

Scholars and Literati at the Academy of the Ricovrati (1599–1800)

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This note is a summary description of the set of scholars and literati who were members or associates of the Academy of the Ricovrati from its inception in 1599 to the eve of the Industrial Revolution (1800).

1 THE ACADEMY

The *Accademia dei Ricovrati*, re-named *Accademia Galileiana di scienze, lettere ed arti* was founded in Padua in 1599 on the initiative of a Venetian bishop, Federico Cornaro. He started the Academy in his home, with the intention of promoting the humanities and science. The term Ricovrati ("brought to safety") referred to the Homeric cave of the Naiads (song 13 of the *Odyssey*) which, had two entrances shaded by an olive tree, one for human beings and the other for the gods. The motto of the Ricovrati is taken from a verse of Boethius "bipatens animis asyllum" ("two-gate refuge for souls"). Galileo Galilei was a founding member of the Academy.

2 SOURCES

"I soci dell'Accademia patavina dalla sua fondazione (1599)" (1983) by Paolo Maggiolo is the most complete source of names and brief biographies of all of the members of the Academy of the Ricovrati from its foundation until about 1980. We drew additional information from *Database of Italian Academies* and the Academy's website (Academy of the Ricovrati 2021). For the section on censorship, we also used De Bujanda and Richter (2002), which is a catalogue of all the publications included in the Roman Index of forbidden books (*Index Librorum Prohibitorum*) from 1600 until 1966. These books and their indexing date are listed alphabetically by author name. Our final source is De Bujanda et al.(1996), which covers the publications that were forbidden in the 16th century.

3 SOME STATISTICS

Table 1 shows some descriptive statistics. There are 1878 scholars and literati, making the Academy of the Ricovrati just slightly smaller than the Royal Society of London. We know the year of birth for 51.7% of them, meaning that we can compute age at nomination and at death for a large sample of the members. The mean age at nomination is 37.7 years. Longevity (mean age at death and life expectancy at age 30) shows a similar pattern to the universities of Padua and Bologna, where longevity improved in the last two periods, in accordance with the literature on the historical life expectancy of elites (Stelter, De la Croix, and Myrskylä 2021). The birth place is known for 87.9% of the people. The median distance between birth place and Padua is 37km, showing that a majority of the members were born in the region of Padua. Finally, 19.9% of the scholars have a Wikipedia page (in some language), which is a relatively high number, and 37.6% of them have left a footprint in the catalogues of the libraries of the world, Worldcat.

Period		nb.	% birth year	mean age	mean age	life exp.
Start	End	obs	known	at appoint.	at death	at 30
1527	1617	268	45.5	36	61.8	57.1
1618	1685	493	47.3	35.4	66.6	63.8
1686	1733	371	47.2	38.9	70.6	69.9
1734	1800	746	59.1	38.7	69.4	68.4
1000	1800	1878	51.7	37.7	67.9	66.2
			% birth place	median distance	% with	% with
			known	birth-institution	Wikipedia	Worldcat
1527	1617		78.4	37	17.9	38.1
1618	1685		86	37	19.9	32.9
1686	1733		86.8	37	15.1	32.1
1734	1800		93	65	23.1	43.3
1000	1800		87.9	37	19.9	37.6

Table 1: Summary statistics by period

4 FIELDS

The purpose of the Academy was the promotion of the humanities and sciences. Members were invited to present their poems during the meetings, and the results of their research in the case of science and medicine. Many of the members were honorary: nobles, leaders, politicians and prelates who provided protection for the academy and its members. Figure 1 shows the relative density of fields, broadly defined.

