 Inventions: Discover the Muslim Heritage in Our World and its attractive accompanying book.

At the Institute of Science and Technology (UMIST), which is now part of the University of Manchester, the then principal, Lord Vivian Bowden, became interested in the history of the Muslim empire, especially its financial arrangements. He arranged a collaboration between historians of the Middle East, historians of science, and some interested scientists. That faded away, but one of the participants, Salim Al-Hassani (a professor of mechanical engineering at UMIST), realized how little most people knew about the Muslim contributions to science and technology. Encouraged by Donald Cardwell (UMIST’s former historian of science and technology and the founder of Manchester’s Museum of Science and Industry), he collected like-minded colleagues and, with support from specialist historians, developed a Web site (www.muslimheritage.com).

After September 2001, the project gained new momentum, as the media promoted histories that would reduce the apparent cultural difference between Western and Islamic civilizations. Thus the current exhibition in Manchester can draw on some very professional videos, as well as models, attractive posters, and a few primary exhibits. These are organized around seven spaces, from home and school through market, hospital, and town to the world and universe.

When Britain learned with horror that the July 2005 bombings in London were planned and executed by Asians educated in the United Kingdom, the political import of the exhibition’s theme increased further. Young whites should know about the many cultures on which the Western tradition draws; young Asians should recognize the depth and breadth of their historical tradition, including its science.

The exhibition’s message is simple: see how much of the common heritage of science, technology, and medicine was pioneered in the Islamic world between 500 and 1500—astro-labes, algebra, and alchemy; coffee, clocks, and carpets; eye surgery, setting fractures, and hospitals; universities and professorial chairs. The audience will certainly get the point, and one young visitor was left wondering “Is there anything Muslims did not discover?”

Of course, such messages are a preliminary to real history. We would all benefit from knowing under what conditions our many and various traditions have proved fertile or infertile for invention and how those traditions have interacted over time. To that end, we need global histories of science that deal adequately with social contexts. But that is a longer term goal. For now, we can be grateful to Al-Hassani for his devotion, and we can hope that the exhibition and its products will gain wide circulation around the world.

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