

Review Essay

Jesuit Science Revisited: Scope, Usefulness, and Challenges of a Historiographical Label

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Introduction

“Historians of science have always known that the Jesuits made a prolific contribution to early modern scientific culture”.¹ Nick Wilding’s 2013 assessment holds true even more than a decade later. Since then, much has been published on what is often referred to as ‘Jesuit Science’, not only for the early modern period but also for the post-restoration era of the Society of Jesus. But “what exactly constitutes ‘Jesuit Science’ remains a thorny question for modern scholars, much as it did for early modern Jesuits themselves”, as Mark A. Waddell remarks.² This label of ‘Jesuit Science’ is, on the one hand, frequently used in academic and popular literature. On the other hand, it remains rather poorly defined and is in fact avoided by some specialists in the field. The present essay places some of the most recent monographic publications on Jesuit contributions to science within a critical discussion about the scope, usefulness, and challenges of the label ‘Jesuit Science’ in historical research.³ With this meta-study I set out an argument for what I call a case-sensitive approach to the term, that is, the importance of distinguishing between different notions of ‘Jesuit Science’.

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1 Wilding, “Science and the Counter-Reformation”, 320.

2 Waddell, *Jesuit Science*, 4.

3 With exceptions and probably some unintentionally omitted contributions, I focus on monographs relevant to Jesuit Science that were published between

In doing so, I follow Pietro Daniel Omodeo, who observed the frequent use of the label of ‘Jesuit Science’ in recent studies and jibed that “‘Jesuit Science’ has become a bizarre plant flourishing in the field of historical studies in the early modern period”.⁴ In his critical (if not occasionally polemical) book chapter, he tries to unpack the label ‘Jesuit Science’ and distinguishes two meanings:

The historiographical label ‘Jesuit Science’ can perhaps have a soft meaning as a keyword simply referring to studies investigating scientific biographies of scholars who belonged to the Jesuit Order, their special achievements in some scientific field or their perspective on certain cultural debates. However, radicalised and problematic uses have emerged. Accordingly, ‘Jesuit Science’ can designate a special approach to science, typical of those belonging to the Jesuit Order.⁵

I think this distinction—in its non-polemical, analytical form—is useful. I will follow Omodeo by referring to the “special approach to science” with the uppercase version of ‘Jesuit Science’. Jesuit Science here implies a codified and (tentatively) essentialist meaning

2012 and June 2022 in all European languages. The underrepresentation of some languages among the corpus of this systematic review might echo two biases. First, monographs in certain languages might simply have been overlooked due to my own linguistic abilities, to these studies’ non-inclusion in bibliographies, and to their neglect in the reviewed secondary literature. Second, there is a clear tendency to publish monographs in languages that are read by larger communities, esp. in English.

4 Omodeo, “Jesuit Science”, 115. See also Carolino, “Astronomy, Cosmology, and Jesuit Discipline, 1540–1758”, 671: “Based on this belief that there was something distinctive about the Jesuit identity that shaped their scientific activities, the existence of a specific ‘Jesuit science’ or ‘Jesuit astronomy’ has often and uncritically been taken for granted”. Cf. also Aspaas and Kontler, *Maximilian Hell*, 21: “In this way, the matter of Jesuit education leads us to consider the topic that, even amid the general efflorescence of Jesuit studies, has received a disproportionate amount of attention: the intriguing field of Jesuit science. As the thrust of a great deal of recent work on the Enlightenment has been to assert the centrality of the ‘new science’ to its gestation, this topic is of crucial importance to this section; and similarly to this thrust, the more contextualized approach to Jesuit science owes its existence to the larger revisionism in the history of science, particularly with regard to the ‘scientific revolution’”.

5 Omodeo, “Jesuit Science”, 152. Omodeo’s own analysis is spelled out in Marxist concepts and is published as a scientific contribution to a volume (co-edited by Omodeo) on the relevance of Antonio Gramsci, a twentieth-century Italian Marxist thinker, for the history of science. Omodeo discerningly targets the allegedly radicalized and problematic uses of Jesuit Science, what he identifies as a post-modern reification aiming at “theology-led revisionisms in the history and philosophy of science” (*Ibid.*, 116.).

of Jesuit contributions to science. For the “soft meaning”, I will use the lowercase version of the word ‘science’. Jesuit science then is a topic for “studies investigating scientific biographies” of Jesuits.

The following systematic review will map and reflect on some of the recent trends in this field of study. I will first unpack different meanings of ‘Jesuit’ and ‘Science’ in ‘Jesuit Science’, in order to outline the range of meanings of ‘Jesuit Science’. Based on this, I argue that the uppercase style of Jesuit Science is rarely driven by a full-fledged historiographic agenda but is instead an often somewhat ill-conceived shorthand used by scholars exploring (and partly overemphasizing) Jesuit identity when it comes to science. To avoid dismissing any valuable insights, I suggest a case-sensitive reflection on the usefulness of both styles of Jesuit S/science: a balancing act between two opposing tendencies that on the one hand disregards the influence of a Jesuit identity and on the other hand uncritically reifies it without defining any new definition of Jesuit Science, which, I argue, does have a place in the field if used with caution.

The ‘Jesuit’ in ‘Jesuit Science’

The attribute ‘Jesuit’ in ‘Jesuit Science’ is not idiosyncratic. The umbrella label of ‘Jesuit Studies’ comprises many ‘Jesuit’ fields: Jesuit Art, Jesuit Image Theory, Jesuit Theater, Jesuit Political Thought, Jesuit Mission, Jesuit Pedagogy, Jesuit Education, Jesuit Spirituality, Jesuit Obedience, Jesuit Theology, and Jesuit Philosophy appear in the titles of several monographs and dissertations or are employed as central analytical categories.⁶ A universal definition of ‘Jesuit’ has not been unequivocally established across all these fields, although individual studies attempt to identify overarching patterns beyond the “soft meaning” explained by Omodeo or what I call the lowercase style: (male) persons contributing to a field who were at some point in their lives members of the Catholic Church’s Society of Jesus. Within different fields of Jesuit Studies, scholars often re-

6 A few examples among recent publications are: Mochizuki, *Jesuit Art*; de Boer, Enenkel, and Melion, *Jesuit Image Theory*; Höpfl, *Political Thought*; Clossey, *Salvation and Globalization in the Early Jesuit Missions*; Casalini and Pavur, *Jesuit Pedagogy, 1540-1616*; Casalini, *Jesuit Philosophy on the Eve of Modernity*; Mostaccio, *Early Modern Jesuits between Obedience and Conscience*. Further examples can be gathered from Maryks, “One Hundred Most Recent Dissertations on Jesuit Topics”. As an example for a definition, see, e.g., Mochizuki, *Jesuit Art*, 1: “‘Jesuit art’ has been used to encompass objects made by Jesuit artists and workshops, commissioned by Jesuit patrons, closely associated with Jesuit devotion, transported by Jesuits, and merely focused on Jesuit-related subject matter”.

flected on how these individuals' religious membership impacted their engagements, and there might be overlapping and more general notions of 'Jesuit' that still need to be further fleshed out in the scholarship and are beyond the scope of this essay.⁷

Within the history of science, 'Jesuit Science' has become indeed a buzzword, yet it remains without a codified, univocal, and accepted meaning within the field beyond its lowercase use. In spite of the great amount of literature on Jesuit Science and even several historiographical articles on the very notion of Jesuit Science, definitions are scarce.⁸ A rare exception is found in Dagmar Mrozik's PhD thesis on the *Jesuit Science Network* defining

Jesuit science as the scholarly activity of members of the Society of Jesus in the early modern sciences, an activity consisting of generating, consolidating, discussing, and teaching knowledge in the associated subjects within a regulated religious community and under a larger philosophical and theological framework. In many areas, this activity did not differ from the work of non-religious scholars, and just like them, Jesuits had the liberty to consider and agree with theories outside of their predefined set of beliefs.⁹

Mrozik here rather subscribes to the lowercase style by putting the emphasis on the individuals' membership in the Society of Jesus and even explicitly downplays any "radicalized" distinction to non-Jesuit agents.¹⁰ This is well in line with Mordechai Feingold's approach, focusing on the Jesuits' scientific achievements themselves without presupposing neither the "regulated religious community" nor the "larger philosophical and theological framework" as the major driving forces behind their scientific engagement.¹¹

This lowercase notion of Jesuit science also informs the Cataloging in Publication (CIP) prepared by the Library of Congress, which

7 The probably richest collective publications on Jesuit corporate identity are O'Malley, *The Jesuits*, 1999; O'Malley, *The Jesuits*, 2006; Maryks, *Exploring Jesuit Distinctiveness*.

8 More recent historiographical essays include Blum, *Aristotelianism*, 113–138; Wilding, "Science and the Counter-Reformation"; Rabin, "Early Modern Jesuit Science"; Rabin, "Jesuit Science before 1773"; Udías Vallina, "Jesuit Contribution to Science 1814–2000"; Rabin and Udías Vallina, "Introduction: Jesuits and Science"; Omodeo, "Jesuit Science".

9 Mrozik, "The Jesuit Science Network", 41.

10 Non-Jesuit might be a better category here than non-religious.

11 See esp. Feingold, *The New Science and Jesuit Science*; Feingold, *Jesuit Science and the Republic of Letters*.

uses the subject heading “Jesuit scientist” but does not know “Jesuit science”, in contrast to subject headings such as “Jesuit architecture” (and not “Jesuit architects”) or “Jesuit poetry” (and not “Jesuit poets”).¹² Many publications in the field of Jesuit Science thus avoid this uppercase term and denote a collective of Jesuit scientists instead.¹³ This approach, be it implicitly or explicitly, translates into or is in line with several past and recent studies on single Jesuits and their scientific achievements. As protagonists of more recent studies feature pre-suppression Jesuits such as Athanasius Kircher, Paul Laymann, Gregorio a San Vicente, Juan Eusebio Nieremberg, Martin Delrio, Giovanni Battista Riccioli, and Maximilian Hell and post-restoration Jesuits such as Angelo Secchi and Pierre Teilhard de Chardin.¹⁴ Studies prevail on pre-suppression, especially seventeenth-century Jesuit contributions to science overall.¹⁵

From what readers of these studies can tell, this focus on actors is not an explicit and deliberate choice to avoid the uppercase notion of Jesuit Science altogether. Rather, actor-oriented and biographical approaches continue to be an established format of scientific historical scholarship and, among other reasons, also quite neatly fit into the Jesuits’ own historiography, which produced several (auto-)biographies and monumental prosopographical projects from the sixteenth century onwards.¹⁶ All of these recent portrayals of Jesuit

12 See <https://lcn.loc.gov/sh98004759> [accessed 23.09.22]. Other LOC CIP subject headings include: Jesuit architecture, Jesuit art, Jesuit drama, Jesuit fiction, Jesuit painting, Jesuit poetry, Jesuit sculpture, Jesuit theater.

13 See, e.g., Hsia, *Sojourners in a Strange Land*; Ignacimuthu, *Contribution of Jesuits to Science in India* (I was unable to find a copy of this publication in Europe); Rabin and Udías Vallina, *Jesuits and Science*; Udías Vallina, *Jesuit Contribution to Science*; Idem, “The Society of Jesus and the Sciences in the Modern Era”; Saraiva and Jami, *Padroado*.

14 Cf. Stolzenberg, *Egyptian Oedipus*; Fletcher, *A Study of the Life and Works of Athanasius Kircher*; Florie, *Paul Laymann*; Meskens, *Between Tradition and Innovation*; Machielsen, *Martin Delrio*; Hendrickson, *Jesuit Polymath of Madrid*; Graney, *Setting aside All Authority*; Dinis, *A Jesuit against Galileo*; Aspaas and Kontler, *Maximilian Hell*; Chinnici, *Decoding the Stars*; Chinnici and Consolmagno, *Angelo Secchi and Nineteenth Century Science*; Elo, “Loosing the Bound”; Pastryk, “Pierre Teilhard de Chardin”. None of these studies, of course, neglects their protagonists’ embedding in the individual and general ‘Jesuit environment’ and the core values shared by the Society of Jesus. This is done particularly convincingly in Machielsen, *Martin Delrio*.

15 Cf. also Aspaas and Kontler, *Maximilian Hell*, 22: “At the end of this overview of Jesuit science in the early modern period, a final issue that needs brief consideration is raised by the scholarly preoccupation with the sixteenth and especially the seventeenth century”.

16 See esp. Russell, *Being a Jesuit in Renaissance Italy*. Prosopographical accounts include *Sommervogel* and Antonio Possevino’s project, as analysed in Balsamo, *Antonio Possevino*.

scientists describe extremely complex, sometimes enigmatic, and even contradictory *personae* and *vitae* dissolving any universal idea of ‘the Jesuit life’ across places and times. Scholars such as Nieremberg, Hell, and Secchi, as we will see in the next section, serve as immensely helpful cases to widen the scope of scientific fields under scrutiny for ‘Jesuit Science’. In spite of all the individual achievements of these Jesuits, the Society itself sought for unity and uniformity.¹⁷ The authors of these monographs—with different levels of rigor and scrutiny—thus point out how the individual lives of their protagonists were tied to the rules of the Society and influenced by other social and intellectual forces acting on them.

Other studies, with the same justification but often different epistemic goals, take the opposite position: looking at many Jesuit agents from the perspective of some overarching structure or a specific focal topic or current of Jesuit Science. Administration and institutionalization were (and still are) key to the Jesuits’ intellectual efforts, and hence there are studies that investigate the scientific relevance of single Jesuit institutions, such as one of their universities or one of their media of publication.¹⁸ Other studies have looked at how Jesuit Science was shaped through specific social and bureaucratic practices, cultural and archaeological perspectives, or the use of scientific methods such as the visualization of scientific content in publications.¹⁹

The Jesuits’ strong appeal to the codification of practices and their emphasis on education allow holding an almost depersonalized view on the intellectual activities of this Society’s members.²⁰ It is this tentatively depersonalized approach that also informs various studies on ‘Jesuit networks’ that helped produce and communicate scientific ideas among and beyond the Jesuits.²¹ This social network, driven by often highly codified letters, was meant to overcome great spatial distances, and accordingly many studies on Jesuit Science take advantage of this globalized spirit of the Jesuits and discover

17 See esp. Leinsle, “*Delectus opinionum*”; Sander, “*Uniformitas et Soliditas Doctrinae*”.

18 See, e.g., Baldini, *Legem impone subactis*; Casalini, *Aristotele a Coimbra*; Casalini, *Aristotle in Coimbra*; Malta Romeiras, *Jesuits and the Book of Nature*; Francisco, *Die spanisch-amerikanische Jesuitenuniversität*; Brizzi and Greci, *Gesuiti e università in Europa*; Grendler, *Jesuit Schools and Universities in Europe, 1548–1773*.