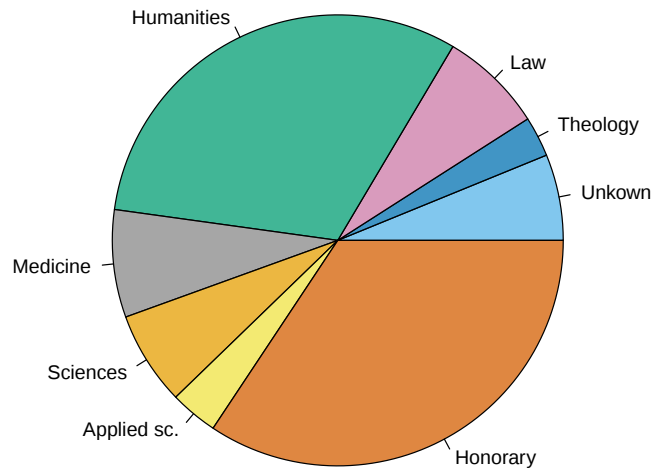


Figure 1: Broad fields at the Academy of the Ricovrati

5 PLACE OF BIRTH

Initially, the Academy of the Ricovrati did not differentiate its members by status. From 1779, however, we see a distinction between ordinary and external members, and correspondents. Unless specified by our sources, we consider those who attended meetings in Padua to be ordinary members, and those who never attended in person to be external members. The places of birth of ordinary

members, depicted in Figure 2, show that the Academy drew a majority of its members from northern Italy and the Venetian Republic, which extended to the north-western coast of the Adriatic Sea.

