Catholic Physics: Jesuit Natural Philosophy in Early Modern Germany (review)

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patents shed substantially new light on Galileo's secrecy about telescope-making skills, but Biagioli is too enthusiastic when he makes them responsible for the absence of "a description of the optical processes of image formation through a telescope" (126), an optical theory which would have been little helpful in building a better telescope.

The *Sidereus Nuncius* was, of course, no patent application, and Biagioli analyzes the narrative and pictorial tactics which Galileo used to convince his readers of the existence of his celestial discoveries. These pictorial tactics — movie-like visual sequences, the innovative character of which Biagioli overestimates— which represent periodicity and change in time, are the central focus of chapter 3, on the sunspot controversy between Galileo and Christoph Scheiner. Finally, in chapter 4, Biagioli attempts to show how Galileo's use of the metaphor of the book of nature emerged in response to theologians' criticisms of Galileo's portrayal of the relationship between astronomical knowledge and scriptural exegesis.

Despite shortcomings — which arise from Biagioli's attention to tactics of secrecy and disclosure at the expense of the content of the disclosure and the historicity of its packaging — this well-researched book brings fresh insights, especially regarding the concept of intellectual property, in a seemingly all-too-familiar episode in the history of science. Its sweeping style will appeal to broader audiences than that made up by the Galileo Industry.

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Marcus Hellyer. *Catholic Physics: Jesuit Natural Philosophy in Early Modern Germany*.

Notre Dame: University of Notre Dame Press, 2005. xii + 336 pp. index. append. illus. tbls. bibl. $50. ISBN: 0–268–03071–5.

In 1775, two years after the dissolution of the Society of Jesus by Pope Clement XIV, Empress Maria Teresa was asked to approve the founding of a scientific Academy in Vienna. Casting her eyes on the proposed list of local members, the empress cringed: "I could not possibly decide to start an academy with three ex-Jesuits and a worthy professor of chemistry," she demurred. "We would be the laughing-stock of the world." No more was heard of the matter. Marcus Hellyer does not recount this anecdote but he conjures up an analogous mentality when recounting the events leading to the foundation of the Bavarian Academy of Sciences a decade-and-a-half earlier. The moving force behind the new institution was Georg Lori, whose visceral detestation of the Jesuits made him insist, successfully as it turned out, not only on total independence of the academy from the Jesuit-controlled University of Ingolstadt, but on barring the admittance of all Jesuits. "Our constitution is very democratic," he wrote his patron, and in democracies "all tyrants are hated. Does Your Excellency not know those people who have ruled over scholars and science like a sultan over the Muslims?"

The anecdotes are illustrative of the hostile environment within which Jesuits savants operated during the early modern period, both within and outside the Catholic world. The jealousy and fear they elicited prompted contemporaries to either dismiss or malign them. For their part, historians tended to perpetuate this negative perception of the order, relegating Jesuits to the rank of plodding pedagogues — if not denouncing them altogether for their alleged obdurate opposition to the new science. Only in recent years has there emerged a more nunaced appreciation of the Jesuit contribution to the Scientific Revolution, and Marcus Hellyer's informative overview of the teaching of natural philosophy in the German Assistancy of the Society of Jesus makes a welcome contribution to this new trend in scholarship.

Catholic Physics does not pretend to be exhaustive: the dearth of scholarship on the subject, even in German, renders such coverage all but impossible. Rather, Hellyer highlights certain aspects of Jesuit teaching of natural philosophy between ca. 1560 and 1773, contrasting the theory that informed Jesuit pedagogy with the more complex reality of the classroom. As the bulwarks of the Counter-Reformation, Jesuits were expressly enjoined to shun all innovations and to defend Aristotle in philosophy and Saint Thomas in theology. As a result, the desire and ability of members to embrace new modes of thought became increasingly problematic — especially following the proscription in 1651 of some thirty propositions of natural philosophy as a last-ditch effort by the society's grandees to attain the elusive uniformity and solidity of doctrine.

A telling example of the dire consequences that the interdiction exerted on the more creative among Jesuit mathematicians and natural philosophers is illustrated by the case of Melchior Cornaeus, the rector of the Jesuit College at Würzburg. In 1653, Cornaeus wrote scornfully to Athanasius Kircher of those unskilled in mathematics who presumed to pronounce on matters of physics, and proceeded to declare that "if I am not permitted to write what I think, then I will never write anything at all." Ultimately, however, though General Nickel denied his petition to print notions that diverged from several prohibited opinions, Cornaeus published in 1657 his *Curriculum philosophiae Peripateticae*, wherein he spoke his mind by availing himself of a "philosophical dissimulation." For example, Cornaeus denied the existence of positive levity, yet, in view of the explicit proscription against such a conclusion, he added, somewhat mischievously, that he had taught such an opinion for many years, but now, "because the authority of my superiors commands something else, I say that it is probable that gravity and levity are two positive qualities . . . and because authority commands that we subscribe to this opinion, I subscribe and I approve it."

Hardly surprising, then, many contemporaries regarded such expressions as proof of Jesuit equivocation. But for Jesuit practitioners such obfuscation was mandatory if they wished to publish treatises on natural philosophy. Most Jesuit savants, however, opted to steer clear of the Scylla of Copernicanism and the Charybdis of atomist physics — perilously encroaching on the doctrine of the Eucharist — and turned to the relatively safer enterprise of experimental physics.

The second half of Hellyer's book is devoted to an elucidation of the rise and diffusion of experimentation in German Jesuit colleges during the late seventeenth and eighteenth centuries, with particular emphasis on the air pump. Hellyer's account offers a wealth of new information, as well as cogent reflections on the nature of Jesuit science within its institutional setting, the relations between the Roman center and the German periphery, and the contribution of secular patronage to the ability of Jesuits to pursue scientific studies, sometimes in the face of their superiors' opposition.

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Constance Furey. *Erasmus, Contarini, and the Religious Republic of Letters*. Cambridge: Cambridge University Press, 2006. xiv + 256 pp. index. bibl. $65. ISBN: 0–521–84987–X.

Precisely because they were critical of much of their medieval religious and cultural heritage, many humanists felt alienated from the institutions — ecclesiastical, political, and domestic — in which they pursued their careers; and, according to this book, they found no sense of community in the institutions they served. In Germany, many such humanists found this sense of community by adhering to the Reformation. Constance Furey does not deal with that group. Her study is explicitly about intellectuals, or *literati*, who remained Catholic but created informal associations through which they found inspiration and fellowship. They were, she suggests, predecessors of the critical, secular intellectuals of the following three centuries, but they placed religion at the very center of their identity. She also claims that despite the influence of traditional sexist ideas, these friendships were ungendered, so that men and women — Reginald Pole and Vittoria Colonna, for instance — could form intimate, spiritual friendships essentially free of sexual overtones.

The difficulty comes in the selection of individuals to study. Most of Furey's choices are not surprising. North of the Alps, they include Erasmus, More, Colet, Budé, Marguerite de Navarre, and, less convincingly, More's daughter Margaret Roper. In Italy, all of her examples are associated with the religious groups known as *spirituali*. In the north and south alike, most of her subjects tended toward an evangelical theology, so that many of them were accused of being sympathizers with Luther.

In general, Furey's selections work least well for the Northerners. Budé does not belong here at all: he was a great classical scholar but intellectually narrow, conventionally Catholic, and cold and withdrawn. Colet was learned, but only within a limited range, and hostile to many facets of the humanist program. Contrary to Furey's claim, there is no way in which Colet, a man totally unaware of the importance of Greek for biblical studies, could have had a decisive influence on Erasmus's development into a great biblical scholar. Nor was Colet a layman: