Favorites and Falls

Galileo, Courtier. The Practice of Science in the Culture of Absolutism. MARIO BIAGIOLI. University of Chicago Press, Chicago, 1993. xiv, 402 pp., illus. $29.95 or £23.95. Science and Its Conceptual Foundations.

The historiography of science has been undergoing a shift of focus, instigated in part by the Kuhnian view of incommensurability among scientific paradigms, away from its conceptual content and toward the social and political context in which science has developed. This shift has been accompanied by controversies over explanatory priorities and how the two approaches should be related.

Biagioli's examination of the Galileo affair is an especially striking example of the new historiography. The author does not attempt to provide a full chronological study of Galileo's scientific career but limits himself to the period from his development of the telescope (1609) to his trial (1633). And within that key era only certain topics are examined, namely, those that especially reveal the social and political context of Galileo's scientific work. Thus there is no discussion at all of the Church's condemnation of Copernicanism in 1616. But on the other hand we are presented with very helpful and extensive discussions of the debate over the buoyancy of bodies in water and of the lengthy dispute between Galileo and the Jesuit Orazio Grassi over the interpretation of the comets of 1618.

The central theme of the book is the pervasive influence on Galileo of life at the courts of early-17th-century absolute rulers, specifically the Medici court in Tuscany and the papal court in Rome, where Galileo spent the entire period under study. The delineation of this court life is so graphic and detailed that, after a while, the reader has a sense of being there, a feeling also evoked by Pietro Redondi's *Galileo Heretic* (1987).

More specifically, the discussion revolves around the operation of the patronage system, in which the careers of social-climbing and power-seeking clients were made (and broken) with astonishing twists and turns while the ruler kept his focus on maintaining and extending his own image, fortune, and power. The enormous complexities of this patron-client relation are examined in detail. Life for the client was precarious, especially when the patron died and all bets were off. As Biagioli puts it, "The pattern was so familiar that *The Courtier's Philosophy* (a court game not unlike today's 'Monopoly') published in Madrid in 1587 prescribed that those who landed on square 43 ('Your patron dies') had to go back to start" (p. 35).

Galileo entered this patronage world in 1610, when he moved from Padua back to Florence with the negotiated new title of Philosopher and Mathematician to the Grand Duke of Tuscany, a court reward for naming the satellites of Jupiter "the Medicean stars." According to Biagioli, from this point on all of Galileo's scientific work was integrated with his fashioning of a new "socioprofessional identity" for himself through the patronage system.

As part of this process, Galileo attempted to elevate the status of mathematical astronomy to a position comparable to that of the natural philosophy of the day—that is, to show that it too could draw conclusions about the real world and was not limited to being merely a tool of calculation. Biagioli sees all of Galileo's scientific interests and work during this period—his problems, his inventions, his discoveries, his style of writing, his scientific disputes, even the legitimation of his scientific results—in terms of the social and political realities of the patronage system. Even his increasing commitment to Copernicanism is to be seen accordingly, both because all novelties were highly prized at court and because it gave him a distinctive position against the Jesuits, who defended Tycho's system in astronomy.

With all this background in place, it is not surprising that in the last chapter the author interprets Galileo's trial as a case of the "fall of the favorite" in the papal court of Urban VIII. As Biagioli puts it in his prologue to the book, "I suggest that the events of 1633 were as much the result of a clash between the dynamics and tensions of baroque court society and culture as they were caused by a clash between Thomistic theology and modern cosmology. In short, Galileo's career and his attempts to legitimate Copernican astronomy were terminated by those same processes that made it possible to begin with" (p. 10).

Here as elsewhere Biagioli is careful to point out that his social and political contextualization offers only a partial explanation of the historical events, one that does not exclude other approaches but has the advantage of not needing to explicitly sort out causes and effects. It is to be hoped that any emulators will be equally cautious. The author's contribution in this volume is to attempt to account for scientific change in terms of social change that generates a new socioprofessional identity for the scientist. How far this will go toward a new peace among historians and philosophers of science remains to be seen.

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Vignettes: Voyeurism

The Reader might recall how displeased Captain Gulliver had been with the sight of Brobdingnagian ladies: "Their Skins appeared so coarse and uneven, so variously coloured when I saw them near, with a Mole here and there as broad as a Trencher, and Hairs hanging from it thicker than Pack-threads . . ." However, he had not noticed any coarseness or unevenness in Brobdingnag's coastline . . . or topography, as these fractal features are independent of scale.

—G. *Korvin*, in *Fractal Models in the Earth Sciences* (Elsevier)

I think that in their richness and variety molecules are to be compared with people. This is what I like about riding the subway in New York City—the incredible range of ethnicity, physiognomy, clothes, and emotions. I see tired, swarthy men, women with henna-dyed hair, people reading Korean and Russian newspapers, Caribbean blacks, a sleepy Indian girl. Angelic or rough, they're alive, and in their lives are a million novels. When I open a page of *Chemical Communications* or *Angewandte Chemie*, I get a similar feeling. I recognize the molecular types (my prejudices and education determine that), but in these pages someone has pulled off something new—here a cluster of nine nickel atoms, one inside a cube of eight, there someone else has found out the curious way an NO molecule tumbles as it jumps off a metal surface to which it had been stuck. I'm a voyeur of molecules, and—here's a difference from the world of people, as there must be—everyone wants me to look!

—*Roald Hoffmann*, in *Chemistry Imagined: Reflections of Science* (with Vivian Torrence; Smithsonian Institution Press)