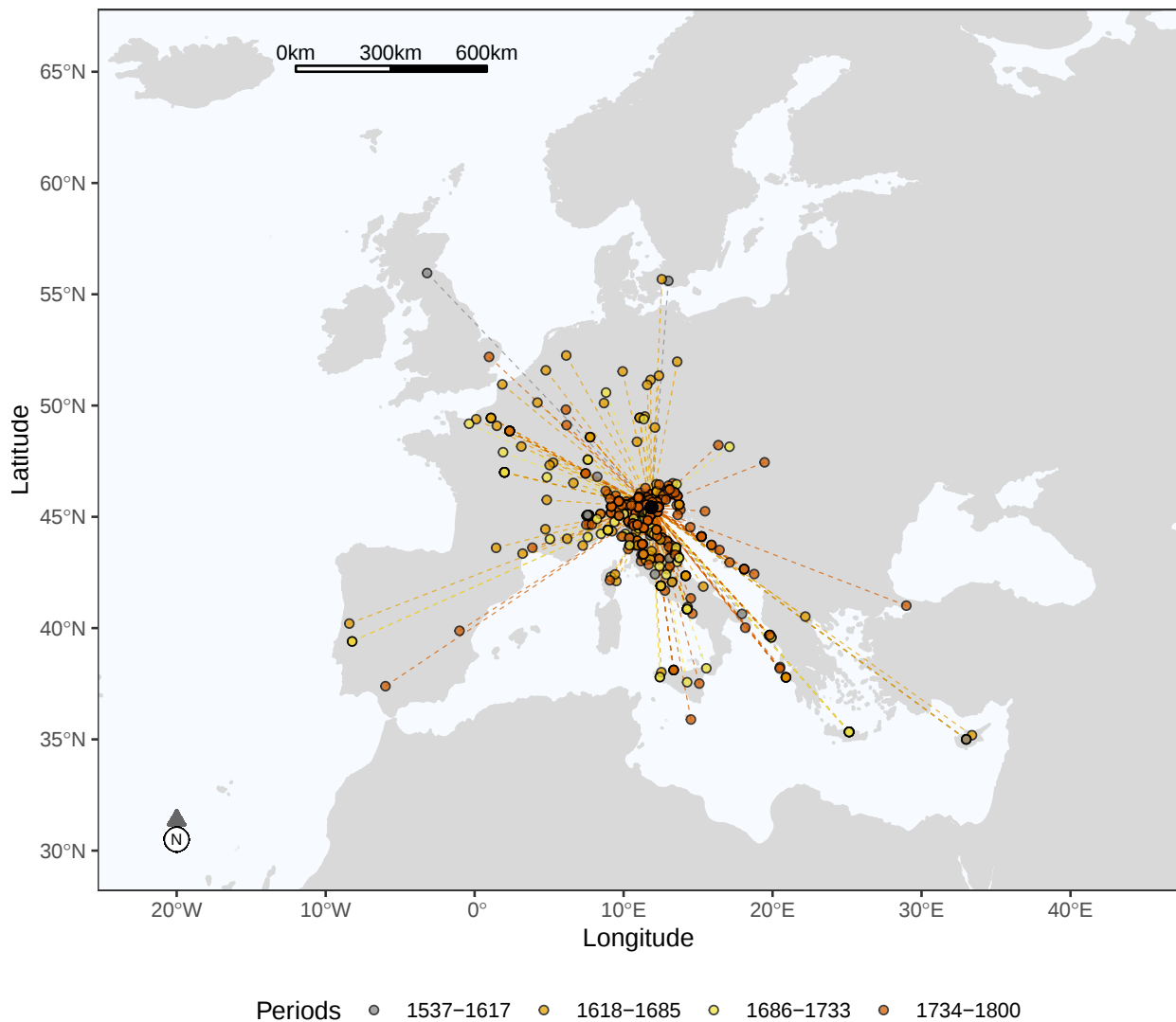


Figure 2: Place of birth of the scholars and literati at the Academy of the Ricovrati - Ordinary members

Figure 3 is a plot of the places of birth of all the scholars of the Academy of the Ricovrati who were external members. The plot shows that the Academy attracted literati from France and the Holy Roman Empire. Very few people are from Spain, British Isles, or Northern Europe.

