

***Catholic Physics: Jesuit Natural Philosophy in Early Modern Germany.* By Marcus Hellyer. Pp. xii, 336, Notre Dame, Indiana, University of Notre Dame Press, 2005.**

The varied activities of Jesuits through the centuries have stimulated the curiosity of many a historian. Their role in the scientific revolution is no exception. Was the Society of Jesus the main obstacle for the acceptance of the new physics in modern Europe? Was their educational system, spread all over Europe, completely under the strict control of regulations imposed by the Jesuit hierarchy in Rome? How did the various Jesuit colleges confront, reject or absorb the crucial novelties of the mathematical and experimental method? In this book, Marcus Hellyer addresses such crucial questions. He examines Jesuit colleges, mainly those found in Germany, over a span of two centuries, from the late sixteenth century to 1773, when the Society was suppressed.

In Part One, his attention is mainly on institutions. Hellyer starts by examining how philosophy teaching was managed in the Society of Jesus, and then proceeds by treating the crucial question of censorship and its limits. The nature of censorship is a fundamental issue for the entire book. The teaching and writing of Jesuit natural philosophers in the various colleges could only expand according to what the rules set by censors allowed. The second and third parts of the book deal with the seventeenth and eighteenth century respectively. After a chapter on the topics included in the typical natural philosophy Jesuit curriculum of the seventeenth century, Hellyer explores some specific issues at greater length. He dedicates a chapter on the understanding of the Eucharist, a chapter on the struggle for pre-eminence between mathematics and physics, and another chapter on the intriguing questions introduced by the invention of the air pump. The final four chapters are about the eighteenth century. This century sees strict censorship starting to be counter-balanced by the approach of the *Libertas Philosophandi*. In line with this, the spread of experiment became very much part of the Jesuit contribution to the *Aufklärung*. All this leads to what Hellyer calls the transubstantiation of physics: the definite shift from a strictly scholastic natural philosophy to the experimental and mathematical physics we are familiar with today. The book ends with an Epilogue containing some details about what happened after the suppression of the Society of Jesus.

From the many historical insights that make this book valuable, I will only mention three. First, the study of practices of censorship is carried out with great skill. Hellyer does not limit himself to tell a story of repression but acknowledges that it was censorship itself that stimulated Jesuit professors to adopt several strategies to explore the spaces left available by the censors' regulations. At the hands of the Jesuits, Aristotelian natural philosophy proved to be extraordinarily flexible and adaptable. Hence, Hellyer rightly counteracts the assumption that Jesuit science after the trial of Galileo declined significantly. He shows that Jesuit enthusiasm for scientific publishing actually increased in the eighteenth century. Through a detailed study of the content of classroom instruction, he traces the transformation of Jesuit natural philosophy from a largely scholastic body of knowledge around 1600 into an experimental, mathematical science. Secondly, Hellyer examines the idea of producing a textbook to ensure doctrinal uniformity within the vast Jesuit educational enterprise. Although the compiling of a single text-book had been proposed by St. Ignatius in the Constitutions, later generations of Jesuits deemed such a text-book a possible source of laziness. They feared that Jesuit professors would cease to consult the sources themselves. In this they acknowledged something that St. Ignatius apparently had

never envisaged, namely that the sciences were not static bodies of knowledge. The third point worth highlighting is Hellyer's historical contribution to the science-theology debate. He explores the interaction between these two disciplines not in the abstract but via particular concrete questions. These include the question of how to account for the Eucharistic change of the bread and wine into the body and blood of Christ. As a physical explanation, the Jesuits here were obliged to defend the Aristotelian-scholastic theory of matter and reject Cartesian atomism. Another issue in this area involves the cluster of theological questions associated with the new pneumatic experiments conducted with the Torricellian mercury tube and the air pump, the two instruments that were emblematic of the new experimental philosophy.

Overall, the book is very well documented. It makes use of a good number of original sources and also of recent studies. Some readers may find it somewhat incomplete because the question of patronage of printed books, which determined much of what Jesuits could publish in the centuries covered here, is not given the attention it deserves. Jesuit authors relied heavily on the patronage system, often endorsed by their superiors who counted on their members' publications to enhance the reputation of their colleges. In choosing a patron for their books, Jesuit natural philosophers hoped for an acceptable match between the subject matter of their text and the personal predilections of the patron. In all probability, Jesuits often used to feel obliged to tailor their writing to please their patron, especially when patrons were local magnates. So, rather than Hellyer's bi-polar account, where constraints arose from the two areas of experiment and censorship, it may be more realistic to consider a tri-polar cultural situation, in which constraints arose not only from experiment and censorship, but also from the particular world-view approved by patrons.

This point, however, should not be taken to mean that the content of this volume is not valuable as it is. It is just to show that it stimulates further research. In fact, the book goes a long way to deepen our understanding of the complex emergence of the new science and to explore the often neglected dialogue between scholastic philosophy and the modern experimental approach. I have little doubt that it makes a significant contribution worthy of close study by historians of seventeenth and eighteenth century Europe in general, and by historians of science in particular. If those engaged in the ongoing debate between science and religion study the material covered in this volume they also will profit considerably by gaining important insights into the mentality that constitutes the background for much of what is discussed today.

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