

## PREFACE

“One cannot talk about mathematics in the 16th and 17th centuries without seeing a Jesuit at every corner,” George Sarton observed in 1940.\* Sarton, of course, was not the first to recognize the disproportionate representation of members of the Society of Jesus in the scientific enterprise of the early modern period. However, unlike many historians who belittled the discernible numerical strength of the Jesuits on the grounds that they lacked originality and were generally hostile to new ideas, Sarton correlated numerical strength with significance. Hence his plea for collecting the papers of that industrious historian of Jesuit science, Henri Bosmans, was quite refreshing. Yet Sarton’s appeal went unheeded, and not only with respect to Bosmans’ papers. The perception of the Jesuits as plodding pedagogues and obscurantists remained as ingrained as ever, virtually sanctioning the disregard of their activities. Such neglect meant that the exact nature of the Jesuit contribution to the Scientific Revolution remained sketchy at best; only recently – owing to a long-overdue examination of the Order’s archives and of published texts – have new contours begun to emerge. Striking in this reassessment is a more nuanced appreciation of the Jesuits’ interaction with “modernity” and a far greater recognition of the Jesuit contribution to the two poles of modern science: the mathematization of natural philosophy and experimental science.

The present volume advances this process of reinterpretation, not least by factoring in the quandary faced by Jesuit practitioners in their pursuit of science and in their ability to make their research public. The six essays provide a cross-section of this complex Jesuit encounter with the mathematical sciences during the seventeenth century. Michael John Gorman provides a subtle analysis of Christoph Grienberger – Christoph Clavius’ successor as the head of the Academy of Mathematics at the Collegio Romano – who was instrumental in shaping Jesuit science during the first half of the seventeenth century. Partly because he shunned publication, Grienberger remained little studied and invariably overshadowed by Clavius. Gorman argues that Grienberger “effaced” himself as an author not merely to conform with the Jesuit ideal of self-abnegation; such a course of action allowed him to launch a rear-guard campaign against the philosophers of the Order, with the intent to discredit Aristotelian natural philosophy and elevate the status of the mathematical sciences. Appended to the chapter is Gorman’s edition of Grienberger’s *Problemata* – the texts accompanying the important public demonstrations carried out at the Collegio Romano.

Expanding Gorman’s analysis of Grienberger to include Orazio Grassi,

Mordechai Feingold focuses on the significance of the defiant stance taken by the chief mathematicians of the Collegio Romano with regards to the philosophers and the theologians of the Order. He suggests that their “modern” outlook was not so different from Galileo’s – although far more prudent in public – and speculates whether their efforts to keep the Order in the vanguard of the new science would have been successful had it not been for the condemnation of Copernicanism. With such a question in mind, he revisits the unfolding relations between Galileo and the Jesuits, concluding that far from being perpetrators of the condemnation, the Jesuits were in some sense its greatest victims. Indeed, one early Jesuit victim was Giuseppe Biancani, the teacher of Niccolò Cabeo and Giovanni Battista Riccioli, who shared Galileo’s strong commitment to quantitative natural philosophy. Francesco De Ceglia investigates the events surrounding the prohibition of Biancani’s Galilean appendix to *Aristotelis loca mathematica* (1615). He concludes that the prohibition of the appendix – which contrasts with the approval (subject to relatively minor corrections) of the strongly anti-Aristotelian *Loca* – reflected a policy change in general, and toward Galileo in particular, in the aftermath of General Acquaviva’s death in January 1615.

Carla Rita Palmerino’s chapter marks a shift to the French context of the 1640s and to the efforts of Pierre Gassendi, on the one side, and the Jesuits Honoré Fabri and Pierre Le Cazre, on the other, to debate the foundations of the new Galilean science of motion. In her meticulous reconstruction of the debate, Palmerino highlights the different (and not altogether orthodox) means by which the two Jesuits responded to the challenges posed by the new theory and to the consequences of their critique of Gassendi’s elucidation and advancement of Galileo’s often obscure ideas.

The final two chapters trace the fortunes of the mathematical sciences in the Portuguese Province of the Society of Jesus. Henrique Leitau offers a timely overview of the complex reasons – social as well as intellectual – that caused the Jesuits in Portugal and its colonies to be left largely untouched by the new mathematics. The combination of a certain native indifference to such studies and a continual need to satisfy technical demands made by monarchs and ministers determined that the mathematical teaching and activity of the Jesuits remain narrowly utilitarian. Hence the plight of those few Jesuits who, like Valentin Stansel, the subject of Carlos Ziller Camenietzki’s chapter, strove for more. The Bohemian-born Jesuit spent six years in Portugal before being dispatched in 1663 on the Brazilian mission. For the next two decades Stansel avidly pursued his astronomical and other studies in Brazil – his observations of the 1668 comet were cited by Newton in the *Principia* – but he bemoaned his own geographical isolation as well as the alienation of the Order from the mainstream of the new science.

Taken together, the several case studies comprise a dynamic model that accounts for the Jesuit reversal of fortunes. The slow dislocation of the Jesuits to the periphery of European science during the second half of the seventeenth century – not reversed until the 1720s – was the result of a continuous struggle

within a religious Order (with a distinct apostolic mission) over the legitimacy of pursuing highly specialized, and potentially heterodox, secular studies. To aggravate these internal debates further, they raged against a background of rapidly expanding scientific knowledge. To cope, the administrators began to generate official prohibitions against certain areas of investigation, while the Jesuit savants became more ingenious in their ability to circumvent, straddle, and equivocate, according to temperament and local conditions, but almost always behind the scenes. Nonetheless, in their dissemination of the new science as well as in their private interactions with like-minded practitioners, Jesuit savants made significant contributions to the early-modern culture of science, the full magnitude of which we are only now beginning to grasp.

## NOTE

\* George Sarton, "An Appeal for the Republication in Book Form of Fr. Bosmans' Studies," *Isis*, 40 (1949), 3.