19 See, e.g., Waddell, *Jesuit Science*; Gorman, *The Scientific Counter-Revolution*, 2020.

20 I am simplifying here and take this to be a tendency. Obviously, studies hardly neglect that all overarching patterns were to be implemented individually and with a considerable leeway.

21 See, e.g., Harris, “Jesuit Ideology & Jesuit Science”; Mrozik, “The Jesuit Science Network”; Alliatti Joaquim, “The Jesuit Proximate Networks”.

the 'Missionary Jesuit Scientist'.²² Fostered by a growing general interest in global science, the Jesuits represent a splendid case for historians of science.²³ How was local and situated knowledge elevated to a global scale? How were 'structures of knowledge' with global validity implemented in different local contexts? There is no shortage of studies investigating Jesuit global scientific aspirations. However, analysis applied to some regions in the field of the history of science, such as the Baltic or Iberian Peninsula, tends to be marginalized.²⁴ Yet, to be sure, the global perspective comes with the obligation to reflect on the imperialist and colonial aspirations, eurocentric views, and the many highly problematic if not criminal political affairs the Jesuits were involved in during their history.²⁵

Ranging from the network's 'nodes' (the individual Jesuits) to its 'edges' (e.g., administrative media or studies on specific institutions), these multiple scopes and angles for viewing Jesuit agents in science are valuable and mutually beneficial contributions to historical research. Scholarship tends to look for the Jesuit central core, a unifying scheme encompassing all or most individual Jesuit scientific records. This tendency is a recognized practice and not confined to Jesuit Studies. The Jesuits' acclaimed and in some regards—for instance, to some basic educational patterns and authorities—achieved uniformity of religious and intellectual practices and beliefs is a driving force and relevant justification of this quest for a 'Jesuit identity'. Ideally, studies try to map and match the individual and the collective 'Jesuit identity' while inspecting how overarching structures were implemented at the individual and specific level.

In spite of the *ut in pluribus* approach of many studies on structures

- 22 On the Jesuits' scientific practice related to their missions, see Mak and Huntington, *Overlapping Cosmologies in Asia*; Asúa, *Science and Catholicism in Argentina (1750–1960)*; Ignacimuthu, *Contribution of Jesuits to Science in India*; Newson, *Cultural Worlds of the Jesuits in Colonial Latin America*; Baldini and Saraiva, *Ciência jesuíta*; Cohoon, "Information Empire"; Fu, "Les missionnaires français"; Jiang, "Toward a Global Enlightenment"; Zhang, *Making the New World Their Own*; Crawford, *The Andean Wonder Drug*; Cagle, *Assembling the Tropics*; Asúa, *Science in the Vanished Arcadia*; Prieto, *Missionary Scientists*; Fontana, *Matteo Ricci*; Clossey, *Salvation and Globalization in the Early Jesuit Missions*; Saraiva and Jami, *Padroado*; Hsia, *Sojourners in a Strange Land*; Francisco, *Die spanisch-amerikanische Jesuitenuniversität*.
- 23 See, e.g., Renn, *The Globalization of Knowledge in History*. Jesuits, e.g., feature prominently in Huff, *Intellectual Curiosity and the Scientific Revolution*; Poskett, *Horizons: The Global Origins of Modern Science*.
- 24 On marginalized regions, see, e.g., Prieto, *Missionary Scientists*, 2; Baldini, "Scientific Tradition", 24.
- 25 See, e.g., Rothman, *Jesuits and Slavery*.

of Jesuit science and the great amount of in-depth studies on single Jesuits, readers of monographs on Jesuit Science still sense a lack of clarity about what this core Jesuit feature actually is. It is not the sheer diversity of answers to this question but rather the absence of more decisive answers within Jesuit Science studies that is lamentable. The question about the 'Jesuit nucleus' can also be answered in the negative, but this would then likewise need to be explicitly stated. This question could (and maybe should) also be seen as a valuable trigger, as a guiding question to potentially produce original scholarship. However, raising the question at the outset and then not engaging with it in a serious and explicit way will render the question about the 'Jesuit nucleus' a rhetorical question or a *petitio principii*, which is not only an unsound practice but also lost potential.

Studies on Jesuit theology appear less hesitant to identify a Jesuit identity or *quidditas jesuitica*—in parts facilitated by the fact that the historical actors themselves openly addressed this question, for example to distinguish themselves from the Dominicans.²⁶ How could future scholarship more rigorously address and define the 'Jesuit' in 'Jesuit Science'? As we shall see shortly, it is actually unclear what Jesuit Science is to be distinguished from. Moreover, the meaning of 'Jesuit' might shift at different times and places, so I argue it is crucial not to presuppose, e.g., one single identity for pre-suppression and post-restoration Jesuit Science.

A useful recipe (which has been employed to some extent in recent studies) to determine its meaning in a case-sensitive way is to reflect on the *genus proximum* and the *differentia specifica* of 'Jesuit' in 'Jesuit Science'. Put less technically, this affords historians to employ the adequate subordinate historiographical concepts and to take meaningful comparative perspectives. Framing Jesuit Science as Catholic science, as part of the Catholic Enlightenment, as part of the Counter-Reformation, of *Kulturkampf*, of Baroque Science, or even 'Modern Science' (and many other possible *genera*), are avenues of research yet to be fully explored and to be linked to Jesuit Science in more sophisticated and explicit ways. Jesuit Science studies, from my point of view, sometimes tend to engage with these historiographical labels only on a superficial level or only in the introductions.²⁷ Avoiding

26 On Jesuits and Dominicans, see, e.g., Feldhay, *Galileo and the Church*, 171–98; Steinkerchner, *Dominicans and Jesuits*.

27 See also Wilding, "Science and the Counter-Reformation", 319: "The emergence of Jesuit science studies as a valid subject within the history of science has,

this larger framing means that studies merely and foremost go by the label of Jesuit Science. Scholarship then would end up in a somewhat self-confirmatory, circular if not tautological framework. This also divorces Jesuit Science from many allied perspectives in the history of science for no good reason and certainly not to the benefit of historical scholarship.

Finding the right 'equivalent' from which Jesuit Science can be distinguished in a meaningful way is equally difficult. Even if it has been done with some apologetic overtones in the past, contrasting Jesuit Science to an allegedly heralded Protestant science (following a narrow reading of the Merton thesis) is perhaps no longer adequate; it is not very thought provoking, and it is certainly not sufficient.²⁸ For the pre-suppression era, the 'confessionalization of science' might certainly be a useful lens through which one can look at Jesuit Science. I think, however, this requires detailed and comparative studies on different confessions' styles of scientific practice.²⁹ Other Catholic orders are often mentioned as a point of reference in the literature, and rightly so, but too little attention is paid to actually fleshing out the differences with regard to Jesuit Science:³⁰

Scholars have recently highlighted the role of the network of Jesuit missionaries in early modern European science, showing how Jesuit education, organization, and relations with Euro-

- though, deracinated it from the broader and changing field of Counter-Reformation history; a reintegration would be beneficial for both fields". Also quoted by Omodeo, "Jesuit Science", 116. Cf. also Feldhay and Elkana, *After Merton*.
- 28 The supposed historiographical prevalence for Protestantism and related to this the so-called Merton-thesis are mentioned and mostly lamented in most history of science studies on Jesuit Science. See, e.g., Feldhay and Elkana, *After Merton*; Waddell, *Jesuit Science*, 3; Malta Romeiras, *Jesuits and the Book of Nature*, 2; Asúa, *Science in the Vanished Arcadia*, 4; Harris, "Transposing the Merton Thesis"; Meskens, *Between Tradition and Innovation*, 247; Gorman, *The Scientific Counter-Revolution*, 2020, 2; Salomoni, *Educating the Catholic People*, 160. Wilding, "Science and the Counter-Reformation", 321, observes that Merton did not exclude Catholic contributions to science.
- 29 On confessionalization as a historiographical concept, see, e.g., Purkape, "Confessionalized Optics"; Lüthy, "The Confessionalization of Physics"; Rummel, *The Confessionalization of Humanism in Reformation Germany*; Salatowsky, *De Anima: die Rezeption der aristotelischen Psychologie im 16. und 17. Jahrhundert*.
- 30 A notable counterexample (following Maurizio Sangalli) in this regard is Salomoni, *Educating the Catholic People*, 160–69. Piarists and Barnabites are compared with regard to their scientific activities to the Jesuits, which are framed as "an essential benchmark". For rather loose comparisons to other Catholic orders or elusive claims about Jesuit distinctiveness with regard to science, see, e.g., Malta

pean monarchies often put them at the center of global scientific projects. Far less is known about the ways that the Capuchin, Recollect, and Minim orders, all closely tied to the Franciscan tradition, shaped the ways Europeans and indigenous peoples together created natural knowledge in the Atlantic world during, and in the wake of, the seventeenth-century scientific revolution.³¹

Just affirming the excellence of the Jesuits with regard to science compared to other Catholic orders will not suffice, regardless of the veracity of such a claim. Thorough comparative studies are almost entirely lacking, although, as Ulrich Lehner and others have pointed out, Catholic, non-Jesuit contributions to science are not marginal and a false balance effect can easily be avoided.³²

The 'Science' in 'Jesuit Science'

The concept of science in 'Jesuit Science' is as difficult to define as it is for the history of science as a discipline in general. Overall, I find Jesuit Science studies often disregard related discussions taking place in the history of science.³³ This is not a problem per se, especially as many of the subjects in Jesuit Science studies (e.g., studies on particular Jesuits or Jesuit institutions) are explicitly touching

Romeiras, *Jesuits and the Book of Nature*, 1; Aspaas and Kontler, *Maximilian Hell*, 19; Asúa, *Science in the Vanished Arcadia*, 2; Rabin, "Early Modern Jesuit Science", 91. For an inner-Jesuit discussion, see also Hellyer, *Catholic Physics*, 26. For scientific contributions by members of other Catholic orders, see, e.g., Kellman, "Mendicants, Minimalism, and Method"; Leinsle, "Wissenschaft und Gelehrsamkeit im Prämonstratenserorden"; Beltrán, "Charles Plumier". See also this essay, at note 26.

31 Kellman, "Mendicants, Minimalism, and Method", 12–13.

32 See esp. Lehner, *The Catholic Enlightenment*. See also Watkins, "Skepticism, Criticism, and the Making of the Catholic Enlightenment"; Aspaas and Kontler, *Maximilian Hell*, 11–22.

33 Cf., however, Raina, "Jesuit missionary societies", 124: "A second clarification is in order, relating to the slippage between two terms: namely, 'Jesuit sciences' and 'Jesuit knowledge', and the history of science and the history of knowledge. The latter would take more time to clarify than the former. The world of Jesuit learning during the period concerned was capacious enough to embrace several discourses about knowledge, and Jesuit knowledge stands in for the cosmography of the Jesuits stationed abroad. Within this cosmography coexisted domains of specialist knowledge, normally studied by historians of science, such as astronomy and mathematics. The term 'Jesuit knowledge' refers then to this larger envelope, wherein several orders of Jesuit *récits* were placed extending from mathematics to astronomy and botany, the study of languages as well as ethnography and *récits on mœurs et coutumes*".

upon many fields constituting a broad understanding of science.³⁴ But by not linking to more general discussions about the notion of science, Jesuit Science studies might forfeit a chance to claim their relevance and importance for the history of science.

Given the strong efforts Jesuits made to found and run universities and their general obligation to teaching, surprisingly little of Jesuit Science has universities as its major focus.³⁵ This has different reasons. For one, historians of science (for reasons that I do not want to question) tend to concentrate on extraordinary or original scientific achievements, while being aware that these truly disruptive events or paradigm shifts are hardly to be found within the tightly regulated Jesuit learning since they adhered to censorship and a rather traditional curriculum, and showed hesitance towards the 'new' and unapproved.³⁶ These conditions of Jesuit Science, particularly at their universities, might be overestimated and are sometimes explicitly contested, yet, some of the more original Jesuit contributions to science, while accounting for its embedment in Jesuit learning, often appeared as a private undertaking or were not tightly linked to university learning.³⁷ Additionally, the Jesuit educational curricu-

34 Cf. Malta Romeiras, *Jesuits and the Book of Nature*, 3, n. 8: "The expression 'scientist' can be anachronistic when applied to early scientific practitioners have used as a general category to refer to mathematicians, astronomers, natural philosophers, and other classical early modern scientific practitioners". See Asúa, *Science in the Vanished Arcadia*, 2, n. 3: "The Spanish dictionary published by the Real Academia Española de la Lengua (1st ed., 1726–1739) grouped under the term *ciencia* the disciplines of the medieval universities: theology, philosophy, law, and medicine".

35 Cf., e.g., Leinsle, *Dilinganae Disputationes*; Casalini, *Aristotele a Coimbra*.

36 Cf., e.g., Baldini, "Scientific Tradition", 28: "the usual critics often fail to consider Jesuit contributions on topics that did not carry on ontological, cosmological, or epistemological implications: work such as that on lunar topography did not depend on specific theories about the origin or actual arrangement of the Sun and the planets. Another criticism of Jesuit science manifests itself on a strictly statistical level: there was no Kepler, Newton, Euler, or Linnaeus among the Jesuits. If one defines as 'great' only that research which brings 'paradigmatic' changes (in Kuhn's sense), and only at the greatest scale, it is almost a tautology to assert that a collective body of scientists who were opposed to changes on that scale should not be considered as great scientists. [...] 'Quality' should also include opening and cultivating new fields of research". See also: Aspaas and Kontler, *Maximilian Hell*, 21; Gorman, *The Scientific Counter-Revolution*, 2020, 1; Wilding, "Science and the Counter-Reformation", 320; Graney, *Setting aside All Authority*, 145; Carolino, "Astronomy, Cosmology, and Jesuit Discipline, 1540–1758", 690.

37 Examples include Chinnici, *Decoding the Stars*; Hendrickson, *Jesuit Polymath of Madrid*; Garzoni, *Trattati della calamita*. A more university-based setting of Jesuit Science is investigated by Hellyer, *Catholic Physics*. See also Lüthy, "What To Do

lum, while granting indeed some leeway and promoting creativity, taught natural philosophy but not experimental sciences as a subject in their own right well into the eighteenth century and in the majority of territories.³⁸ Moreover, this teaching was based on Latin handbooks, such as the *cursus philosophicus*.³⁹ Especially in the post-restoration era of the Society, these constraints were overcome to some degree but recent publications on Jesuit scientists of the time do not describe their achievements as exclusively or mainly professional activities happening within the classrooms or universities.

On the one hand, this historical setting of Jesuit Science as a somewhat regulated and community-driven research environment has urged historians to reflect on the historiography of scientific practice more sensitively. This can be seen as an antidote for Whiggish views: naive or overly simplified notions of scientific progress, and heroic individual researchers and their inventions or discoveries. On the other hand, this also makes it harder for historians to discover original scientific Jesuit contributions within this educational context and, probably for the same reasons, displays less of a need for the historical Jesuits to come up with disruptive theories within their educational activities. Instead, Jesuits often left their more daring or original ideas to published scientific tracts (often in the vernacular), to private unpublished correspondence, and to manuscript treatises.⁴⁰ These sources have been studied with much rigor while their works in Latin, seemingly dull and uniform commentaries of natural philosophy, biblical commentaries, or works of scholastic theology, are often left out of the picture. This is not an issue as such but needs to be kept in mind and has already given rise to various smaller studies that aim to arrive at a fuller picture of Jesuit Science.⁴¹

Within the canon of subjects touched upon by university-trained Jesuits, historical Jesuit Science studies exhibit a (legitimate) tendency to focus on Jesuit astronomy, certainly both because of the

With Seventeenth-Century Natural Philosophy?'. Lüthy rightly points out that scholarship at the universities is underrepresented in current historiography of science and philosophy.

38 See, e.g., de Andrade, "Para a História do ensino da Filosofia em Portugal"; Seifert, "Der jesuitische Bildungskanon im Lichte zeitgenössischer Kritik". Cf. also Martin, *Subverting Aristotle*.

39 As a starting point, see Knebel, *Wille, Würfel, und Wahrscheinlichkeit*; Harald, Erik, and Paulo, *A Companion to the Spanish Scholastics*.

40 Wilding, "Science and the Counter-Reformation", 322, also addresses the issue of sources for Jesuit Science.

41 For the inclusion of Jesuit Bible commentaries, see, e.g., Roling, *Physica sacra*.

Jesuits' commitment to this field and because of the everlasting historiographical relevance of the Copernican controversy and the Jesuits' key role in the Galileo trial.⁴² But neither this focus nor the alleged limits of university learning overruled past Jesuits' and present historians' interest in other fields. There is virtually no topic in the natural sciences or their premodern forerunners that Jesuits did not contribute to, with many Jesuits even contributing to multiple of these fields during their lifetimes. This complexity renders scholarly biographies into a prism that looks at disciplinary alliances and multi-versed career trajectories.⁴³ By linking the Jesuit missions to Jesuit Science, the scope of 'science' has been widened up even further. Fields that appear marginal to the Jesuits' European scientific efforts were actually of focal interest to them overseas, such as natural history, including but not limited to botany and pharmacology. This is worth underlining as Jesuit universities did not include a medical faculty.⁴⁴ Readers will also learn how (the Jesuits' ties to) politics, imperialism, capitalism, and global economies indirectly shaped and triggered the Jesuits' curiosity and scrutiny for exotic *naturalia*.

Studies on the missionary Jesuit scientists also teach a lot about how Jesuits dealt with oral cultures, hitherto unknown languages, indigenous knowledge of foreign cultures, and how they adjusted to these conditions—this is a valuable addition to praxeological aspects of 'doing' Jesuit Science. More recent research on Jesuit Science consequently has paid more attention to the practical side of science, knowledge, and observation.⁴⁵ 'Science' then becomes less a container or generator of tenets, doctrines, or beliefs, but one of practical habits and of social and symbolic codes. This not only broadens the

42 See Omodeo, "Jesuit Science", 137: "According to the new spokesmen for the Jesuit cause, traditional historiography put too much emphasis on the Copernican issue, which, in the end, should be regarded as a marginal topic in the broad context of modern science". Cf. also Carolino, "Astronomy, Cosmology, and Jesuit Discipline, 1540–1758", 690.

43 Cf., e.g., Heilbron, "Maximilian Hell", 954: "Hell's miscellaneous contributions to science ran from domestic hygiene (how to treat bedbugs) to novel theories (the cause of the aurora borealis). Between these extremes he experimented with electricity and magnetism and furnished hardware for Mesmer's trials of animal magnetism".

44 See Sander, "Medical Topics".

45 Many studies take this 'practical turn', e.g.: Malta Romeiras, *Jesuits and the Book of Nature*; Cagle, *Assembling the Tropics*, 23; Zhang, *Making the New World Their Own*, 165, 356; Castel-Branco, "Material Piety"; Prieto, *Missionary Scientists*, 6; Lu, "Rediscovering a Jesuit Legacy of Natural History", 105; Asúa, *Science in the Vanished Arcadia*, 2.

perspective of Jesuit Science but also merges with more recent conceptions in the history of science. Both taken together allow us to (re)define the 'Jesuit scientific identity' also based on praxeological patterns that come into focus.

This perspective, obviously, is not confined to the scientific efforts in Jesuit missions but also enriches the view on the European context. The empiricism of Jesuits' engagement with botany in India is probably less obvious in Spain or Italy, but it had its repercussions in these European places and informed the work by Jesuits such as Martin Delrio, Juan Eusebio Nieremberg, and Athanasius Kircher. Enigmatic figures like these early modern Jesuits appear less eccentric if seen against the global backdrop of Jesuit Science. Moreover, fields such as esotericism or antiquarism (to use modern terms) rightfully take their place between the Jesuits' philological and empirical studies within this more inclusive landscape of Jesuit Science.⁴⁶

At the edges of this map, many other areas of Jesuit engagement are still *terra incognita*—or at least links to Jesuit Science are weak or await to be fully established. The inclusion of or linking to the many further aspects of Jesuit culture, intellectual life, and literary production very much depends on how Jesuit Science conceives 'science'. If limited to the natural sciences, the boundaries of Jesuit Science would remain rather tight and thereby also lose touch with recent discussions within the history of science. If Jesuit Science were to include—as it implicitly does already in many cases—not only different sciences beyond the natural sciences but even different types of 'knowledge', the scope would evidently become much broader. The arguments for and against a 'history of knowledge' to substitute or complement the history of science as a discipline will not be analyzed or evaluated in this essay.⁴⁷

But given the clerical status of Jesuits, this discussion might even be conducted from another angle, by asking, in a non-polemical way, if the social and symbolic systems that emerged as 'modern science' (and its agents, the 'scientists') actually apply to the pursuit of a religious order (and ordained priests). Moreover, most Jesuits'

46 See, e.g., Stolzenberg, *Egyptian Oedipus*, 36, 70, 135, 257. See also Machielsen, *Martin Delrio*, 97–206.

47 On this issue, see, e.g., Renn, "From the History of Science to the History of Knowledge – and Back"; Daston, "The History of Science and the History of Knowledge"; Joas, Krämer, and Nickelsen, "Introduction"; Bycroft, "Arguing About the Origins of Science"; Poskett, *Horizons: The Global Origins of Modern Science*.

intellectual and ‘scientific’ activities were rooted in or started with their activity as teachers in colleges and universities. This apostolate to teach was unequivocally tied to political, religious, or spiritual aims (without denying its scientific ethos and results).⁴⁸ Related to the *genus proximum* of Jesuit Science, it then appears even more worthwhile to reflect on the relations between (lay) scientific societies and academies (such as the Royal Society) and religious societies (such as Catholic orders), and on how their social and ideological frameworks and agendas may help determine the status of the knowledge produced in them. ‘Science’ then is not a judgmental predicate that decides on the esteem and value of some knowledge but a qualification that might be more helpful and adequate with regard to some domains compared to others.

A look at a few exemplary fields of past Jesuit intellectual pursuits that until now do not take a prominent place within Jesuit Science studies might be helpful to better understand how the scope of Jesuit Science could be extended. What about subjects that were conceived as *scientia* (and similar vernacular expressions) but mostly take a backseat in Jesuit Science studies? Law and theology are obvious candidates here—both *scientiae*, however, neither of them are part of the history of science, let alone of Jesuit Science studies. While the Jesuit history of legal thinking is still mostly a lacuna, the history of Jesuit theology is often left to (also often Jesuit) historians of theology who do not engage with their topics as a history of knowledge.⁴⁹

It would be easy (and fair) to argue that including the history of law or theology within the history of Jesuit Science is clearly overdoing things by blowing up established boundaries and going well beyond the competence (and responsibility) of historians of science. Yet, especially within the Society of Jesus, strong links of these two domains of knowledge to natural knowledge are manifest and have already been identified and investigated. Markus Friedrich has suggested that the rigor of Jesuit administration has shaped their notion of ‘information’ as “*Segmentierung der Wirklichkeit*” and eventually also impacted their scientific practice. Administration and legal matters are very much intertwined.⁵⁰ Core assumptions within Jesuit educational theory, one strong exponent of Jesuit administration, are

48 See esp. Grendler, “The Culture of the Jesuit Teacher 1548–1773”.

49 Cf., however, Florie, *Paul Laymann*, 313. Florie’s efforts to link to the History of Science are still very vague.

50 See Friedrich, *Der lange Arm Roms?*, 279.

taken from medical theories, as Cristiano Casalini has shown.⁵¹ The ideological underpinning of Jesuit censorship, the role of obedience and authority, and the codification of educational practices were seen as core elements of the Galileo affair, as argued by Rivka Feldhay and others.⁵² Michael Gorman goes as far as to revisit Jesuit censorship as a form of proto-scientific peer review.⁵³ This clearly touches upon administrative, legal and theological issues.

Moreover, Sven K. Knebel and others have shown how Jesuit takes on 'probabilism', 'natural law', and 'science of cases of conscience' have informed the Jesuits' epistemology, also in scientific matters.⁵⁴ Here, law and theology go hand in hand. Ignatian spirituality has been linked to empiricist approaches and 'visual thinking' in Jesuit natural knowledge.⁵⁵ Demonology and the Jesuit persecution of alleged witches (and their defense) have strong ties to legal and theological matters, but also to methodological, anthropological, and quasi-medical notions, traceable in the writings of Jesuit authors in these fields.⁵⁶ Markus Hellyer has shown that the Eucharist was as much an issue of 'physics' as it was of theology.⁵⁷ It has been proven that even the dogmas of Mariology and Christology were influenced by natural philosophy and physiology that led to a 'material piety' with regard to blood relics.⁵⁸

Many Jesuit thinkers contributed to all these fields, and their 'style of reasoning' merged elements from different disciplinary areas, with the broad field of Jesuit Studies researching many of these. Most of the past literature on Jesuit Science does include links to, e.g., theological and legal foundations. However, these links tend to be epistemically weak and are researched not in their own right but rather as the somewhat schematic backdrops of Jesuit Science in its more narrow sense. If in-depth research on these 'backgrounds'

51 See Casalini, "Umori, troppi umori".

52 See Feldhay, *Galileo and the Church*.

53 See Gorman, *The Scientific Counter-Revolution*, 2020; Biagioli, "From Book Censorship to Academic Peer Review"; Sander, "Uniformitas et Soliditas Doctrinae", 55; Stolzenberg, "Utility, Edification, and Superstition: Jesuit Censorship and Athanasius Kircher's *Oedipus Aegyptiacus*", 343–44.

54 See Knebel, *Wille, Würfel, und Wahrscheinlichkeit*.

55 See, e.g., Waddell, *Jesuit Science*; Asúa, *Science in the Vanished Arcadia*, 315; Gorman, *The Scientific Counter-Revolution*, 2020, 258.

56 See, e.g., Machielsen, *Martin Delrio*; Sobiech, *Jesuit Prison Ministry*.

57 See Hellyer, *Catholic Physics*.

58 Cf. Sander, "Pious Notions"; Sander, "Außengrenzen des menschlichen Körpers"; Castel-Branco, "Material Piety"; Roling, "Narben und Blut: Die körperliche Vollständigkeit des auferstandenen Christus zwischen Mittelalter und früher Neuzeit"; Roling, "Debatten über den Leib Mariens".

exists, this mostly stays divorced from Jesuit Science due to the disciplinary boundaries of the subfields of the individual studies and their authors. This admittedly broad-brush diagnosis is regrettable and, to some extent, unavoidable not just in Jesuit Studies. But while historians of science have long started to expand the limits and borders of their field, much research on Jesuit Science could be strengthened by decisively adopting this multi-dimensional approach.⁵⁹ Doing so would benefit all Jesuit Studies, and this collaboration is not only an expression of a justified research agenda towards interdisciplinarity. It also has a strong historical *fundamentum in re* given the many multifaceted Jesuit polymaths and the many fields of knowledge in which the Society of Jesus was active.

Case-sensitive “Jesuit Science”

In the previous two sections, I have mapped what ‘Jesuit’ and ‘Science’ in ‘Jesuit Science’ currently encompass and, based on this, I have reflected on how historical research on Jesuit Science could, in my view, advance this field of study even further. One result is that the intended meaning of ‘Jesuit’ in a distinct and non-trivial way is often left obscure in existing studies. On the one hand, the Jesuit factor should be framed against the background of its subordinate historiographical concepts such as Catholicism, Counter-Reformation, or Restoration. On the other hand, I suggest, it needs more comparative Jesuit Science studies to sharpen the Jesuit factor, e.g., by investigating multiple Catholic orders’ scientific practice(s). Reflections on ‘science’ in Jesuit Science studies are also somewhat elusive or implicit. I suggest taking a closer look at current historiographical and methodological discussions in the field of the history of science, e.g., by including histories of knowledge or praxeological views on different sciences. Basing future historical research on the variety of intellectual fields Jesuits worked on is a great opportunity to arrive at a broader and multidisciplinary understanding of science that at the same time has a strong historical basis. This means investigating the connections between different branches of knowledge not confined by the traditional or modern meanings of ‘science’.