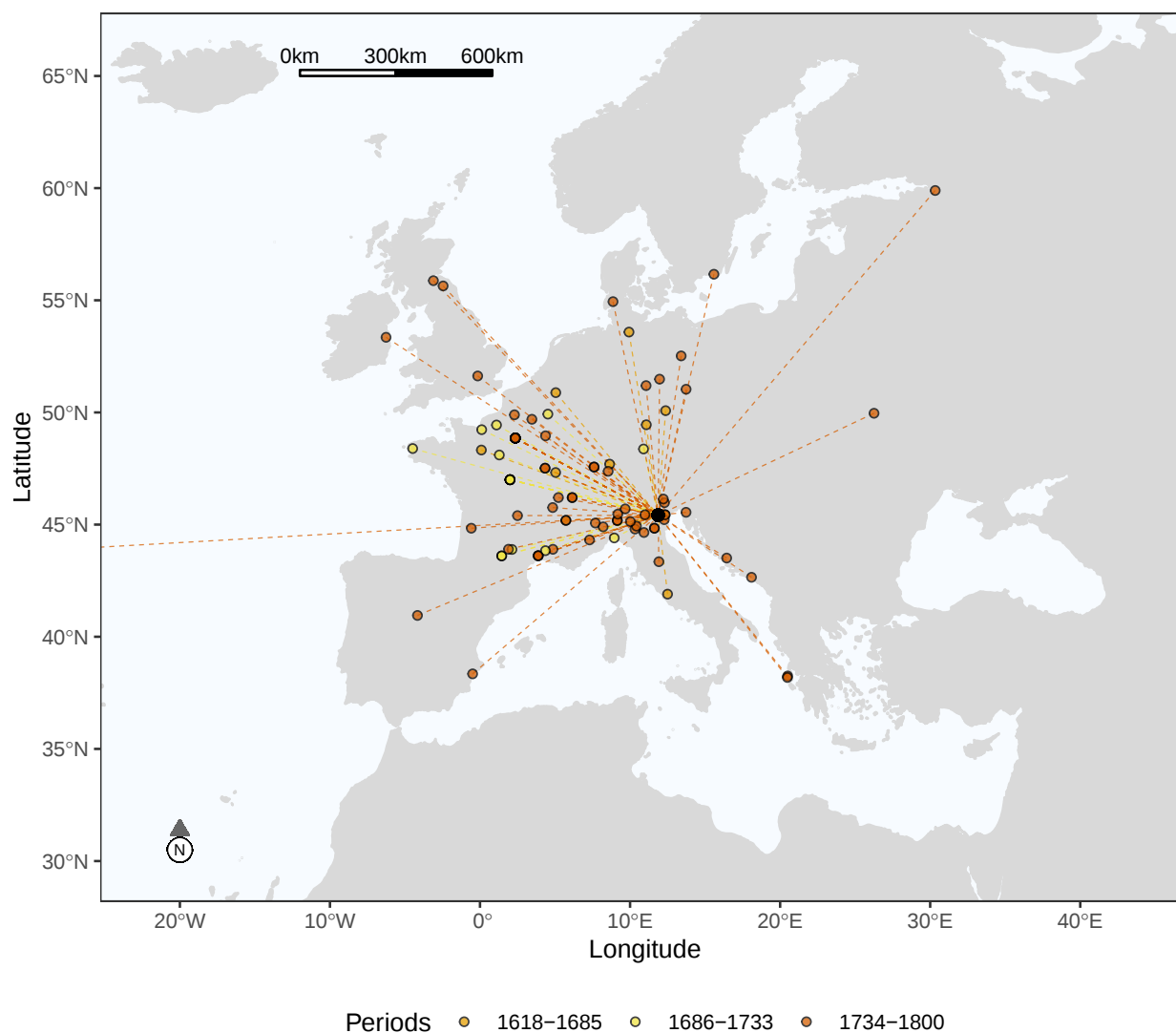


Figure 3: Place of birth of the scholars and literati at the Academy of the Ricovrati - External members

6 HUMAN CAPITAL OF SCHOLARS AND LITERATI

For each person in the database we compute a heuristic human capital index, identified by combining information from Worldcat and Wikipedia using a principal component analysis. Details are given in the Appendix. Figure 4 shows the names of all the scholars with a positive human capital index. The names are placed on the timeline when they started their career, so some scholars appear before the foundation of the Academy in 1599. The vertical green lines (rug plot) show the distribution of all scholars, including the obscure ones, over time.

7 TOP 5 PROFESSORS

We now provide a brief overview of the five professors with the highest human capital index.

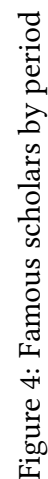


Figure 4: Famous scholars by period

Galileo Galilei (Pisa 1564 – Arcetri 1642) was an astronomer, physicist and engineer. He was professor of mathematics in Pisa (1589-1592) and Padua (1592-1610). He invented and perfected numerous instruments that revolutionized scientific research including the telescope, proportional compasses and celatone. In Padua he was a founding member of the Academy of the Ricovrati under the name of “Abbatuto” (the “depressed”, or “defeated”). He was tasked with designing the coats of arms of the members of the academy. In 1602, he was appointed “censor of the press”, a very important position in which he decided which scientific or literary works could be printed.

Cesare Beccaria (Milano 1738 – Milano 1794) was a criminologist, philosopher and economist, who was considered one of the greatest intellectuals of the Enlightenment. His major work “*Dei delitti e delle pene*” (Crimes and Punishment), in which he took a strong stance against the death penalty and torture, is among the most influential works in the history of criminal law. In 1766, his treatise was put on the Index of Forbidden Books because of the distinction between sin and crime. In 1768, he obtained the chair of public economics and commerce at the Palatine School in Milan. He was the grandfather of Alessandro Manzoni, one of the founding fathers of 19th century Italian literature, who made a decisive contribution to the development and unification of the modern Italian language.

Giambattista Marino (Napoli 1569 – Napoli 1625) was a Baroque poet, whose works were highly influential for European literature. He had an eventful life, which included several stints in prison. In 1615, after Maria de’ Medici invited to in Paris, Marino enjoyed great social prestige and his career reached its literary apex. During this period he wrote his masterpiece, the *Adonis* (1623). In 1623, Marino became ill and returned to his native Naples, where he died two years later. Feeling death approaching, he tried – unsuccessfully - to burn all his writings. In 1602 he read two of his sonnets at the Academy.

Joseph-Louis de Lagrange (Torino 1736 – Paris 1813) was a mathematician and astronomer. In 1766, Lagrange succeeded Euler as the director of mathematics at the Prussian Academy of Sciences in Berlin, where he remained for almost two decades. In 1781, he became a member of the Ricovrati. Considered among the greatest and most influential European mathematicians of the 18th century, he was a founding father of the calculus of variations, and contributed to the development of the theory of probability, as well as group theory and differential equations. While in Berlin, Lagrange produced his opus magnum - the *Mécanique analytique* (1788), which reinterpreted classical Newtonian mechanics as a branch of mathematical analysis, laying the basis for the development of mathematical physics in the 19th century.

Alessandro Volta (Como 1745 – Como 1827) was a physicist and chemist. In 1779 he became a professor of experimental physics at the University of Pavia. He is remembered as the inventor of the Voltaic pile (the first electrical battery), which he described in 1800 in a letter to the President of the Royal Society of London. The unit of measure of electric potential is named the volt in his honor. Volta also studied the chemistry of gases, and is credited with the discovery of methane. His lectures in Pavia were so crowded that the emperor Joseph II ordered the construction of a new “Theatre of Physics”, known today as the Aula Volta. In 1788 he participated in the public assembly of the Academy.

8 RELATED SCHOLARS

In addition to the ordinary members residing in Italy, several individuals were linked to the Academy of the Ricovrati through a foreign or corresponding membership status. The five scholars shown here belonged to this category. These scholars are included in the calculations for all figures but Figure 4.

Leonhard Euler (Basel 1707 – Saint Petersburg 1783) was a mathematician, physicist, astronomer and logician. Euler was one of the most eminent mathematicians of all time. At age thirteen, he enrolled at the University of Basel. In 1723, he received a Master of Philosophy with a dissertation that compared the philosophies of Descartes and Newton. Euler was interested in every field of mathematics and physics, and his name is linked to a very large number of theories, formulas, equations and methods. He worked at the Imperial Russian Academy of Sciences in Saint Petersburg and at the Berlin Academy. He was a member of numerous academies, and in 1781 he was recognised as an "estero" (foreign) member of the Ricovrati. Euler was interested in every field of mathematics and physics and his name is linked to a very large number of theories, formulas, equations and methods.

Benjamin Franklin (Boston 1706 – Philadelphia 1790) was a scientist and politician, and one of the Founding Fathers of the United States of America. He made important contributions to the study of electricity and was an enthusiast of meteorology and anatomy. He invented the lightning rod, bifocal lenses, the glass harmonica and a model of stove-fireplace known as the Franklin stove. In 1776 he contributed to the drafting of the American Declaration of Independence. In 1787 he participated in the meetings where the American Constitution was drafted. In 1781, he was an "Estero" member of the Academy.

Georges-Louis Leclerc Buffon (Montbard 1707 – Paris 1788) was a naturalist, mathematician, cosmologist, and encyclopedist. Initially he was interested in mathematics, in which field he is known for Buffon's needle problem. In 1739 he became intendant of the Jardin Royal des Plantes Médicinales (King's Botanic Garden) in Paris, and from that moment he became interested exclusively in natural history. In his most important work, *Histoire naturelle, générale et particulière avec la description du Cabinet du Roi* (1749–1788), he discusses the similarities between humans and apes. In 1781, he was affiliated with the Accademy of Ricovrati as an "Estero" member.

Jean le Rond d'Alembert (Paris 1717 – Paris 1783) was an encyclopedist, mathematician, physicist, philosopher and astronomer who was among the most important protagonists of the Enlightenment. His contribution in mathematics was particularly important. In 1749, following his research on differential equations and partial derivatives, he was called to edit the *Encyclopédie* with Denis Diderot. He was also a music theorist: his text *Éléments de musique* of 1754 illustrates the theory of harmony and dictates the main rules of composition and execution of basso continuo, a complex system of writing-reading music, universally used and practiced in the West in the Baroque era. He was an "Estero" member of the Academy.

Nicolas de Condorcet (Ribemont 1743 – Bourg-la-Reine 1794) was a philosopher, mathematician, economist and politician. One of the most original features of Condorcet's thinking is the attempt to apply mathematical calculation to the social and moral sciences in view of governing social and political processes. He published several mathematical works on integral calculus, and on the calculus of probability. In 1769, he was elected to the Académie Royale des Sciences. For criticizing the Jacobin Constitution of 1793 he was arrested and died in prison. He was affiliated with the Academy in 1781 as an "Estero" member.

9 DIVERSITY

The Ricovrati Academy was one of the few academies that admitted women. Most of them were foreigners and participated as corresponding members.

