Jesuit Missionary Societies as the "Itinerant Academies" of Catholic Orientalism in India in the Sixteenth and Seventeenth Centuries

Dhruv Raina, Jawaharlal Nehru University[1]

Introduction

One of the leading scholars on the European Jesuit Sciences, Steve Harris, points out that the Society of Jesus, an order within the Roman Catholic Church known as the Jesuits, may well be considered the first transnational corporation of early modernity.[2] In this paper, I argue that the European Jesuits located in India and other regions of Asia may be considered the founders of just such a transnational academy outside Europe—and though the Indian academy was not the first, it was one of many such academies. A remarkable feature was the extent and reach of this web of Jesuit connectivity, which traversed continents, oceans, and linguistic regions that were culturally and religiously diverse.[3] Over the last three to four decades, Jesuit studies have focused upon two large issues that subsequently unpacked into a number of sub-themes and interdisciplinary research concerns. The first of these relates to the role of knowledge in the missions of evangelisation, with historians of knowledge acknowledging the importance of the role of the study of languages and Jesuit philology in these missions. The second has to do with the role of missions and

1 An earlier version of this paper was presented at the invitation of Anita Traninger and Martin Urmann at a Workshop entitled "What is an Academy?" as part of their SFB: *Episteme in Bewegung*. I am grateful to Fr. Victor Ferrao of the Rachol Seminary and Fr. Noel D'Costa in Goa. Thanks are also in order to the anonymous referees. Any faults with the paper remain my own, of course.

2 Steven J. Harris, "Jesuit Scientific Activity in the Overseas Missions, 1540–1773," *Isis* 96, no. 1 (2005): 71–79.

3 As Harris writes: "At its peak around 1750, the Society operated more than 500 colleges and universities in Europe, a hundred more in overseas colonies (mostly in Spanish America), and roughly 270 mission stations scattered around the globe. The Society, in other words, presided over one of the most extensive and complex institutional networks of the *ancien régime*," see Harris, "Jesuit Scientific Activity," 72.

missionaries in the construction of knowledge in the modern era; and herein resides the connection with histories of the sciences.[4] To an earlier generation of scholars, "Jesuit science" would have appeared as an oxymoron, since the standard tale of the rise of modern science or of the scientific revolution is portrayed as antagonistic to the cosmology of the Catholic Church.[5] Conversely, despite the Church's early opposition to Copernican astronomy, recent historiographical writing has revealed the important role and contributions of the Jesuits in particular to the rise and spread of modern science.[6] In interrogating these missionary activities, the research undertaken has focused upon Catholic missions distributed across the four corners of the world. Clearly, then, the historiography of missions draws upon the history of the expansion of Catholicism, intellectual history, and the history of empires and colonial societies.[7]

In the *longue durée* of the historiography of missions, the term "mission" has acquired different meanings. The contemporary historiography of missions combines several meanings of the mission: as a place (in Goa, Beijing, or Poitou), as a site of circulation (a place of pilgrimage or a scientific expedition), as the practice of missionary activity (the teaching of the Christian doctrine or administering sacraments), as target or public (managing relations with infidels and Protestants).[8]

As a missionary order, the Jesuits, both in Europe and the New World, were stationed at seminaries and colleges to instruct fellow Christians and Jesuits, missionaries belonging to other orders, and their converts in the goals and objectives, litany, theology, and cosmography of the region

4 Mordechai Feingold, ed., *Jesuit Science and the Republic of Letters* (Cambridge, MA: MIT Press, 2003); John W. O'Malley, S. J., "How the First Jesuits became involved in Education" in T*he Jesuit Ratio Studiorum: 400th Anniversary Project*, ed. Vincent J. Duminico, S. J. (New York: Fordham University Press, 2000), 56–74; Florence C. Hsia, *Sojourners in a Strange Land: Scientific Mission in Late Imperial China* (Chicago: University of Chicago Press, 2009); John L. Heilbron, *The Sun in the Church: Cathedrals as Solar Observatories* (Cambridge, MA: Harvard University Press, 1999).

5 John Hedley Brooke, "Science and Religion," in *Companion to the History of Modern Science*, ed. Robert Cecil Olby, Geoffrey N. Cantor, John R. R. Christie, and Michael Jonathan Session Hodge (London: Routledge, 1996), 763–782. Steven J. Harris, "Transposing the Merton Thesis: Apostolic Spirituality and the Establishment of the Jesuit Scientific Tradition," *Science in Context* 3, no. 1 (Spring 1989): 29–65.

6 Steven J. Harris, "Jesuit Ideology and Jesuit Science: Scientific Activity in the Society of Jesus 1540–1773," (PhD diss., University of Wisconsin, 1988); Sheila Rabin, "Early Modern Jesuit Science: A Historiographical Essay," *Journal of Jesuit Studies*, 1 (2014), 88–101.

7 Charlotte De Castelnau-L'Estoile et al., "Introduction," in *Missions, D'Évangélisations et Circulation Des Savoir XVIe – XVIIe Siècle* (Madrid: Casa De Velasquez, 2011), 1–24, on 2.

8 De Castelnau-L'Estoile et al., "Introduction," 2.

surrounding the mission.[9] Beyond the ostensible goals of the mission lay the extrinsically driven and intrinsically inspired (extra-mural) pursuit of new knowledge, essential not only to the survival and sustenance of the mission but also its expansion.[10] The most important Jesuit academy of the sixteenth and seventeenth centuries, the Collegio Romano—more about which shortly—may have acted as a coordinating node and epicentre of the Jesuit intellectual quest, policing the discourse on the sacred and profane. Yet, as this essay shall argue, there were as many Jesuit academies distributed around the world as there were Jesuit provinces—connected though these were through complicated political, intellectual, and denominational networks.[11]

In other words, it is being argued that virtual Jesuit academies, which could be called "itinerant academies," proliferated into distinct epistemic spaces as Jesuits in non-European regions were drawn into new cultural worlds. These academies and their ties with the Collegio Romano facilitated the processes of reintegration of Jesuit cultural production from the tropics within the European academy. The need for this reintegration was possibly felt by members of the Jesuit academy, compelled as they were by the imperatives of surviving in a hostile climate surrounded by perhaps equally hostile communities—for the many dimensions of the Jesuit quest for knowledge about these worlds was that of mere survival. This world of Jesuit knowledge comprised certain areas of Jesuit specialisation, ranging from the study of languages to botany, medicine, philology, habits and customs, history, and jurisprudence. The areas in which they acquired scientific status were astronomy and mathematics.[12]

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9 Steven J. Harris, "Confession-Building, Long-Distance Networks, and the Organization of Jesuit Science." *Early Science and Medicine* 1, no. 3 (1996): 287–318; Kate Teltscher, *India Inscribed: European and British Writing on India, 1600–1800* (Delhi: Oxford University Press, 1995).

10 Charles Ralph Boxer, *Two Pioneers of Tropical Medicine: Garcia d'Orta and Nicolás Monardes* (London: Hispanic & Luso-Brazilian Councils, 1963); John M. de. Figueiredo, "Ayurvedic Medicine in Goa According to the European Sources in the Sixteenth and Seventeenth Centuries," in *Scientific Aspects of European Expansion*, ed. William Kelleher Storey (Aldershot: Variorum, 1996), 247–257.

11 Steven J. Harris, "Long-Distance Corporations, Big Sciences and the Geography of Knowledge," in *The Postcolonial Science and Technology Studies Reader*, ed. Sandra Harding (Durham, NC: Duke University Press, 2011), 61–83.

12 Anand Amaladass, ed., *Jesuit Presence in Indian History: Commemorative Volume on the Occasion of the 150th Anniversary of the New Madurai Mission, 1838–1988* (Anand: G. S. Prakash, 1988); Francis X. Clooney, *Fr. Bouchet's India: An 18th Century Jesuit's Encounter with Hinduism* (Chennai: Satya Nilayam Publications, 2005); Colette Diény, "Knowledge and Appreciation of Chinese Astronomy and History in Eighteenth Century Europe According to the Writings of Antoine Gaubil S. J. (1689–1759)," in *East Asian Science: Tradition and Beyond*, ed. Keizō Hashimoto, Catherine Jami, and Lowell Skar (Osaka: Kansai University Press, 1995), 501–505; V. N. Sharma, "The Impact of the Eighteenth Century Jesuit Astronomers on the Astronomy of India and China," *Indian Journal of History of Science* 17, no. 2 (1982): 345–352.

In the construction of these itinerant academies, the paper does not refer to any new archival material, but draws upon the new scholarship on the Jesuit sciences and Jesuit knowledge production from the 1990s onwards. With regard to Jesuit writing on India, I draw on the research of Anand Amaladass, Joan-Pau Rubiés, Sylvia Murr, Michael Sievernich, Ines Županov, and my own writings between 1999 and 2017, all of which are grounded in primary source material. This scholarship on the Jesuits in South Asia has been deeply informed by a larger corpus of writing on Jesuits in Asia and Europe and the paper is indebted to the work of Steven Harris, Florence Hsia, Catherine Jami, and several others. These researchers are specifically mentioned because the issues raised belong to a family of nested concerns dealing with the Jesuitical production of knowledge.

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 Jesuitical *récits* were placed extending from mathematics to astronomy and botany, the study of languages as well as ethnography and *récits* on *mœurs et coutumes*.

What was the academy and what became of it?

Feingold, in his scholarly volume on the Jesuits and the Republic of Letters, suggests that the Jesuits commenced with the "ideal of an itinerant ministry" in 1540, but two decades later reoriented their focus towards educating youth. This shift transformed it into the "greatest of all teaching orders," modelled as their schools were on a humanist program.[13] The institutional setting of teaching also created interstitial spaces within the Colleges where scholarly Jesuits could concurrently pursue their writing while undertaking their teaching functions.[14] Thus, from Galileo to the savants of the French Enlightenment, from the Collegio Romano to the Royal College at La Fleche, the influence

13 Mordechai Feingold, "Preface," in *Jesuit Science and the Republic of Letters*, ed. Mordechai Feingold (Cambridge, MA: MIT Press, 2003), vii–xi, on vii.

14 Feingold, "Preface," ix.

of the Jesuits in the scientific revolution and after is indeed substantial.[15] Among their students, from the late sixteenth century until the French revolution, were not just "practitioners of the new science," but the "learned audiences" as well as "influential patrons" of both the Jesuit order and the sciences.[16]

Focusing upon Jesuit cultural production during the first two hundred years of the order's existence, Feingold argues that during this period, intellectual pursuits and scholarly activities were indistinguishable from that of their contemporaneous secular savants, irrespective of their denominational identities.[17] The imaginary of the Jesuit was so conflicted by negative images that it was difficult to conceive of the Jesuit as a savant contributing to the sciences of the period of the scientific revolution. But this overlooks their role in propagating a culture of empiricism and research. Evidently, like travellers, merchants, and entrepreneurs, they too were participants in the game of knowledge production, wherein they employed multiple investigative protocols.[18] In his remarkable essay on the German Jesuit Joseph Tieffenthaler, who was in India in the eighteenth century, Sievernich points out that "[…] the Jesuit missionaries from the 16th and 17th centuries maintained that the knowledge of a foreign country was part of the basic presupposition of inculturation."[19] Among Jesuits, Tieffenthaler's interests in the great systems of rivers was not unique.[20]

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15 Luis Caruana, "The Jesuits and the Quiet Side of the Scientific Revolution," in *The Cambridge Companion to the Jesuits*, ed. Thomas Worcester (Cambridge: Cambridge University Press, 2008), 243–260; Rivka Feldhay, *Galileo and the Church: Political Inquisition or Critical Dialogue?* (Cambridge: Cambridge University Press, 1995); James M. Lattis, *Between Copernicus and Galileo: Christoph Clavius and the Collapse of Ptolemaic Cosmology* (Chicago: The University of Chicago Press, 1994); Heilbron, *The Sun in the Church*.

16 Feingold, "Preface," ix.

17 Mordechai Feingold, "Jesuit: Savants," in *Jesuit Science and the Republic of Letters*, ed. Mordechai Feingold (Cambridge, MA: MIT Press, 2003), 1–45, on 2.

18 De Castelnau-L'Estoile et al., "Introduction," 5.

19 Michael Sievernich, "Geographical Mapping of India in the 18th Century: The Contribution of the German Jesuit Joseph Tieffenthaler" in *Intercultural Encounter and the Jesuit Mission in South Asia*, ed. Anand Amaladass and Ines G. Županov (Asia Trading Corporation: Bangalore, 2014), 290–320.

20 Joseph Tieffenthaler was a brilliant astronomer-cartographer who travelled to Jai Singh's court but reached there after Jai Singh had passed away. He maintained a register of the latitudes and longitudes of all the places he visited. His original work on river systems was communicated by Anquetil Duperron to the Académie des Sciences. In addition, he wrote in a number of languages including Persian, Arabic, and Sanskrit, and compiled a Sanskrit–Persian dictionary. The large corpus of his work was translated into German as *Joseph Tieffenthaler, Historiche-geographische Beschreibung von Hindustan*, ed. and trans. Johann Bernoulli, 3 vols. (Berlin: Johann Bernoulli, 1785–1788); and into French as *Description Historique Et Géographique De L' Inde*, ed. and trans. Johann Bernoulli, 3 vols. (Berlin: Pierre Bourdeaux, 1786–1789); see the appendix at the end of the paper from the frontispiece from vol. 2 of the French edition.

The French Jesuit Jacques Marquette (1635–1675) explored the Mississippi, the German Jesuit Samuel Fritz (1654–1728) the Amazon, and so the list goes on.[21]

While serving as the vectors of modern science, their conservatism curtailed the possibility of pursuing revolutionary science.[22] Before the end of the eighteenth century, Jesuit scientific production comprised textbooks, compendia, and assorted works. Monographs and specialised treatises were rare, but nevertheless numerous given the extent of the order. Feingold feels that censorship and self-censorship account for the dearth of novel publications.[23] Nevertheless, in the sixteenth and seventeenth centuries, the translation of vernacular Jesuit accounts into Latin played a very significant role in disseminating knowledge of non-European regions through the Jesuit colleges. The first dictionaries Jesuits produced in the regional languages of India provide evidence of European interests in the region.[24]

The biographies of several Jesuit savants suggest that their simultaneous pursuit of several fields of specialisation, including writing poetry in South Asian languages, exemplified in significant ways the renaissance imagination, though until recently they were never counted among the savants of the renaissance.[25] Furthermore, many of these Jesuit savants—the term Jesuit scientists being an invention of the last couple of decades—had deep collegial and collaborative ties beyond their denominational identity, thereby transgressing boundaries of nation and state.[26] The fact remains that these Jesuit scientists reckoned with their multiple identities, for at one level they were part of the European "Republic of Letters" as savants and natural scientists and mathematicians, while simultaneously possessing a more restricted sectarian identity. This double identity is reflected in the distribution of their publications in a variety of journals extending from the *Journal des scavans* to several other journals

21 Sievernich, "Geographical Mapping of India," 195.

22 Feingold, "Jesuit: Savants," 4.

23 Feingold, "Jesuit: Savants," 16.

24 See the essays in Amaladass, ed., *Jesuit Presence in Indian History*.

25 Ines Županov, *Disputed Mission: Jesuit Experiments and Brahmanical Knowledge in Seventeenth-Century India* (New Delhi: Oxford University Press, 1999); Dhruv Raina, "A Neglected Field: The Historiographical Frames for the Jesuit Sciences in India," in *Intercultural Encounter and the Jesuit Mission in South Asia*, ed. Anand Amaladass and Ines G. Županov (Asia Trading Corporation: Bangalore, 2014), 259–289.

26 Harris, "Jesuit Scientific Activity."

of the existing academies.[27] But by the end of the seventeenth century, as Jesuit science became increasingly peripheral to the mainstream institutionalisation of the sciences, the members of the Society went on to found their own journal, *Mémoires pour l'Histoire des Sciences & des beaux-Arts*, later known as *Journal de Trévoux*. The articles published in the journal did not merely include Jesuit contributions, but those of their illustrious students, who comprised the leadership of the movement referred to as the French Enlightenment—including the combative Voltaire.[28] In other words, Jesuit participation in the Republic of Letters transcended their epistolary ties, and extended to members and non-members.[29]

The Jesuit Academy and the Republic of Letters

The conceptual distance between the Ancient Greek Academy and the Renaissance Academy is reflected in the confusion surrounding its meaning. Though the term originally designated Plato's school, the seventeenth-century academy emphasised "[…] the un-Aristotelian character" of the new academic groups, most of which were devoted to advanced levels of instruction. Conversely, Aristotelianism was the staple fare of university philosophical instruction, and hence the term "academy" came to connote "various cultural sites outside those institutions" where Aristotelian ideas were neither discussed, entertained, nor subscribed with any conviction. In other words, the Academy was a "scholastic institution of higher level or a specialized nature."[30] In other words, the meaning of the term came to stabilise as it came to designate an institution that specialised around a world of learning that went beyond existing programmes of instruction.[31] These academies possessed some recipe for extending durability. Bernal saw the Academy as the progenitor of the modern university and

27 Robert R. Palmer, "The French Jesuits in the Age of Enlightenment," *The American Historical Review* 45, no. 1 (1939): 44–58; Dhruv Raina, "'Becoming All things to All': French Jesuit Scientists and the Construction of the Antiquity of the Sciences of India," *L' Inde des Lumières: Discours, histoire, savoirs, Collection Purusārtha* 31 (2013): 335–358.

28 Palmer, "The French Jesuits in the Age of Enlightenment."

29 Feingold, "Jesuit: Savants," 24.

30 Ugo Baldini, "The Academy of Mathematics of the Collegio Romano from 1553 to 1612," in *Jesuit Science and the Republic of Letters*, ed. Mordechai Feingold (Cambridge, MA: MIT Press, 2003), 47–98, on 49.

31 Baldini, "The Academy of Mathematics," 49. However, Aristotle too expounded his ideas to select pupils at the Academy and it preserved these ideas though it did not improvise upon Plato's ideas. This Academy survived for almost a thousand years and was shut down by Justinian in 525 CE, see John Desmond Bernal, *Science in History, Volume 1: The Emergence of Science*, revised edition (Harmondsworth: Penguin, 1969 [1954]), 197.

scientific society.[32] For one it was academic inasmuch as it dealt with pure knowledge comprising mathematics, astronomy, and music through an engagement with texts rather than the study of nature. Further, truth, beauty, and goodness were virtues worth pursuing for their own sake.

Ugo Baldini and Paula Findlen have chronicled the success of the Collegio Romano as a teaching and research institution. Information and trained personnel fanned out from the Collegio to the distant outposts of the Jesuit world.[33] But both this work and Feingold's edited volume are primarily concerned with the European provenance of the Jesuit sciences and their associated research activity. This paper is more concerned with what could be called the *itinerant academy of Jesuit Oriental and scientific learning*.

Why do we need the notion of an itinerant academy? The point is to construct an object of study of what Barreto Xavier has labelled "les lieux les moins visibles" (the places less visible) and to foreground them on the historiographic scene.[34] Her own concern was to "visibilise" (forgive the neologism) the virtual and real libraries of the Franciscans in seventeenth-century India. The Franciscan order was infested with discursive controversies and the circulation of their books throws light upon the intellectual genealogies that shaped their teaching practices. While it is possible to historically reconstruct the sequence of events that led to the dispersal and loss of major collections of Franciscan libraries, what remains of them is scattered across several private and public collections across the world. Consequently, any study of the Franciscan library requires creative engagement.[35] It could well be supposed that, since the Jesuits were outside the networks of institutionalised science from the end of the seventeenth century, their own publications were dispersed across a range of journals and reports, and hence any reconstruction of their scholarly activities and production would be difficult to locate within the framework of the learned societies of science. Furthermore, their scholarly production was distributed across a still nascent spectrum of emergent disciplines that

32 Bernal, *Science in History, Volume 1*, 197.

33 Paula Findlen, "Scientific Spectacle in Baroque Rome: Athanasius Kircher and the Roman College Mission," in *Jesuit Science and the Republic of Letters*, ed. Mordechai Feingold (Cambridge, MA: MIT Press, 2003), 225–284.

34 Ângela Barreto Xavier, "Les bibliothèques virtuelles et réelles des franciscains en Inde au XVIIe siècle," in *Missions, D'Évangélisations et Circulation des Savoir XVIe – XVIIe Siècle*, ed. Charlotte De Castelnau-L'Estoile, Marie-Luce Copete, Aliocha Maldavsky, and Ines G. Županov (Casa De Velasquez, Madrid, 2011) 151–169, on 152.

35 Baretto Xavier, "Les bibliothèques virtuelles et réelles," 152.

did not fall within the purview of the more stable learned societies. Thirdly, the network of Jesuit scholarship was transnational in scale and could not be encompassed within seventeenth- and eighteenth-century scientific societies situated within several urban centres in Europe. The idea of an itinerant academy may help us capture this corpus of scholarly production, the canvas of which extended over what we would call the natural sciences and social sciences today, within the seventeenth- and eighteenth-century worlds of Jesuit learning.

The early Jesuit institutions came to be diversely referred to as the collegio, the mission, the seminary, the order. But the term "academy" in the seventeenth century—the century of the new academies—appears with reference to *The Academy of Mathematics of the Collegio Romano*—a Jesuit college. Speaking of the Academy of Mathematics of the Collegio Romano, rather than focusing upon the scientific activities pursued at the Academy, one of the predominant questions that has occupied historians of science concerns the influence of the professors and teachers of the Academy on Galileo.[36] The Jesuit system of instruction was an academic one from the very beginning. But the research functions that were routinised within the Academy of Mathematics clearly transgressed the limitations of collegiate teaching. With Christopher Clavius's presence, the Academy not only contributed to, but found a place in the history of mathematical disciplines and of scientific institutions. As a result it became an active participant in the evolution of the educational system.[37] However, the academy began to lose some of its vitality after Clavius's death, though this was a slow process that began unfolding during the term of Clavius's associate Greenberger. This trend was reversed sixty years later when Oragzio Borgondio, Boscovich's teacher, was appointed professor of mathematics.[38]

The direction of the argument has thus far been influenced by Burke's approach to the social history of knowledge that combines a Veblenian sociology of innovation with Bourdieu's sociology of cultural production.[39] At another level, the account is also framed by assuming

36 Baldini, "The Academy of Mathematics," 47–48.

37 Baldini, "The Academy of Mathematics," 50.

38 Baldini, "The Academy of Mathematics," 53.

39 Peter Burke, *A Social History of Knowledge: From Gutenberg to Diderot* (Cambridge: Polity Press, 2000), 2–3; see Thorstein Veblen, "The Place of Science in Modern Civilization," *The American Journal of Sociology* 11, no. 5 (March 1906): 585–809; Thorstein Veblen "The Intellectual Pre-eminence of Jews in Modern Europe," *Political Science Quarterly*, 34, no. 1 (March 1919): 33–42; see also Pierre Bourdieu, *Homo Academicus*, trans. Peter Collier (Cambridge: Polity Press, 1988 [1984]).

linkages between the micro- and the macro-level geographies of knowledge. There are the universities and academies located in the different metropolises of knowledge, as well as in smaller towns with local colleges, monasteries, universities and seminaries. In any case, secular intellectuals, clerisy, or clergymen were all attached to some kind of institution that would include one of those just listed. Three factors more or less explain the creation of the academy. The first was a purely internal compulsion, which was to produce a cadre of technical specialists for the maintenance and expansion of the Jesuit order. Once that process commenced, external pressures began to build up associated with producing a pedagogical corps that would ensure the sustenance of the colleges that were mushrooming all over Europe and elsewhere. In addition, this also meant recruiting and training ample numbers of qualified missionaries with scientific and other expertise to satisfy and maintain missions in remote places where they could not draw upon the technical expertise available in Europe.[40] As a result, the academy and Jesuit institutions found it imperative to closely couple pedagogic and research functions. This combination within the institutional coordinates of the academy, however limited, enabled the more-or-less global diffusion of specialists. In that sense, as Baldini points out, it was a rather unique institution in the scientific history of Europe in the first half of the seventeenth century.[41]

The uncertainty or lack of attention paid to these institutions probably arose from the legitimate misgiving that, within the missionary world, the impulse to innovate may have been restrained, while the resistance to innovation may have been subtly overcome.[42] In that sense, detailed histories of the Jesuit world of learning would provide some interesting insights into how this tension was negotiated. Within teaching environments, in Jesuit seminaries and colleges, the impulse would not have been to innovate, but to transmit the received versions of Aristotle and Aquinas.[43]

As noted above, the academy of the late sixteenth and seventeenth centuries was not an academy in the Aristotelian sense, but took a new form that was closer to the symposium rather than the modern seminar. As Burke writes: "More formal and longer lasting than a circle […] less formal than a university faculty, the Academy was an ideal form in which to explore innovation." Groups of scholars, who began on a voluntary basis to congregate around these academies, transformed them into institutions

40 Baldini, "The Academy of Mathematics," 54.

41 Baldini, "The Academy of Mathematics," 54.

42 Caruana, "The Jesuits and the Quiet Side of the Scientific Revolution," 256.

43 O'Malley, "How the First Jesuits became involved in Education," 59–60.

with a fixed membership, statutes, and schedules for their regular meetings and soirees.[44] More recently, Dixhoorn and Sutch have emphasised the importance of several vernacular literary cultures distributed across urbanised regions and centres in the Latin world of learning from the fourteenth through the seventeenth centuries. However, research interest seems to have focused largely upon the "Italian paradigm" and the intellectual sociablities of Renaissance Italy.[45] As we move from the classical Renaissance to the scientific Renaissance, a new generation of academies can be seen to emerge, resembling in many ways the humanist academies, but now reorienting their focuses to the study of nature. In order to become a member of this new Republic of Letters there arose the need to define "one's literary activities and aspirations with references to the Liberal Arts (*artes liberales*), the higher levels of true (theoretical) Learning and Knowledge (*sciensa, scienza, scientie, Wissenschaft, wetenschap*), and to the *bonae litterae* and *belle lettere* (the Arts and all classical fields of Learning combined)."[46]

Thus, the traditional imaginary associated with the Jesuits in science was first challenged following the interrogation of the idea of the scientific revolution with a capital S and R.[47] In the recognition of the failings of the Whig history of the scientific revolution, scholars unpacked the complexity of the early modern world and the positive role Catholic intellectuals played in the evolution of modern science.[48]

Historians of science recognise three phases in the history of the scientific revolution. The first phase is that of the Renaissance (1440–1540). The second is that of science during the first bourgeois revolution (1540–1650). And the third is that of modern science coming of age (1650–1690).[49] It is during the third period that the scientific societies begin to emerge: typically, the French and the British academies of sciences. The objectives of these

44 Peter Burke, *A Social History of Knowledge*, 36.

45 Arjan van Dixhoorn and Susie Speakman Sutch, "Introduction," in *The Reach of the Republic of Letters: Literary and Learned Societies in Late Medieval Europe, Vol. 1*, ed. Arjan van Dixhoorn and Susie Speakman Sutch (Leiden: Brill, 2008), 1–16, on 1–4.

46 Dixhoorn and Sutch, "Introduction," 13.

47 Rabin, "Early Modern Jesuit Science," 90; for a recent review of the historiography of the scientific revolution see David Wootton, *The Invention of Science: A New History of the Scientific Revolution* (New York: Harper Collins, 2015).

48 William Ashworth writes: "There was one order, however, that stands out from all the other orders as the scientific order without rival in seventeenth-century Catholicism, and that of course is the Society of Jesus," quoted in Rabin, "Early Modern Jesuit Science," 91; see also John L. Heilbron, *Electricity in the 17th and 18th Centuries: A Study of Early Modern Physics*, (Berkeley: University of California Press, 1979).

49 John Desmond Bernal, *Science in History, Volume 2: The Scientific and Industrial Revolutions*, revised edition (Harmondsworth: Penguin, 1969 [1954]), 379–497.

societies were to focus upon "the central technical problems of the time," which included pumping, hydraulics, gunnery, and navigation—all this while apparently distancing themselves from philosophical discussion. Gradually, the scientific societies became the emblems of the recognition of science in the public sphere. The idea had precedents in the Lyceum and the Museum of Macedonia and the Muslim and Christian institutions of higher learning.[50] However, by the seventeenth century there arose the recognition that something different was required—partially triggered by the ideas of Bacon. John Amos Comenius (1592–1670) conceived of a Philosophic College to impart knowledge about the new experimental philosophy. The Accademia dei Lincei at Rome (1600–1630) and the Accademia del Cimento at Florence (1651–67) were the earliest of the scientific societies. These societies commenced in informal gatherings of friends such as Robert Boyle, William Petty, and Christopher Wren bonding around a central intellectual concern.[51] The historian Thomas Sprat, in his history of the Royal Society of London, writes that: "their first purpose was no more than only the satisfaction of breathing the new air, and of conversing in quiet with one another, without being engaged in the passions, and madness of that dismal Age."[52]

The point worth noting is that, during the scientific Renaissance, there was a surge of institutional innovations beyond the spheres of the university and academy that hosted the activity of the production of the new knowledge. This entailed the funding and managing of large projects in institutions founded for the purpose, such as the Royal Observatory or the Paris Observatory.[53] Beyond the domain of natural philosophy, the Royal Society urged its members out on expeditions to study the habits and customs of the peoples inhabiting regions they visited, in addition to studying flora and fauna. But it was the eighteenth century that has been considered the Age of the Academy, this time supported by rulers who paid regular salaries to savants to conduct their investigations. This meant that they had responsibilities and careers outside their teaching commitments within the university system.[54] Of the large number of societies in the eighteenth century, about seventy of them were concerned with natural philosophy. The academies were modelled quite diversely; while the Royal Society,

50 Bernal, *Science in History, Volume 2*, 450.

51 Bernal, *Science in History, Volume 2*, 457.

52 Bernal, *Science in History, Volume 2*, 453.

53 Elizabeth Connor, "The Cassini Family and the Paris Observatory," *Leaflets of the Astronomical Society of the Pacific* 218 (1947): 146–153.

54 Burke, *A Social History of Knowledge*, 43–46.

London was founded on voluntarist lines, the Parisian Academy was state supported.[55] During the Industrial Revolution in England, voluntarist associations, such as the literary and philosophical societies, played a central role in the dissemination of ideas about mechanics.[56]

Catholic Orientalism and the world of Jesuit knowledge

If, for a moment, we would shift our focus on the history of science and knowledge, we would recognise that the history of missions has revolved around the poles of apologetics and missionary accomplishment. The historiographic renewal among scholars studying the world of Jesuit learning over the last three decades is an outcome of a resurgence of cultural and social history that has enriched the study of the world of missionary knowledge.[57] This shift in historiographic focus, incorporating in its fold the history of knowledge, intellectual milieus, and cultural practices, has meant that the social and cultural history of missions now addresses how the overseas missionary projects were the laboratories of modernity. The research of historians of science has in some sense provided the resources for work on the social and cultural history of the Jesuits. In 1989, a special issue of the journal *Science in Context* drew the Jesuit sciences into the intellectual history of modern Europe, based on the relationship between Catholic science and modernity.[58] Since then, the Jesuits have been considered important actors in an intellectual network of global dimensions, and as pointed out above, the Society of Jesus is considered a laboratory of modernity, much as under the influence of the British utilitarians, the officials of the East India Company visualised India as a grand experiment in modernity.[59] However, there is an important difference inasmuch as the Jesuits did not see their missionary work as a project in modernisation.

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55 Lewis Pyenson and Susan Sheets-Pyenson, *Savants of Nature: A History of Scientific Institutions, Enterprises and Sensibilities* (New York: W. W. Norton and Company, 1999); Burke, *A Social History of Knowledge*, 47.

56 Ian Inkster, "Science and the Mechanical Institutes, 1820–1850: The Case of Sheffield," *Annals of Science* 32, no. 5 (1975): 451–474; Arnold Thackray, "Natural Knowledge in Cultural Context: The Manchester Model," *American Historical Review* 79, no. 3 (June 1974): 672–709.

57 De Castelnau-L'Estoile et al., "Introduction," 2–3.

58 Rivka Feldhay and Yehuda Elkana, eds., *"After Merton": Protestant and Catholic Science in Seventeenth-Century Europe,* special issue of *Science in Context* 3, no. 1 (Spring 1989).

59 Zaheer Baber, *The Science of Empire: Scientific Knowledge, Civilization and Colonial Rule in India* (New York: New York State University Press, 1996); De Castelnau-L'Estoile et al., "Introduction," 4.

In order to understand the world of Jesuit cultural production on India or the Orient, it is absolutely essential to recognise its transnational connectivities, as well as its relationship to the world of Jesuitical knowledge in Europe. In any case, whether in Europe, India, or China, the organisational bedrock for the dissemination of this knowledge was the system of Jesuit seminaries and the Jesuit colleges, which by the middle of the seventeenth century had come to have a global reach. Regulated by Jesuitical collegial ties and institutions, their publications and reports—of Gaubil in China, Duchamp and Boudier in India—circulated through these widely dispersed institutions and found one of many homes in the archives in Paris, Rome, Lisbon, etc.[60] The most effective textual weapon of Jesuitical propaganda was the publication *Lettres Edifiantes et Curieuses*.[61] These letters became the instrument of propaganda of the French Jesuits, now expressing themselves in a neoclassical rather than baroque rhetoric. Thirty-three volumes were published between 1707 and 1734. Rubiés notes that the title of the series was emblematic of the Jesuit strategy that combined edification with curiosity, the latter being the *oriflamme* of the Republic of Letters.[62]

The authority and authenticity of this knowledge mattered a great deal both to the Jesuits and their wider readership. Framed by a well-rehearsed narratology that had evolved since the days of the founder of the order, Ignatius Loyola (1491–1556), this knowledge derived its authenticity in part from the first-person narratives of the Jesuits' travels, the peoples and sights they had witnessed, and, often enough, this aesthetic of the marvellous was counterbalanced by the healthy empiricism of scientific observation.[63] These reports and accounts were published in scientific journals and many were republished in the letters mentioned above. In this manner, very diverse readerships in Europe were alerted to

60 P. Goüye (ed.), *Observations Physiques et Mathématiques Pour Servir à l'Histoire Naturelle et à La Perfection de l'Astronomie et de La Géographie* (Paris: Imprimerie Royale, 1692); Simon de la Loubère, *Description du royaume de Siam* (Amsterdam: David Mortier, 1714 [1691]); see also Florence C. Hsia, "French Jesuits and the Mission to China: Science, Religion, History." (PhD diss.: University of Chicago, 1999); Catherine Jami, "From Louis XIV's Court to Kangxi's Court: An Institutional Analysis of the French Jesuit Mission to China (1688–1722)," in *East Asian Science: Tradition and Beyond*, ed. Keizō Hashimoto, Catherine Jami, and Lowell Skar (Osaka: Kansai University Press, 1995), 493–499.

61 Society of Jesus, *Lettres Édifiantes et Curieuses: Mémoires de l'Inde. Tomes 11–15* (Toulouse: Noel-Etienne Sens, 1810–1811).

62 Joan-Pau Rubiés, "Reassessing 'the Discovery of Hinduism': Jesuit Discourse on Gentile Idolatry and the European Republic of Letters," in *Intercultural Encounter and the Jesuit Mission in South Asia*, ed. Anand Amaladass and Ines G. Županov (Bangalore: Asia Trading Corporation, 2014), 113–154.

63 Raina, "Becoming All things to All"; Županov, *Disputed Mission*, 22.

the seriousness of the Jesuit project that extended well beyond the evangelical ends of the order. The knowledge produced by the Jesuit was conferred not just with authority but also labelled reliable through its publication in respected periodicals.

The knowledge arriving in Europe from India, Japan, and China through extended Jesuit networks, while considered exotic, was naturally subject to processes of domestication and stereotyping. Various literary strategies were adopted, some exaggerating the distance between the Other and the observer's culture, while on occasion the Hindu Trinity was portrayed as an image of the Christian Holy Trinity. The Jesuits certainly travelled with their Aristotelian categories, but their readership in Europe did not uncritically accept what they read. This in turn resulted in debates on the reliability of knowledge.[64] For example, in the third quarter of the eighteenth century, Diderot and D'Alembert were seeking knowledge of India that had not been mediated through the accounts of the Jesuits.[65]

The institutional and structural settings of Jesuit teaching and learning were indeed complex, principally because of the Society's ambivalence in relation to the new knowledge and to instructing its acolytes in that new knowledge. In order to do both, its members were compelled to resort to clever subterfuge since they were engaging with knowledge that ran against the grain of received knowledge.[66] As a result, the interpretative divide in relation to the Jesuit contribution to the development of the modern sciences, in a manner of speaking, reduces to the question whether the so-called stars of the Jesuit sciences, Clavius[67] and Kircher, were doing either revolutionary or normal science. In the latter case, their contributions were of an incremental nature and they played a greater role as pedagogues of the "new" sciences. These concerns cannot be separated from the related historiographic portrayal of the seventeenth-century European university as the bastion of casuistry and Aristotelianism.[68]

The other related question is whether the motto of the order, *ad majorem dei gloriam* (for the greater glory of God), offers itself as a lens through which to look at the Jesuit sciences, or whether, like in any other academy of the time, the pursuit of the sciences could be considered an autonomous

64 Burke, *A Social History of Knowledge*, 196.

65 Dhruv Raina, "Betwixt Jesuit and Enlightenment Historiography: The Context of Jean-Sylvain Bailly's History of Indian Astronomy," *Revue d'Histoire de Mathématiques* 9 (2003), 101–153.

66 Feingold, "Preface," x.

67 Clavius, as is well known, was public professor of mathematics while directing "advanced instruction and research at the academy of mathematics," see Baldini, "The Academy of Mathematics," 48.

68 Feingold, "Jesuits: Savants," 5

cultural activity.[69] Both Harris and Feingold are of the opinion that the zeal of Jesuit scientific activity and their scholarly pursuit did not correspond to the evangelical goals of the order, though some Jesuits may have evoked the latter as post-facto rationalisations of their activities.[70] Feingold himself inclines to the understanding that the Jesuits were trained as scholars before they were Jesuits. No matter which side of the argument one leans towards, it cannot be denied that "the powerful grip of secular learning (scientific or otherwise)" contributed to augmenting the prestige of the order and drew novitiates and students to the world of learning and sometimes towards joining the order.[71] Evidently, Feingold, Harris, and others are looking at some of the constants that run through the first two hundred years of Jesuit history, and it could appear, though that would be far from the truth, that the order staunchly defended Aristotle and Thomas Aquinas over the entire period.[72] The attitudes of the Jesuits pursuing the secular sciences, as evident from the research, began to shift from the middle of the seventeenth century, and probably earlier, and this required a great deal of scientific and theological rationalisation. Luce Giard also addresses the pedagogic and scientific activities of the Jesuits and the contribution of Christian thought to the development of modern science. In the preface to the edited volume *Les Jesuits à la renaissance*, he argues that the world of Jesuit knowledge production was organised along lines similar to a Mertonian intellectual community whose concern was scientific research while the teaching activity of the Jesuits emerged over a period of time.[73] However, the focus of the essays in the volume is Jesuitical knowledge in Europe, with the exception of Claude Marztloff's work on

69 Feingold, "Jesuits: Savants," 5

70 Diderot asks in his article on the Jesuits in the *Encyclopedie* article "Jésuites": "Qu'est-ce qu'un Jésuite ? [what is a Jesuit?]," before continuing with "est-ce un prêtre séculier ? est-ce un prêtre régulier ? est-ce un laïc ? est-ce un religieux? est-ce un homme de communauté ? est-ce un moine ? c'est quelque chose de tout cela, mais ce n'est point cela [is he a secular priest? is he a regular priest? is he a layman/non-clergyman? is he a man of a community? is he a monk? he is something of all of these, but is not these]." See Jacques André Nangeon, ed., *Œuvres de Denis Diderot, publiées sur les manuscrits de l'Auteur, Tome Sixième* (Paris: Deterville, 1800), 17–38, on 22. Feingold concludes that, for Diderot, the identity of the scholar trumped Jesuit identity. See Feingold, "Jesuits: Savants," 7. See also Harris, Transposing the Merton Thesis"; Harris, "Jesuit Scientific Activity in the Overseas Missions."

71 Feingold, "Jesuits: Savants," 9.

72 Caruana, "The Jesuits and the Quiet Side of the Scientific Revolution"; see the essays in Part 3 of John W. O'Malley, Gavin A. Barley, Steven J. Harris, and T. Frank Kennedy, eds., *The Jesuits: Cultures, Sciences, and the Arts, 1540–1773* (Toronto: University of Toronto Press, 2000).

73 Luce Giard, ed., *Les jésuites à la Renaissance: Système éducatif et production du savoir* (Paris: Presses Universitaires de France, 1995).

the strategies adopted by Jesuits to adapt "connaissances occidentales" to the Chinese world of learning.[74]

The Casa da Índia in Lisbon and La Casa de Contratación in Seville had become storehouses of knowledge and information about the New World by the early sixteenth century. These institutions were supported by royalty.[75] The developments of the seventeenth century, and the expanding dominion of natural philosophy, also began to have an impact on Church organisations. In other words, the reconfiguration of the world of knowledge was not just oriented towards the study of nature, but orders such as the Benedictines and the Jesuits, the former inspired by the seventeenth century Maurists, now began to accord greater emphasis to collective research. The former, of course, became important actors in the world of historical learning, while the Jesuits continued with their pursuit of the sciences.[76]

The Collegio Romano remained an important institution through the centuries in the Jesuit imaginary and in the early seventeenth century was called upon to adjudicate on matters central to the Christian faith. However, it would be safe to suggest that, with the passage of time, the Jesuits in India, China, and elsewhere, even while tied to the umbilical cord of the Christian Church, entered into new networks of knowledge production and the social networks associated with those cultural geographies. As a result, this produced in significant measure the internationalisation of Jesuitical institutions and cultural production, and as Županov ably demonstrates, its indigenisation in regional contexts.[77]

Jesuits in India and Europe: Jesuit specialities

The first Jesuit mission established in India was in Old Goa in the sixteenth century. The arrival of the Jesuit missions in India predates their activity in China and Japan, and they were active in the region until the suppression of the order in general in the eighteenth century but resurfaced in the early nineteenth. In the sixteenth century, there were more Jesuits

74 Jean-Claude Martzloff, *Histoire des mathématiques chinoises* (Paris: Masson, 1987); Jean-Claude Martzloff, "Matteo Ricci et la science en Chine," *Études* 412 (May 2010): 639–649.

75 William S. Maltby, *The Rise and Fall of the Spanish Empire* (Basingstoke: Palgrave Macmillan, 2008).

76 Burke, *A Social History of Knowledge*, 43.

77 Ines G. Županov, *Missionary Tropics: The Catholic Frontier in India, 16th–17th Centuries* (Ann Arbor: University of Michigan Press, 2005).

in India than elsewhere in Asia.[78] India was considered to be of great importance within the order since the founder Ignatius Loyola sent his greatest apostle and collaborator, meaning Francis Xavier, to establish a mission that would function as a stepping board for extending the mission further east—namely into Indonesia, Japan, and China. In addition to Francis Xavier, the roll call of Jesuit scholars transiting through the Indian mission during that century included Alessandro Valignano, no great lover of India or Indians, Roberto de Nobili, the very opposite, Constanzo Beschi, and Joao de Britto.[79] Before Xavier left Goa for the East he had established a network of Jesuit stations, and emerged as an exemplar for other Jesuit missionaries who moved into the Indian hinterland. Among those was Henri Henriques, who arrived in 1547, and whose literary production included a number of books in the Tamil language and script, as well as a compilation of a Tamil grammar and dictionary that was not printed but was used by other European missionaries despite never having been published.[80] But beyond the names of these stars from the first generation of Jesuit savants who figure in elegant hagiographies, recent scholarship has brought to light the significant contributions of lesser-known Jesuits such as Boudier and Coerdoux.[81]

Francis Xavier landed in India on May 6, 1542 and we can pin down the beginnings of the Jesuit educational project in India to a date in and around this year. Prior to his arrival, a number of missionaries and Portuguese colonial officials formed the Confraternity of the Holy Faith (Confraria de Santa Fé) in Old Goa to train priests. It was this confraternity that decided to build a college in Old Goa dedicated to St. Paul on January 25, 1542. The college was to undertake the intellectual and spiritual formation of priests, and to entrust the education of students to a religious order. The contenders were three: the Dominicans, Portuguese diocesan priests, and the Jesuits. This was the moment when Francis Xavier

78 Ugo Baldini, "The Jesuit Mathematicians in India (1578–1650) as Possible Intermediaries between European and Indian Mathematical Traditions," in *Kerala Mathematics: History and its Possible Transmission to Europe*, ed. George Gheverghese Joseph (Delhi: B. R. Publishing Corporations, 2000). 277–306, on 278.

79 John Correia-Afonso, *Jesuit letters and Indian history, 1542–1773*, 2nd ed. (Oxford: Oxford University Press, 1969); Correia-Afonso, "A History of the Society of Jesus in India," in *Jesuit Presence in Indian History: Commemorative Volume on the Occasion of the 150th Anniversary of the New Madurai Mission, 1838–1988,* ed. Anand Amaladass (Anand: G. S. Prakash, 1988), 1–15, on 5.

80 Stuart Blackburn, "Early Books and New Literary Practices, 1556–1800," in *The History of the Book in South Asia*, ed. Francesca Orsini (Abingdon: Ashgate, 2011), 105–158, on 111.

81 Sylvia Murr, *L'indologie du Père Cœurdoux: stratégies, apologétique et scientificité* (Paris: École Française d'Extrême-Orient, 1987); Clooney, *Fr. Bouchet's India*.

arrived—deus ex machina—and immediately wrote a letter to Ignatius Loyola stating that "some of our Society [… should] instruct the pupils of the College."[82]

From 1555, the ownership and administration of St. Paul's Seminary and College was vested in the Society of Jesus—the entire institution was called Colégio São Paulo and it housed the seminary, a huge library, the Jesuit residence and novitiate, hospital, printing press, and a school for boys. Padre Antonio Gomes was the first rector of this, the first Jesuit educational institution established in India, through whose portals Valignano and Ricci passed before their journeys onto the Far East. Under the Jesuits, the college was raised to the level of a university, with a three-year curriculum that included the study of *grammatica*, *rhetorica*, *philosophia*, and *theologia*. By 1580, another college had been established in Cochin offering a similar course.[83] The first provincial council held in Goa in 1575 decreed that doctrinal literature, congressional manuals, and the lives of saints be urgently published in the local languages. This enterprise required very close cooperation between the Jesuits and the "learned men" of the region, a collaboration evidenced in Jesuit correspondence.[84] The location of this institution shifted several times.[85] A fire destroyed the Colégio São Paulo in 1617, and Francis Xavier's grand-nephew Fr. Jeronimo Xavier perished in the fire. The Colégio was reopened after the fire and finally closed in 1759 when the Portuguese Prime Minister, the Marquês de Pombal, evacuated the Jesuits and imprisoned them.[86]

The Colégio São Paulo became the backbone of the Jesuit apostolic enterprise in Asia, providing advanced education for the Jesuit scholasticate, and elementary schooling for "Portuguese, mestiço, and native boys." It became the central institution out of about three hundred colleges in Asia, and having acquired a reputation the Jesuits of Goa were often referred

82 Quoted in J. Velinkar, "Jesuit Education and Inculturation in Sixteenth Century Goa," *Jesuit Presence in Indian History: Commemorative Volume on the Occasion of the 150th Anniversary of the New Madurai Mission, 1838–1988*, ed. Anand Amaladass (Anand: G. S. Prakash, 1988), 66–77.

83 Baldini, "The Jesuit Mathematicians in India," 278.

84 Županov mentions the case of a certain Padre Manuel de São Pedro from the Collegio de Saluador in Culam whose name appears nowhere in the Jesuit catalogues or in Jesuit letters, which indicates that he was a secular Christian *parava*, but though ignored by Jesuit history was essential to the "construction of the Jesuit linguistic edifice," see Županov, *Missionary Tropics*, 253–254.

85 Mousinho de Ataide, *Rachol: Jesuit College, 1610–1759; Diocesan Seminary, 1762* (Goa: Rachol Jesuit Seminary, 2012), 5.

86 De Ataide, *Rachol*, 6.

to as the Paulistas.[87] With the college under Jesuit control, Gomes tried to refashion the college on the lines of the University of Paris. He first separated the Portuguese from the indigenous and Oriental students on the grounds that the wild character of the latter deterred them "from the attainment of knowledge" and "contemplation and devotion." Gradually, the college was transformed in addition into a Jesuit seminary and scholasticate.[88] Evidently, the seminary could also be a euphemism for an academy.

Contemporaneous technological revolutions in the culture of the book and reading were to travel to the subcontinent in that very century. The Jesuit João Nunes-Bareto, the patriarch of the episcopate of Ethiopia, landed in Goa in 1556 and died in the Collegio six years later. Other than establishing missionary schools that provided instruction in the regional language, namely Konkani, he went on to establish the first printing press on the sub-continent, operated by another Jesuit, João de Bustamente.[89] The early publications of the press included works in Portuguese, Latin, Konkani, Ethiopic, and Tamil. Most of the books published between 1556 and 1587 were in roman type, except for a 1577 translation into Tamil of Henriques's *Doctrina Christam*, which became the first printed book in an Indian script and language.[90] The press functioned sporadically from 1616 to 1676, and its publications included pedagogic works for acquiring competence in the local languages and works on the Christian faith, in addition to many of the manuscripts authored by Jesuits who at some point had transited through Rachol. These manuscripts are now distributed in libraries in Goa, Portugal, and Beijing. I. P. Newman's compilation of Fernandez's *Collection Racholensis* provides an extensive bibliography of manuscripts published at Rachol.[91]

Evidently, the college performed many functions and hosted multiple institutions. To take one example, the Colégio prepared students for priesthood, including Jesuit scholastics who went on to study Latin, classics, philosophy, and moral theology. It also catered for those seeking some

87 Županov, *Missionary Tropics*, 125.

88 Velinkar, "Jesuit Education and Inculturation in Sixteenth Century Goa," 68.

89 Anant Kakba Pirolkar, *The Printing Press in India: The Beginnings and Early Development* (Marathi Samsodhana Mandala: Bombay, 1958), 3–9.

90 Blackburn, "Early Books and New Literary Practices," 112.

91 De Ataide, *Rachol* 2012, 28–31.

education with additional mathematical skills in particular.[92] As I have argued elsewhere, sites of knowledge are places where there is not just traffic in peoples and ideas but a variety of material and living things, a site where we have a cosmopolitanism of things.[93] Fruits and vegetables from Africa, the Americas, and the East arrived at the college and were evidently consumed. Soon enough, Jesuit scholars located at the college began to explore the customs, cultures, and languages of the peoples in its environs.[94] Correia-Afonso makes a larger postcolonial claim that, with the founding of St. Paul's in Old Goa, the Jesuit vocation as "the schoolmasters of Europe"' had commenced.[95]

Fig. 1: *The seminary at Rachol, Goa (copyright by author).*

92 For the contents of the courses see Velinkar, "Jesuit Education and Inculturation in Sixteenth Century Goa," 64–69.

93 Dhruv Raina, "Circulation and Cosmopolitanism in 18th Century Jaipur: The Workshop of Jyotishis, Nujumi and Jesuit Astronomers," *Purusārtha* 33 (2015): 307–329.

94 Velinkar, "Jesuit Education and Inculturation in Sixteenth Century Goa," 73.

95 Velinkar, "Jesuit Education and Inculturation in Sixteenth Century Goa," 76. Correia-Afonso, in his response to the paper by Velinkar, quotes in translation a long letter from a Father Polanco dating back to 1535: "It seems to me that the teaching of reading and writing to children, and together with the Christian doctrine, is already being done in Goa […] and though it is not usual in these parts in the colleges of the Society, this work is not foreign to our Institute, and I believe with time it will also be taken up here (in Europe); and in India it is one of the best things that can be done (DI, III, 307). The beginnings of our education policy are therefore very Ignatio," see Correia-Afonso, "A History of the Society of Jesus in India," 76. In a transcultural aside, one wonders whether the schoolmasters of Europe rehearsed their vocation on Indian soils before carrying it back to Europe.

In fact, a number of colleges were established in Goa in the latter half of the sixteenth century. Of these, the one existing building is the Rachol Seminary, dating back to 1610. It started off as the Jesuit College of All Saints (Colégio de Todos os Santos), later renamed the College of St. Ignatius (Colégio de Sancto Ignacio), before becoming the diocesan seminary after the expulsion of the Jesuits in the second half of the eighteenth century. Many seminaries were founded in in Goa in this period: the Seminario da Santa Fé, the College of St. Paul (Collegio de S. Paulo), the College and then Seminary of Chorão (Seminário de Chorão), and the House of Bom Jesus.[96]

But in the scholarship of the history of sciences too, in some way or another, Jesuit scientists are always tagged with a failing or deficit. The Italian Jesuit Matteo Ricci and the French Antoine Gaubil, both of whom lived in Beijing, were and as very important for the unfolding of the history of modern science in China but never good enough to belong to the pantheon of heroes of modern science.[97] In a similar vein, it has often been remarked that the French Jesuit astronomers in India never made the same grade as the Jesuit astronomers in China.[98] Thus, in this respect, Baldini also points out that until the seventeenth century, Jesuit contributions in China excelled over those in India.[99] This would begin to change after the middle of the seventeenth century. The important question Baldini poses is: "Why did the Jesuits until the mid XVIIth century at least consider mathematics as an essential missionary tool in China and not for India?" Did Matteo Ricci make all the difference or is the matter far more complicated?[100] Baldini identifies three factors to rationalise why Jesuits in China were more influential. Firstly, before 1650 CE Jesuits in China produced scientific works and translations of European works; Jesuits in India translated theological texts instead. Secondly, the science pursued in India was not particularly sophisticated when compared with that pursued by Jesuits in China. Thirdly, there was possibly a misapprehension among the Jesuits of the socio-cultural status

96 De Ataide, *Rachol*, 4.

97 Joseph Needham, *Chinese Astronomy and the Jesuit Mission: An Encounter of Cultures* (London: China Society, 1958).

98 S. M. Razaullah Ansari, "Introduction of Modern Western Astronomy in India during 18–19 Centuries," in *History of Astronomy in India*, ed. S. N. Sen and Kripa Shankar Shukla (New Delhi: Indian National Science Academy, 1985), 363–402.

99 Baldini, "The Jesuit Mathematicians in India," 278.

100 Baldini, "The Jesuit Mathematicians in India," 279.

of mathematics in India and China.[101] While Baldini may be right on the third count, I think we could turn his argument around and look into the late arrival of modern science in India with the Jesuits. Thus, from the beginning of the eighteenth century we encounter a number of astronomers and cartographers who networked with their Jesuit colleagues in China and the Académie des Sciences, Paris. The comparison itself is a misplaced one, and unfortunately Tiefenthaler's entry into the Indian subcontinent coincides with a period when the travails of the Jesuit order recommence in Europe and in the process the Jesuits in India could never provide a fitting riposte to the comparison.[102]

We certainly need to differentiate between two phases of Jesuit history in India, with the first phase extending from 1540 to the end of the Padroado and the second phase beginning after the Padroado.[103] It is during this latter phase that we begin to reckon with the connections between the Académie des Sciences, Gaubil in Beijing, and the Jesuit astronomers in India. By the 1720s and 1730s, the project extended beyond cartography into geology, and in and around the same time that Bavarian Jesuits such as Strobl and Gabelsberger were employed in Jai Singh's court. Tiefenthaler was also headed for the imperial court at Jaipur, but Jai Singh had passed on in 1743.[104]

The last couple of decades of the twentieth century witnessed radical revisioning in the writing of Jesuit history by Jesuit historians themselves, departing from the older "historiographic vitae" and "mission chronicles," offering instead voluminous documentation, "meticulous national histories of missions, and monographs recounting the histories of reputed Jesuit institutions and missions.[105] In South Asia, while some of these histories were compiled by Jesuit historians, the real beneficiary has been the genre of the history of education, even though these histories engage with institutions founded in the early nineteenth century. A trilemma has always confounded the study of Jesuit history in India and this has invariably been the problem of language. Any scholar requires a familiarity with at least three European languages and there are at least a dozen South Asian languages to contend with. The trilemma is a problem

101 Baldini, "The Jesuit Mathematicians in India," 279.

102 Sievernich, "Geographical Mapping of India."

103 Up until the middle of the seventeenth century, the Jesuit order in Europe was beholden to Portuguese royal patronage and its project of overseas expansion. With the falling fortunes of the Iberian empires in the second half of the seventeenth century, the French, Italian, and German Jesuits were dissociated from the Padroado.

104 Raina, "Circulation and Cosmopolitanism," 319.

105 Županov, *Missionary Tropics*, 2.

of positioning or location: should one approach the archive from the perspective of European studies, missionology, or Indology?[106] The problem arises because none of these three modes of scholarship is pure or distinguishable from the other ones, such that the analyst can assume any one methodological identity. What is needed is a deeper attention to the embedding of these three distinct modes.

Županov's important work recognises another variant of Eurocentrism playing itself out, which she characterises as the "concrete line that divides Jesuit history into European and non-European." As she writes, "European mainstream historiography increasingly celebrates its own tradition and achievements, both as historiography and history. […] In this scheme of things, Rome become the center of calculation, while the rest of the Jesuit world was a series of peripheral laboratories."[107] We have here a very faithful analogy of the diffusionist models of the expansion of the dominion of European science, much popularised in the 1950s and 1960s by George Basalla and others, that framed the knowledge produced in the colonised world as colonial knowledge and colonial science, which was in effect a lower kind of science, wherein the task of theoretical synthesis was performed in Europe.[108] The analogy is sustained since the Jesuits I discuss traded not merely in the currency of Catholicism but equally in the world of scientific ideas and inaugurated a kind of cultural discourse of wider provenance.

If decentring the European Jesuit missions is one of Županov's strategies of interrogating Eurocentrism, the other historiographical bulwarks she runs into are European claims to early modernity as having been triggered by Jesuit proto-scientific practice in South Asia. Rather than provincialising Europe, she prefers to detail several synchronous polycentric planes where "different cultural and geographical sites gain importance and visibility."[109] In early modern Europe, the organisation of intellectual labour was marked by several hierarchies. There existed a *scientia superior* or "higher knowledge" that incorporated liberal knowledge, including a knowledge of Greek and Latin and involved book learning. This high-status knowledge further included quantitative knowledge. This was contrasted with a *scientia inferior* or a "lower knowledge," which referred to the "useful knowledge" possessed by

106 Županov, *Missionary Tropics*, 4–5.

107 Županov, *Missionary Tropics*, 3.

108 George Basalla, *The Rise of Modern Science: External or Internal Factors?* (Lexington: D. C. Heath, 1968).

109 Županov, *Missionary Tropics*, 4.

tradesmen and craftsmen that involved a knowledge of the processes of production. This knowledge of things was a qualitative knowledge.[110]

The metaphor employed to designate knowledge systems was the tree of knowledge, and by the late sixteenth century this image indicated "the naturalization of the conventional or the presentation of culture as if it were nature, invention as if it were discovery."[111] Now knowledge was central to the strategy of conversion as perceived by Francis Xavier. The imaginary was of the world as a library of dead books (already written) and living books. The Jesuit scholar was instructed by the dead books but his task was not just to be an observer of the living ones but to enrich the library of the world. Thus, in Xavier's eyes, the relationship between mission and knowledge was a dialectical and complementary one.[112]

However, there was always a tension within the mission between knowledge and belief. From the perspective of the mission, time devoted to the pursuit of knowledge was time lost out on evangelical activity. When looked at externally, knowledge that the Church had judged useful for the mission acquired an autonomy and momentum that was at times edifying but sometimes threatening for the Church. The cosmologies and chronologies of India and China travestied both the Christian conception of time and Aristotelian anthropology.[113] The important point worth noting is that missionary knowledge was by definition institutional knowledge, in terms of institutional practices of knowledge production that included protocols relating to the validation, organisation, systematisation, and dissemination (of knowledge). *The stabilisation of these protocols of validation and systematisation against an organisational background became a characteristic of these overseas Jesuit academies*. The missionary was always the emissary of either a church or secular authority—the Pope, superior, king (including Jai Singh in India or the Kangxi emperor). The finality of Jesuit knowledge was that it was more often than not anonymous, subject to rewriting and censorship, and was the property of the Society.[114]

110 Burke, *A Social History of Knowledge*, 84–85.

111 Burke, *A Social History of Knowledge*, 86.

112 De Castelnau-L'Estoile et al., "Introduction," 1.

113 Sylvia Murr, "Les conditions d'émergence du discours sur l'Inde au siècle des lumières." *Puruṣārtha* 7 (1983): 233–284.

114 De Castelnau-L'Estoile et al., "Introduction," 6.

The Jesuit order in India: French Jesuits and the linkages with the Académie des Sciences

Interestingly enough, the rise of the phenomenon of Jesuit sciences in Europe is concurrent with the expansion of the dominion of the sciences. The flowering of the Jesuit sciences in Europe more or less coincides with Jesuit interests in the Americas, India, and China. However, distinctions arise due to the varied foci of research of distinct research communities. On the one hand, Jesuit scholars who have produced histories of their order in India have tended to focus their attention on the development and evolution of the rich Jesuit expertise on the languages of South Asia and the elaboration of Jesuit philology.[115] On the other hand, secular scholars have been more concerned with their activity in the natural sciences, medicine, mathematics, and cartography.[116] More recently, their contributions to the human and social sciences have also begun to attract attention. In his paper on the history of the society in India, Correia-Afonso recognises the appearance of the Society in the modern age and its expansion to the four corners of the earth, but most importantly the role of its members as "protagonists in the cultural meeting of East and West"—since it signals the prehistory of Orientalism and the role of the Jesuits in that intellectual movement.[117]

The ties between Jesuit Orientalist production, a minor variant of Catholic Orientalism, and the latter are indeed significant.[118] This significance does not merely bear upon the idea of who knew whom, who read whom, but also upon the influence of the significant *problématiques* and the role of the individuals who developed professional Indology. For example, the influence of Jesuit proto-ethnography on the Indology of William Jones and the histories of science associated with

115 See section III, chapters 12 to 18 in Amaladas, ed., *Jesuit Presence in Indian History*, 169–297, entitled "Jesuit Presence in Arts and Sciences."

116 Amaladass, ed., *Jesuit Presence in Indian History*; Baldini, "The Jesuit Mathematicians in India"; Boxer, *Two Pioneers of Tropical Medicine*; Clooney, *Fr. Bouchet's India*; Figueiredo, "Ayurvedic Medicine in Goa"; Eric G. Forbes, "The European Astronomical Tradition: Its Transmission into India, and Its Reception by Sawai Jai Singh II," *Indian Journal of History of Science* 17, no. 2 (1982): 234–243; Murr, *L'indologie du Père Cœurdoux*; Raina, "Becoming All things to All"; Sharma, "The Impact of the Eighteenth Century Jesuit Astronomers on the Astronomy of India and China"; Sievernich, "Geographical Mapping of India"; Velinkar, "Jesuit Education and Inculturation in Sixteenth Century Goa"; Županov, *Disputed Mission*; Županov, *Missionary Tropics*.

117 Correia-Afonso, "A History of the Society of Jesus in India," 3.

118 Jean Filliozat, "L'Orientalisme et Les Sciences Humaines," *Extrait Du Bulletin de La Société Des Études Indochinoises* 26, no. 4 (1951): 561–574; Jean Filliozat, "La naissance et l'essor de l'indianisme," in *Laghu-Prabandah: Choix d'articles d'Indologie*, ed. Jean Filliozat (Leiden: Brill, 1974), 265–295.

the French enlightenment have been pointed out elsewhere.[119] The impact of Jesuit ethnography of India and China and elsewhere needs to be situated as an early-modern global phenomena that Bareto and Županov have labelled Catholic Orientalism,[120] defined as a

> set of knowledge practices geared to perpetuate political and cultural fantasies of the early modern Catholic protagonists and communities is what we call Catholic Orientalism […] an integral part of the Portuguese imperial information order [… that] refers both to the knowledge practices and the archives [… it] nourished and merged into other and later orientalisms and scholarly disciplines.[121]

But this indebtedness of the global academy to Jesuit cultural production from the sixteenth to the eighteenth centuries was not restricted to the discourses of Orientalism or Indology but covered the sciences of the Age of Discovery, such as geology and cartography, and the monographs of the German Jesuit Tiefenthaler mark the end of this phase in the history of what could be referred to as the "itinerant Jesuit Orientalist academy." The legendary French Indianiste Anquetil Duperon and one of the members of the Swiss family Bernoulli were independently responsible for the publication of Tiefenthaler's work in France and Germany. In either case, the works were published in the journals of learned academies and societies, such as the *Papers of the Royal Prussian Academy of Sciences* and the *Journal des scavans*.

The itinerant Jesuit academy

My concern has been with reading the scientific reports and letters produced by French Jesuit missionaries stationed on the Indian Peninsula. European Jesuits from the sixteenth and seventeenth centuries onwards were easily "the most mobile and literate religious specialists" around at the time. And time and time again, studies of their cultural production have had as much to focus upon their cultural cartography, which in other

119 Dhruv Raina, "Science East and West," in *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, ed. Helaine Selin (Berlin: Springer, 2008), 1934–1944; Dhruv Raina, "The French Jesuit Manuscripts on Indian Astronomy: The Narratology and Mystery Surrounding a Late Seventeenth – Early Eighteenth Century Project," in *Looking at It from Asia: The Processes That Shaped the Sources of History of Science*, ed. Florence Bretelle-Establet (Dordrecht: Springer, 2010), 115–140.

120 Ângela Barreto Xavier and Ines G. Županov, *Catholic Orientalism: Portuguese Empire, Indian Knowledge 16th–18th Centuries* (New Delhi: Oxford University Press, 2015).

121 Barreto Xavier and Županov, *Catholic Orientalism*, xxi.

words entails detailing their cultural itineraries.[122] This is a world where not just knowledge but people involved are perpetually on the move. The crux of my argument is that the Jesuit savants in South Asia were members of a virtual itinerant academy of Orientalism, writing for each other and European audiences, cognisant of the literary technologies and narratology that would frame these accounts.[123] Županov constructs a space she calls the "Missionary Tropics," where Tropic connotes both a geographical region—India and the Indian Ocean—and an institutional space "in which texts about India bring home to Europe a sense, sensibility, and knowledge of what lies out there."[124] In other words, this space is a deeply textual one, wherein Jesuit savants are writing not just for each other in prescribed literary technologies and framing their narratives in prescribed formats—the Jesuit narratology—but equally for diverse audiences in Europe, informing them of what lies beyond, on the other side of Europe and their world.[125] Thus, in this metaphorical tropic our itinerant Jesuit academy is a place where ideas travel to and fro, circulating "from one part of the globe to another and back with unprecedented speed and unrecognisable consequences."[126]

The simultaneous internationalisation and indigenisation of itinerant Jesuit academies and the connectivities established with networks of secular knowledge production—for example, the Académie des Sciences in Paris—brought to these networks a new cogency, little recognised in the inauguration of *le discours sur l'Inde*, that pre-shadowed the emergence of professional Indology, *indianisme*, or the Orientalism of South Asia.[127] In the sixteenth and seventeenth centuries, the itinerant academy turned to the Collegio Romano more for adjudication on ecclesiastical matters, such as the famous Malabar rites controversy that raged wherever the Jesuits implemented *accommodatio*.[128] The process of theological accommodation produced a tropical Catholicism. In the first instance,

122 Županov, *Missionary Tropics*, 2.

123 Raina, "The French Jesuit Manuscripts on Indian Astronomy."

124 Županov, *Missionary Tropics*, 1.

125 Raina, "The French Jesuit Manuscripts on Indian Astronomy."

126 Županov, *Missionary Tropics*, 1.

127 Murr, *L'indologie du Père Cœurdoux*.

128 Catholic thinkers and theologians in the early seventeenth century developed a "politically loaded concept" of inculturation, whose function, according to Roberto de Nobili in India and Ricci in China, was to clothe Christian ideas in local colours. This required scholarly engagement with "local religions and literary traditions," so as to develop a blueprint for the indigenisation of the Church. See Županov, *Missionary Tropics*, 23.

the climate was seen as an obstacle to conversion, for it apparently provided a fertile ground for a flourishing idolatry. Secondly, the path to moderating the effects of the hot tropics was by getting to understand the natural environment and the social and cultural relations with the environment.[129] The way to *accommodatio* was paved by the acquisition of knowledge about the tropical world. But this process in turn, as mentioned above, generated severe tensions in global and local missionary strategies.[130] The question that arises then is how does the expansion of the horizons of the history of knowledge reframe older epistemological concerns around the historical phenomena of cultural encounter?[131] Another question that still needs posing is how did the "other" Jesuit ways of knowing and doing science address the issue of the plurality of indigenous knowledge(s)?[132]

There were several moments in the Jesuit engagement with local religions. The first goes back to the seventeenth century where they discovered something they called "Hinduism." During this phase, they consciously sought informers "to examine systematically" the esoteric "aspects of the religion of the Brahmans, by reading, translating and summarizing literature in South Indian languages."[133] This network of scholars included Jacomé Fenicio, Diego Gonçalves, Roberto Nobili, his opponent Gonçalo Trancoso, and Antonio Rubino.[134] In the *Provinciae Indiae Orientalis* published in 1584, Fenicio is mentioned as a twenty-six-year-old Capuan, having been trained in philosophy and theology and with a discerning intellect. He produced a book that he considered "the first book of the Sect of Oriental Indianas, principally the Malabars"; and since there is no strong assertion of authorship it has been inferred that it was meant to be a missionary text for "collective use, whereby novices could be introduced to non-Christian local "cosmogony, theology and tradition." Similarly, Diego Gonçalves published a *História do Malabar* in 1615.

129 Županov, *Missionary Tropics*, 26.

130 Županov, *Missionary Tropics*, 43.

131 *Accommodatio* as practiced by Ricci in China, and Nobili and Joao de Britto in Madurai, involved translating the opposition between European and Indian into one between elite and the popular, see Rubiés, "Reassessing 'the Discovery of Hinduism,'" 127. In the epilogue to her book *Missionary Tropics*, Županov discusses Pedro Luís Bramane, a Malabar Jesuit priest whose life and work spanned the sixteenth century, and in whom the encounter of two cultures is most evident: "the karaṇam culture of the Indian elite and the elitist European culture," see Županov, *Missionary Tropics*, 259.

132 De Castelnau-L'Estoile et al., "Introduction," 5.

133 Rubiés, "Reassessing 'the Discovery of Hinduism,'" 123.

134 Rubiés, "Reassessing 'the Discovery of Hinduism,'" 123.

The latter went beyond Fenicio's theological quest and explored the origins of political and social structure.[135]

The texts produced by these Jesuits in the first half of the seventeenth century were internally circulated in manuscript form so as to inform polemical refutations and circumscribe the "limits of accommodation to Hindu customs." One of the works published in 1609 by Jacomé Fenicio, entitled *Livro de Seite dos Índios Orientais*, found a place in the European Republic of Letters.[136] The work was generally condemnatory of Hindu custom and ritual, but contained a summary of the two great epics taken from the Malayalam versions. The second moment in the history of Jesuit Indology coincides with the rise of both "religious heterodoxy and free thinking in Europe." This process commenced in the middle of the seventeenth century.[137] For example, Athanasius Kircher, author of *China Illustrata*, published in Amsterdam, was in conversation with Heinrich Roth, a Sanskrit-speaking Jesuit stationed in Agra, about the languages and doctrines of the peoples of India. These exchanges and monographs established the presence of Jesuits as learned Orientalists in the Republic of Letters.[138] Thus, Abraham Rogerius's monograph, first published in Dutch in 1651 and later translated into French as *La porte ouverte pour parvenir à la connaissance du paganisme caché*, for the first time possibly stressed the important role of nature in the study of religious doctrines. Later French travellers such as François Bernier relied heavily upon Jesuits such as Roth.[139]

Jesuit translation activity from and into the vernacular was an essential prerequisite element of this strategy. The framework of conversion and translation from Portuguese or Italian or French into Tamil and other South Asian languages resulted in the creation of a contested space of "cultural transference." The displacement that was an outcome of the metaphorical and semantic moves guiding this process of translation had an air of immense intractability.[140] By the middle of the seventeenth century, one of the many outposts of Lusophony in South Asia slipped out of the Padroado. By the end of the century, both the empire and the language had declined.[141]

135 All from Županov, *Missionary Tropics*, 175.

136 Rubiés, "Reassessing 'the Discovery of Hinduism,'" 123.

137 Rubiés, "Reassessing 'the Discovery of Hinduism,'" 125.

138 Rubiés, "Reassessing 'the Discovery of Hinduism,'" 126.

139 Rubiés, "Reassessing 'the Discovery of Hinduism,'" 126–127.

140 Županov, *Missionary Tropics*, 234.

141 Županov, *Missionary Tropics*, 235.

The decline of the Iberian empires in the seventeenth century was more or less concurrent with the rise of French power overseas, as it became an increasingly important player in the expansion of Catholicism.[142] By the end of the seventeenth century, the Portuguese material and political presence in Asia and India had dissolved, but the knowledge accumulated during this presence came to be integrated into other political formations. Catholic Orientalism was "built into knowledge practices of the early European colonial powers settled in India from the late seventeenth century," all the way to the British.[143]

But in the world of secular learning, the Jesuits moved closer to the humanist and science academies.[144] The Jesuit astronomers stationed in Beijing, or those itinerant astronomers travelling between Chandernagore, Pondicherry, and Jaipur were incorporated into networks of experimental observation coordinated from the Paris observatory by Cassini in the last decades of the seventeenth century to those of De Lisle developing new ways to determine the velocity of light.[145] The problems varied from decade to decade; the networks remained in operation until the transit of the Venus expedition of 1761, headed by Le Gentil.[146]

It would be rather naive to assume that the literary technologies did not evolve or change over a period of about two hundred and twenty years or that the Jesuits did not improvise given that they had been relocated in such diverse cultural contexts—but it would be safe to suggest that the cosmography of the sixteenth and seventeenth century began to dovetail with the lines of the new disciplinary specialties that were emerging and in which the Jesuits were active participants.

The work of historians of science on Jesuit encounters with local traditions of mathematics and astronomy in China and India is not frameable in terms of the science–non-science dichotomy, but is as much about the diverse spaces of scientific discourse, of institutions devoted to the cultivation and validation of knowledge, as it is about the larger political context of knowledge production and dissemination.[147] The Jesuit Orientalists participating in the Republic of Letters were initially stationed in China,

142 See Sanjay Subrahmanyam, *The Portuguese Empire in Asia, 1500–1700: A Political and Economic History* (Chichester: Wiley Blackwell, 2012).

143 Barreto Xavier and Županov, *Catholic Orientalism*, xxii.

144 Raina, "Betwixt Jesuit and Enlightenment Historiography."

145 Raina, "Circulation and Cosmopolitanism," 317–319.

146 Dhruv Raina "Le Gentil's Voyage: Addressing Disruptions in the Narrative of Scientific Progress," in *Variantology V. Neapolitan Affairs: On Deep Time Relations of Arts, Sciences and Technologies*, ed. Siegfried Zielinski and Eckhard Fürlus (Cologne: Walter König, 2011), 385–397.

147 De Castelnau-L'Estoile et al., "Introduction," 6.

something that retained a pride of place in the Republic. But from the 1680s, following the expulsion of the French Jesuits from Siam and their arrival in Pondicherry, the India mission also gained in importance.[148]

The itinerant Jesuit academies, ensconced within the Jesuit missions, were part of global networks of scholars held together by the pursuit of knowledge and ambitions characterising the modern era. There were rivalries between different missionary denominations, since they were supported by four different political actors—the Portuguese Padroado, the Spanish Pationato, the Propaganda Fide, and the French crown. Despite these rivalries, they shared the same goals of propagating Catholicism as the *religion planétaire*. At the core of this space extending to the four corners of the globe was a dense network of information—a missionary information order, sustained by these itinerant Jesuit academies. The Jesuit mission and academy constituted a global transcultural institution characterised by linguistic, sociological, and geographical diversity, marked as much by the several methods and litanies of evangelisation.[149] As has happened in the history of sciences, the next stage in the history of the itinerant Jesuit academy would involve rendering visible the Jesuit converts from the first three centuries of Jesuit history—Padre Manoe de Sao Pedro, Maridas Poule, Luis Bromans, etc. But that is another task.

The Italian and French Jesuits who landed in India in the seventeenth and eighteenth centuries were an itinerant bunch and few of them, if any, were attached to any one college or seminary for the entirety of their careers. None of them had anything to do with the Collegio Romano, though as scholars all of them were most certainly aware of its existence and importance. All of them died in India and were buried in the premises of the college or seminary where they were last located for the performance of their teaching, evangelical, and research functions. But, as an itinerant network of scholars, their scholarly production was not necessarily connected with any of the colleges they were associated with, but was knowledge produced on the move, as itinerant as they were. In other words, they were members of a virtual academy and their readership was global in a limited sense of the term—meaning it extended across the globe, but in numbers it was certainly wanting for the times.

As teachers at a college they belonged to an academy inasmuch as they delivered a single lecture or a set of lectures on a single topic or a very specific theme. As researchers with extra-mural and extra-denominational knowledge interests, they also belonged to a "post-university"

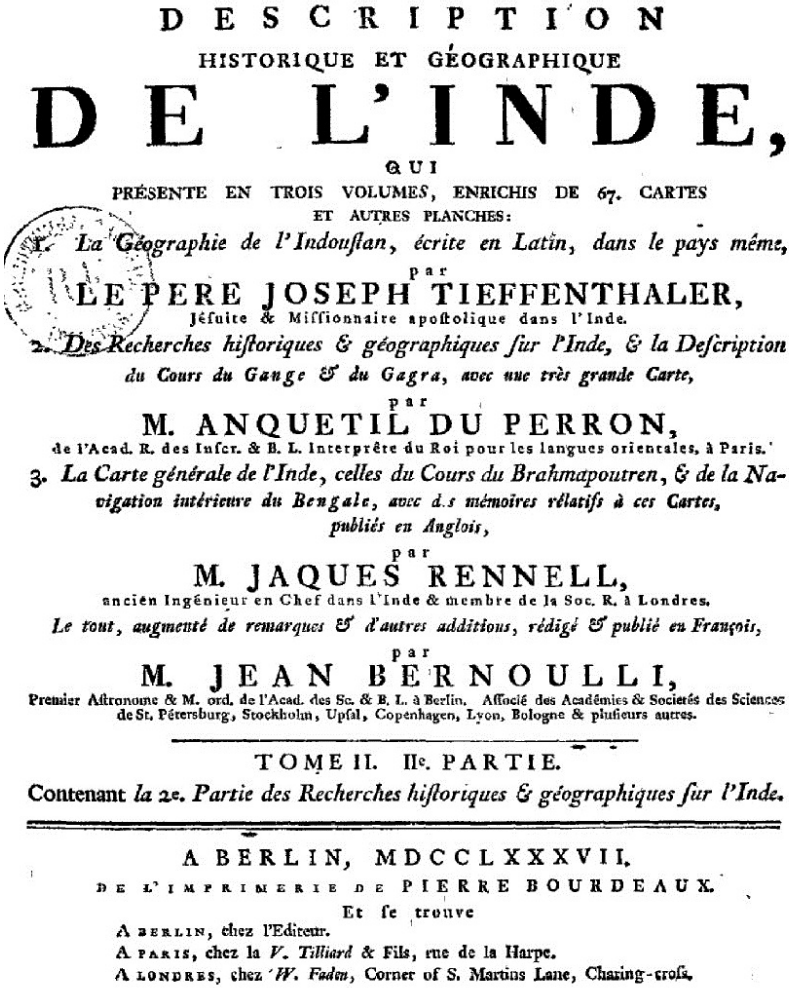
148 Rubiés, "Reassessing 'the Discovery of Hinduism,'" 127.

149 De Castelnau-L'Estoile et al., "Introduction," 8.

extra-scholastic group dedicated to intellectual and cultural activity. Their membership in a virtual academy was embedded in the recognition that they pursued subjects of study that had not yet been drawn into regular instruction within the university or college. In that sense, it entailed the pursuit, cultivation, and instruction of advanced knowledge by a group within a higher scholarly institution—in fact, this widely dispersed group of scholars themselves comprised the scholastic institution itself.[150] Missionary knowledge was knowledge recognised by and imparted during the modern epoch. This knowledge produced by the missionaries located overseas was incorporated into contemporaneous scientific models developed in Europe, even while other kinds of knowledge were erased.

150 Baldini, "The Academy of Mathematics," 49.

Appendix: The cover of the work of Joseph Tieffenthaler.



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