While the preceding analysis has focussed on a descriptive account of different understandings and approaches, Omodeo’s chapter, “Jesuit Science”—which this essay has used as a starting point—has a farther-reaching goal: understanding (and criticizing)

59 Counterexamples will always be found, but those are the exceptions that prove the rule.

the ‘ideology’ and aims motivating different takes on Jesuit Science in recent historiography by including a (more pronounced) political epistemology within Jesuit Studies.⁶⁰ My aim in this last section is not to closely engage with Omodeo’s arguments or to flesh out any supposed underlying ‘agendas’ or ‘campaigns’. However, this political view should not simply be ignored, as Omodeo rightly argues. Therefore, this perspective will be shown to prove useful to suggest a more balanced framing for future Jesuit Science studies.

According to Omodeo, the “radicalized and problematic uses” of the Jesuit Science label in scholarship—the uppercase approach—claims that “there are both an alternative science and an alternative modernity exemplified by Jesuit Science that have been thus far neglected but need to be reassessed”.⁶¹ Thereby, “instead of studying historical interactions, contexts, and discursive advances, [the radical version of Jesuit Science] isolates and opposes traditions and modernities. It conveys the message that the specifically Jesuit approach to science should be reappraised”.⁶² Omodeo links the “radical version” of Jesuit Science to an apologetic framing: Catholic, and especially Jesuit contributions to science have been refuted for a long time, as these clergymen and their religious ideology were allegedly opposed to science. This anti-clergy, so-called ‘black legend’ of the Jesuits, rooted in the Enlightenment and the *Kulturkampf*, is now—in its apologetic framing—destroyed by advancing the field of Jesuit Science and by claiming the rightful place of Jesuit Science within the history of science. In its radical version, this goes as far as to claim the Jesuits’ superiority compared to the conventional, mostly Protestant heroes of scientific progress.⁶³

One indeed can observe that present scholars surprisingly often rhetorically defend or justify their research on Jesuit Science with reference to the above-mentioned crude past views on the Jesuits

60 Omodeo, “Jesuit Science”, 146: “Indeed, the political dimension is the missing or marginalised element in most recent accounts of Jesuit Science despite the fact that it is crucial for both an assessment of the history and the historiography of the Jesuits”. Omodeo’s angle on Jesuit Science might be somewhat too narrow by focussing mainly on early modern astronomy, as studies, e.g., on global trade networks run by the Jesuits seem to take this more political view already.

61 *Ibid.*, 144–45.

62 *Ibid.*, 152.

63 Omodeo goes as far as to accuse scholarship on Jesuit Science for victim blaming, i.e. for entertaining the idea that the Jesuits were unrightfully and purposely marginalized in the History of Science while ‘mainstream’ heroes such as Galileo received all the credit, although, e.g., Bellarmine had the more valid scientific arguments at the time.

and their way of doing science.⁶⁴ Omodeo is right in pointing out that this is odd as this ‘black legend’ is a nineteenth-century story at best, bound to specific historical reasons. Serious and recent scholarship in the history of science has overcome these simplistic pictures of a determinedly, long-standing anti-scientific Church.⁶⁵ While studies that lend themselves to similar justificatory rhetoric are not necessarily apologetic, this effort on justification is unnecessary and slowly weakens scholarship by making it appear underconfident.⁶⁶ The importance of Jesuit contributions to science is fairly undisputed, and hence Jesuit Science studies would be well placed rather to think about how the history of science or Jesuit studies would benefit more from individual research than from counteracting misconceptions of a quite remote past.⁶⁷

- 64 Cf. also Donato, “Francisco Malta Romeiras. *Jesuits and the Book of Nature*”, 420: “Admittedly, by focusing so closely on Jesuit naturalists and retracing their contribution to the various disciplinary subfields, the book does not always avoid the pitfalls of that slightly apologetic approach to Jesuit science that coalesced in the late nineteenth century in response to the secularization of Western society and education—and in which the Society played a very active role globally”. Apologetics, or a “celebratory tone”, in historiography is also noted in Salomoni, *Educating the Catholic People*, 7, 160, but the author seems to partly apologize (and contextualize) the counteracting of the ‘black legend’ and nineteenth-century conceptions (“Protestant and anti-Catholic propaganda”) to some degree. See also this essay, at note 28.
- 65 The role of religion for the generation of new knowledge, however, is debated, see, e.g., Lüthy, “The Confessionalization of Physics”; Wootton, *The Invention of Sciences: A New History of the Scientific Revolution*, 575–77; Sander, “Johannes de Sacrobosco und die *Sphaera*-Tradition in der katholischen Zensur der Frühen Neuzeit”, 438–39.
- 66 A strictly apologetic account, as I understand it, would also aim at apologizing the historical actors, not ‘only’ justifying the research on their contributions to science.
- 67 For Omodeo, the supposedly apologetic, revisionist account of Jesuit Science’s “main locus is US Catholic academia”, because it would legitimize “the cultural agenda of these institutions” as instruments of the Catholic Church (Omodeo, “Jesuit Science”, 154). While it may be plausible (and potentially problematic) that the Catholic Church with a possibly revisionist agenda funds revisionist scholarship, it is less clear that this motivates or applies to the large part of Jesuit Studies. Jesuit Studies journals and websites receive funding from Catholic institutions, but there is also a strong presence of Jesuit Science in secular and the most renowned history of science journals. Recent dissertations addressing Jesuit Science topics do not show a significant and clear funding bias towards Catholic institutions. A good survey to start here is Maryks, “One Hundred Most Recent Dissertations on Jesuit Topics”. Out of eight dissertations that can be linked to Jesuit Science in a very broad sense only one was defended at a Catholic university. In total, 24 of these 100 dissertations were defended at a Catholic university (15, i.e. 62,5%, of them in the US), 15 at a Jesuit university (11, i.e. 73,3%, of them in the US). 39 dissertations were submitted in US uni-

Another aspect of Omodeo's critique concerns the "cultural presupposition" of the radical Jesuit Science thesis:

The cultural presupposition [...], it seems to me, has been the extreme relativisation of science and historiography. In fact, the sceptical, postmodern turn toward narrativisation in history opened up a space of legitimacy for Jesuit Science as such.⁶⁸

We may assume that Omodeo aims at scholarship that entirely abstains from judgments on whether scientific ideas of the past were scientifically correct, but rather follows a constructivist and relativist notion of truth, such that: "In 1633, the motion of the earth was a misconception because the alleged observational evidence for this movement was mistaken". While this provocative strategy is at play in some apologetic (and often contested, if not ridiculed) accounts of the Galileo affair, I fail to diagnose this in recent studies on Jesuit Science. Uncovering the underlying historical contexts behind people of the past believing in different ideas than people in other places or times is not postmodern or relativistic per se, but often the very task of historians. One can intensely argue about how this is to be done correctly, but the very aim does not seem to take sides in this regard.⁶⁹

versities in total. The only Jesuit Science dissertation defended at a Catholic university is Cohoon, "Information Empire". My selection includes Purkaple, "Confessionalized Optics"; Jiang, "Toward a Global Enlightenment"; Cohoon, "Information Empire"; Capriati, "Causa e Causalità Finale"; Eloë, "Loosing the Bound"; Alliatti Joaquim, "The Jesuit Proximate Networks". Six of them were submitted at a university in the US. Given the strong presence of Catholic universities in the US, the numbers for dissertations on Jesuit Studies do not show any overrepresentation at first glance. See also Wodon, "Catholic Higher Education Globally".

68 Omodeo, "Jesuit Science", 144. See also Omodeo, *Political Epistemology*, 26: "Among recent developments in historical epistemology, there is a tendency towards subjective radicalization which can be seen as a post-modern perspective". Omodeo then particularly refers to Lorraine Daston and Hans-Jörg Rheinberger's studies as examples.

69 In the Marxist or Gramscian framework Omodeo operates in, most thinkers share the ardent belief in the unity of science. I rely on Sheehan, *Marxism and the Philosophy of Science*, 84, 123, 129, 169, 177, 178, 207, 208, 222, 284, 313, 366, 376, 403, 404. She attributes this view to Adler, Mach, Bukharin, Bogdanov, Stepanov, Tseitlin, Orlov, Borichevsky, Rubinstein, Zavadovsky, Vavilov, Varjas, Bernal, Caudwell, the Vienna Circle, and Neurath. This view obviously renders any 'alternative science' a chimera, because according to this view there is only one scientific method and one truth. It seems that the strong insistence on this claim is difficult to harmonize with much of the more contextualist historical scholar-

However, Omodeo's caveat not to invent a specifically Jesuit "alternative modernity" should be heard loud and clear in the field of Jesuit Studies, and is yet somewhat too dramatic from my current assessment of the situation. Are scholars talking about a 'Jesuit modernity' in opposition to another 'modernity'? Or is it about including Jesuit history into the narrative of 'modernity' instead of denying this and seeing 'Jesuit' and 'modernity' as contradictory notions?⁷⁰ I am not aware of recent scholarly pledges or announcements of Jesuit Science or Jesuit modernity in contradictory opposition to any other established narrative of 'modernity'.⁷¹

ship, even if not of a constructivist or relativist nature. Science, so understood, is not subject to 'style' or 'belief', hence 'Jesuit Science' in its essentialist upper-case sense is a vain concept. This seems to be in line with Omodeo, "Kuhn's Paradigm of Paradigms", 95–96. Ironically, Catholic and Jesuit theologians of the early modern period might have sympathized with this unity-of-science view. On this, see Bianchi, *Pour une histoire de la double vérité*; Sander, Lamanna, and Capiello, *Omne verum vero consonat*. At the same time, Kircher has even been described as "the premodern root of postmodern thinking". See Boxer, "A Post-modernist of the 1600's Is Back in Fashion".

70 Cf. Lehner, *The Catholic Enlightenment*, 6: "the problem is that the inventors of the term 'Enlightenment' assigned value only to the first group: only the radical Enlightenment, with its hostility to religion, was—we are told—responsible for the development of the modern values we cherish today, such as equality, freedom".

71 The rhetorics of the "alternative modernity" is indeed employed in the preface by Robert Aleksander Maryks and Frutos, *Francisco Suárez (1548–1617)*. The single contributions, from what I can tell, however do not engage further with this historiography. Neither does Casalini, *Jesuit Philosophy on the Eve of Modernity*. A critical account of a baroque "alternative modernity" is given by Blackburn, *The Making of New World Slavery*, 20–22. Even when Gorman, *The Scientific Counter-Revolution*, 2020, 1–4, claims that the "socially-embedded practices for natural investigation" promoted and established by the Jesuits gives rise to an "alternative narrative of the emergence of modern science", a "'scientific counter-revolution'", this cannot be taken as a smoking gun. These aspirations are, for one, based on scholarship "derived in large part from [Gorman's] 1999 doctoral thesis" and effectively left to a few pages in the introduction and to one page at the end of the book. Beyond the titles, the label "counter-revolution" does neither even appear anywhere in it nor in his original Ph.D. thesis, "The Scientific Counter-Revolution", 1998. Studies that at first glance appear to take a similar line, such as two monographs on the Jesuit astronomer Riccioli—one of which is harshly attacked by Omodeo—need to be contextualized, too. Dinis, *A Jesuit against Galileo*, who too loudly goes against an alleged misconception and marginalization of Jesuit Science, is basically his Ph.D. thesis of 1989 and was published as a "posthumous homage" (xxi). Graney, *Setting aside All Authority*, for Omodeo "the most grotesque attempt at historical revisionism" (Omodeo, "Jesuit Science", 139), likewise is not on top of the more recent discussions. This should not make this book immune to criticism (and it in fact is not) but his study cannot be seen as an exponent of or even trendsetting for the scholarly engagement with Jesuit Science.

I suggest that both the uppercase and the lowercase versions of Jesuit S/science are important scholarly avenues of research. It needs a case-sensitive, non-exclusive, and non-competitive combination of both, and a reflection on which approach is suited best for the subject of study in the individual case. In some cases, it might be possible and useful to identify something specifically Jesuit in the uppercase sense of the term. In other cases it might be more prudent and adequate to highlight the shared ground with other historical actors and not to stipulate any core Jesuit identity beyond the actors being members of the Society of Jesus. The demands for the uppercase approach are much higher though. Scholarship needs to uncover and define—or ask about—the *proprium* or even the *quidditas* of Jesuit Science without reifying it as opposed or superior to an alternative science, or even making Jesuit scholars part of some ‘alternative modernity’. It must not be left isolated, but needs to contextualize Jesuit Science within its historical landscape and era. And it needs to be wary not to build an unneeded apologetic framing against past misconceptions.

Summary

The label of ‘Jesuit Science’ is frequently used in academic and popular literature, but it remains rather poorly defined and is in fact avoided by some specialists in the field. The present essay places some of the most recent monographic publications on Jesuit contributions to science within a critical discussion about the scope, usefulness, and challenges of the label ‘Jesuit Science’ in historical research. With this meta-study I set out an argument for what I call a case-sensitive approach to the term, that is, the importance of distinguishing between different notions of ‘Jesuit Science’. In some cases, it might be possible and useful to identify something specifically Jesuit, while in other cases it might be more prudent and adequate to highlight the shared ground with other historical actors and not to stipulate any core Jesuit identity beyond the actors being members of the Society of Jesus.

Abstract

Der Begriff “Jesuit Science” wird in der akademischen und populären Literatur häufig verwendet, aber er ist nach wie vor nur unzureichend definiert und wird von einigen Fachleuten auf diesem Gebiet sogar vermieden. Der vorliegende Aufsatz diskutiert einige der jüngsten monographischen Veröffentlichungen über die Beiträge

der Jesuiten zur Wissenschaft und reflektiert den Rahmen, den Nutzen und die Problematiken des Konzepts in der historischen Forschung. Mit dieser Metastudie argumentiere ich für ein Verständnis von "Jesuit Science", das von Fall zu Fall unterscheidet, was darunter zu verstehen ist. In einigen Fällen scheint es sinnvoll, etwas spezifisch Jesuitisches zu identifizieren, während es in anderen Fällen umsichtiger und angemessener sein könnte, die Gemeinsamkeiten mit anderen historischen Akteuren hervorzuheben und keine jesuitische Identität über die Zugehörigkeit der Akteure zur Gesellschaft Jesu hinaus zu postulieren.

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