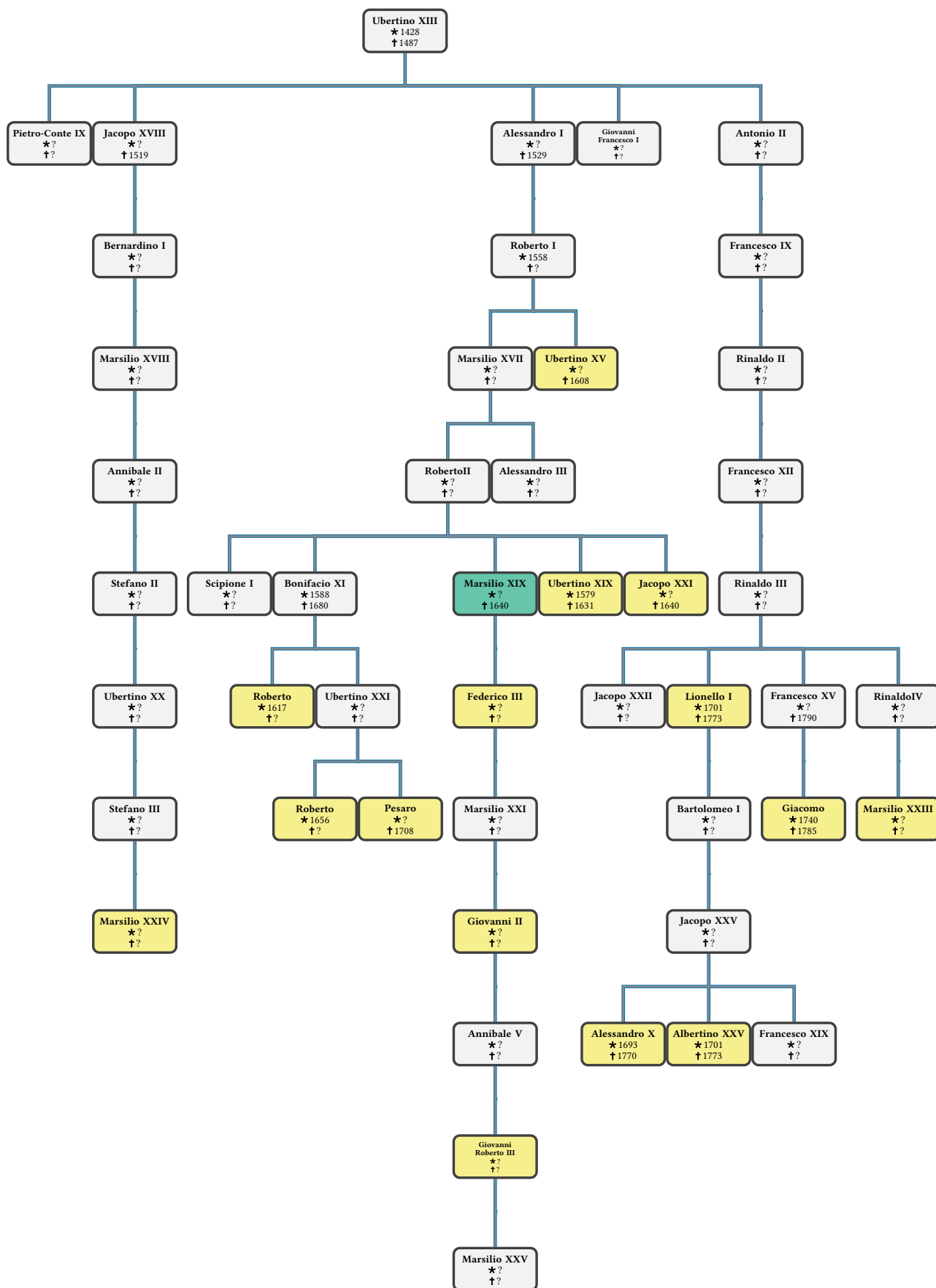


Figure 5: The Papafava family. Members of the Accademia of Ricovrati in yellow squares. Members of the University of Padua in green squares.

10 CENSORSHIP

Among the 500 scholars who have published some work after 1400CE, 25 have been censored by the Catholic Church in its *Index Librorum Prohibitorum* (De Bujanda and Richter 2002). A rate of censorship of 5% is low compared to Italy in general (Blasutto and De la Croix 2020). