
S

Scientific Academies

Giulia Giannini

Max-Planck-Institut für Wissenschaftsgeschichte
(Berlin), Berlin, Germany

Abstract

The first Renaissance academies developed around the middle of the fifteenth century and had a primarily encyclopedic character. The main trait of the knowledge cultivated in their first phase was the revival of the classical culture. On the one hand they, fostered a renewed interest especially in Platonic philosophy, and on the other hand they cultivated the dream of a somewhat all-embracing knowledge.

Vernacular literature, liberal arts, music, mathematics, and the study of nature were all parts, within the fifteenth to sixteenth-century academies, of a wider landscape of interests.

It is exactly this tension and strife towards a unifying and organic picture of knowledge that threatens any attempt at formulating a classification of themes and contents that were addresses by the first renaissance academies.

The question of the scientific academy in the Renaissance should thus be posed and defined considering on the one hand the relation with the wider academic phenomenology and on the other hand with the birth and rise of the “new science,” in particular when it comes to the very

process that science underwent in order to be autonomous from an organic and homogeneous view of knowledge, a view that was exactly the hallmark of that model in which the academies were born.

The expression “scientific academies” traditionally refers to those state-supported learned societies that, from the second half of the seventeenth century, carried out collective, experimental research and were regulated by a system of norms or by a formal charter. The emergence of academies such as the *Royal Society* in London (1660), the *Académie Royale des Sciences* in Paris (1666), or the *Kurfürstlich Brandenburgische Societät der Wissenschaften* in Berlin (1700) is closely connected with a progressive specialization of the different types of learning that was largely foreign to the Renaissance conceptions of knowledge. And yet, it is precisely during the Renaissance that the Academy model developed and spread.

Starting especially with the groups that originated c. 1440 around renowned humanists such as Ottaviano Rinuccini and Marsilio Ficino (► [Ficino](#), [Marsilio](#)) in Florence or Pomponio Leto and Cardinal Bessarione (► [Bessarion](#), [Basil Cardinal](#)) in Rome, hundreds of various types of academies flourished and thrived throughout the Renaissance (► [Academies](#)). Many such learned societies entertained close

connections with the courts, with their dynamics, and with the unstable political and dynastic lives of the *signorie*; and all of them depended on the initiative and the patronage of a prince or an aristocrat to survive. For this reason, academies were not only numerous, but also quite ephemeral, often lacking a structure and a defined program.

An almost exclusively Italian phenomenon, Renaissance academies are de facto a product of humanistic culture, of aristocratic patronage, and of the polycentric cultural life of the time in Italy.

The first scientific academies were born in this context and represent, at least at the beginning, a variation on the humanistic academies of the Renaissance.

In his monumental *Storia delle accademie d'Italia* (5 vol., Bologna, 1926–1930), Michele Maylender identifies the Accademia dei Fenici, founded in Milan around 1550, as the first “scientific” academy. The activities carried out by this academy are documented, according to Maylender, in Book I of Bartolomeo Taegio’s *Il Liceo* (Milan, 1571), which discusses “the order of the Academies and the Nobility.” The encyclopedic program described by Taegio is structured around ten monthly meetings or congregations, each devoted to a different subject and entirely carried out in the vernacular: dialectic, rhetoric, poetry, natural philosophy, metaphysics, arithmetic, moral philosophy, household and state government, and reading of academic works. Although it is difficult to determine whether Taegio is actually referring to the Accademia dei Fenici, the program of activities described in *Il Liceo* appears to provide a faithful picture of the relationships between science and the academies around the mid-sixteenth century.

Signs of interests that nowadays would be defined as scientific are also found in other “mixed” academies of the time, such as the Accademia degli Infiammati in Padua (1540–1550), the Accademia Fiorentina (Florence, 1541), the Accademia degli Affidati in Pavia (1562), or the Accademia degli Unanimi in Salò (1564). Among their activities are topics connected with arithmetic, cosmography, geometry, or philosophy of nature, which in turn

entertain an organic relationship with more classical forms of learning. Only from the mid-sixteenth century do academies begin to focus on specific disciplines and thus evolve into increasingly more formalized and structured institutions. This process began with literary academies and later developed among scientific institutions – not only were the latter significantly fewer than the former but at least until the end of the seventeenth century they often lacked an organized structure and a program.

The academies devoted to figurative arts and drawing are in this respect an exception. Besides being considered among the most specialized scientific academies, they were also some of the most regulated and institutionalized ones. The year 1563 marked the foundation of the Accademia delle Arti del Disegno in Florence, under the influence of Giorgio Vasari (► [Vasari, Giorgio](#)). The academy’s main purpose was to foster collaboration between artists, and from 1569 it also officially included mathematics, anatomy, and perspective among its fields of study.

The belief that mathematical sciences played a fundamental role in the new political and military organization of the state brought Cosimo I to create one of the first academies endowed with a legal status and financed by the state. Like the *Académie Royale de Peinture et de Sculpture* – founded in France in 1648 and reorganized by Louis XIV in 1661 – the Florentine academy of drawing had a formal charter, was directly supported by the king and, more importantly, included teaching among its activities, something that academies both in the Renaissance and in modern times did not normally offer.

On the other hand, information regarding the academies devoted to the study of nature is very scarce at least until the Lincean experience.

In the proem to his *Secreti nuovi di maravigliosa virtù* (Venice 1567), Girolamo Ruscelli (c. 1518–1566) describes an academy “kept and called *secreta*” that he helped to establish in Naples. With the exception of his statements, there is no evidence that the *Accademia Segreta* ever existed but it was probably founded

in the early 1640s when Ruscelli moved to Naples. According to Ruscelli, the aim of the academy was “to make the most diligent inquiries and, as it were, a true anatomy of the things and operations of Nature itself.” Even though the activity of Ruscelli’s group was meant to be kept secret, the members devoted themselves “equally to the benefit of the world in general and in particular, by reducing to certainty and true knowledge so many most useful and important secrets of all kinds for all sorts of people, be they rich or poor, learned or ignorant, male or female, young or old.” The *Secreti nuovi* contains 1,245 recipes that Ruscelli claims were only a fraction of the “experiments” carried out within the academy. Most of them dealt with medicine, the others ranged from alchemical processes and cosmetics to various technical recipes.

A similar academy, the *Accademia Secretorium Naturae*, was founded by Giambattista della Porta (► [della Porta, Giambattista](#)) at his home in Naples in the 1650s. As William Eamon pointed out, “the nearly identical names of the two academies, their proximity in time and place, and the similarity of their experimental methodologies, was surely no coincidence.” Della Porta only mentioned the academy in the preface to the second edition of his *Magia Naturalis* (1589), which largely consists of a vast collection of recipes and experiments ranging from medicine to optics, from crafts to distillation. At least two artisans, the distiller Giambattista Melfi and the herbalist Flavio Giordano, were involved in the academy’s activity. Nevertheless, not much is known about the *Accademia dei Segreti*, probably also because of Della Porta’s concerns with secrecy.

Mainly inspired by Della Porta’s work as well as by Paracelsian philosophy and by the encyclopedism of the late sixteenth century is the foundation of what is probably the most renowned scientific academy of the Renaissance, the *Accademia dei Lincei*. The academy was created in Rome in 1603 by the young nobleman Federico Cesi (► [Cesi, Federico](#)) with the help of the mathematician Francesco Stelluti, of the Dutch physician Johannes van Heeck, and of his relative Count Anastasio De Filiis, a scholar in

mechanics. Not unlike many other Renaissance academies, the Linceans had an emblem (the lynx) and a motto (*Sagacius ista*). A set of rules similar to those found in religious or chivalric orders defined the selection criteria for new applicants as well as the ideals and lifestyle to which the members would have to conform.

The *Lynceographum* (2001), which Cesi began in 1605, regulated every aspect of the Linceans’ life and called for a radical reform of learning and customs. The academy was initially designed as a sort of lay confraternity in which scientific activity was driven by religious enthusiasm. Every work published by one of its members had to display the title “Lincean” next to the name of the author; moreover, members were forbidden to belong to any religious order and to discuss matters connected with politics or religion. Cesi put forward a model of knowledge in which a disinterested form of knowledge contrasted with the “bookish” learning of the schools as well as with courtly worldliness. In his project, explained in the *Discorso del natural desiderio di sapere* (1616), the study of nature is articulated into observation and experimentation. However, this emphasis on the value of direct observation of nature and of experimental practice, which became even stronger in 1611 when Galileo joined the academy, was often relegated to a theoretical level rather than being adopted as a real research model. The academy was in fact more an ideal community of scholars than a place for regular meetings. The exchange between members mainly took place in written form, through their correspondence, and the irregular academic sessions took mostly the shape of “lectures,” presentations of new works, discussions, and speeches. The Lincean experience, which ceased to exist after Cesi’s death in 1630, was therefore essentially another expression of the traditional communicative patterns of the Renaissance academic model.

Throughout the Renaissance, observation and experiments remained mostly a moment of private investigation that did not belong to the academic sessions in which the results were presented and discussed. It is only around the second half of the seventeenth century that

academies finally leave behind the project of an all-encompassing type of learning and the model of erudite conversation and become a place in which experiments are designed, refined, and then communicated through the means of a printed publication.

The Accademia del Cimento, founded in Florence in 1657 by Prince Leopoldo de Medici, is probably the first academy of this kind, though it lacked a formal charter and official rules. The experience of this academy, followed by the long lasting and more renowned ones of the Royal Society in London (1662) and of the Académie Royale des Sciences in Paris (1666), opened a new institutional phase. Academies thus ceased to be an almost exclusively Italian phenomenon and gradually became a locus of production and dissemination of technical and scientific learning, thus also opening up to new knowledge challenges and institutional forms.

References

Primary Literature

- Cesi, Federico. 2001. *Lynceographum: quo norma studiosae vitae Lynceorum philosophorum exponitur*, ed. A. Nicolò. Roma: Accademia Nazionale dei Lincei.
- Cesi, Federico. 1616. *Discorso del natural desiderio di sapere*. In *Opere scelte*, eds. C. Vinti and A. Allegra. Perugia: Fabrizio Fabbri Editore. 2003.
- Della Porta, Giambattista. 1589. *Magia Naturalis*, 2nd ed. Naples: Horatius Salviannus.
- Ruscelli, Girolamo. 1567. *Secreti nuovi di maravigliosa virtù*. Venice: eredi di Marchiò Sessa.
- Taegio, Bartolomeno. 1571. *Il Liceo*. Milan: Appresso Pietro & Francesco Tini.

Secondary Literature

- Biagioli, Mario. 1996. Etiquette, interdependence, and sociability in seventeenth-century science. *Critical Inquiry* 22(2): 193–238.
- Bohem, Letizia, and Ezio Raimondi (eds.). 1981. *Università, Accademie e Società Scientifiche in Italia e*

- in Germania dal Cinquecento al Settecento*. Bologna: Il Mulino.
- Boschiero, Luciano. 2007. *Experiment and natural philosophy in seventeenth-century Tuscany. The history of the Accademia del Cimento*. Dordrecht: Springer.
- Brown, Harcourt. 1967. *Scientific organizations in seventeenth-century France, 1620–1689*. New York: Russell & Russell. (1. ed.: The Williams and Wilkins Company, Baltimore 1934).
- Burke, Peter. 1986. *The Italian renaissance: Culture and society in Italy*. Princeton: Princeton University Press.
- Cochrane, E. (ed.). 1970. *The Late Italian renaissance, 1525–1630*. London: Macmillan.
- Eamon, William. 1996. *Science and the secrets of nature: Books of secrets in medieval and early modern culture*. Princeton: Princeton University Press.
- Eamon, William, and Paheau Françoise. 1984. The Accademia Segreta of Girolamo Ruscelli: A sixteenth-century Italian scientific society. *Isis* 75(2): 327–342.
- Galluzzi, Paolo. 2014. *Libertà di filosofare in Naturalibus. I mondi paralleli di Cesi e Galileo*. Rome: Accademia Nazionale dei Lincei.
- Garin, Eugenio. 1992. Fra ‘500 e ‘600: scienze nuove, meodi nuovi, nuove accademie. In *L’Accademia dei Lincei e la cultura europea nel XVII secolo: manoscritti, libri, incisioni, strumenti scientifici*, ed. A.M. Capecchi, C. Forni Montagna, and P. Galluzzi. Roma: Accademia Nazionale dei Lincei.
- Hall, Marie Boas. 1962. *The scientific renaissance, 1450–1630*. New York: Harper Torchbooks.
- Maylender, Michele. 1926–1930. *Storia delle accademie d’Italia*, vol. 5. Bologna: Cappelli.
- McClellan, James E. 1985. *Science reorganized: Scientific societies in the eighteenth century*, Ch. II: “Origins: Scientific societies in the seventeenth century”, 41–66. New York: Columbia University Press.
- McNeely, Ian F. 2009. The renaissance academies between science and the humanities. *Configurations* 17(3): 227–258.
- Middleton, Knowles W.E. 1971. *The experimenters: A study of the Accademia del Cimento*. Baltimore/London: John Hopkins Press.
- Moran, Bruce T. (ed.). 1991. *Patronage and institutions: Science, technology, and medicine at the European court*. Rochester: Boydell.
- Rossi, Paolo. 1988. Le istituzioni e le immagini della scienza. In *Storia della scienza moderna e contemporanea*, ed. Paolo Rossi. Turin: UTET. 5 v.; v. I.
- Waźbiński, Zygmunt. 1987. *L’Accademia medicea del disegno a Firenze nel Cinquecento*. Florence: L.S. Olschki.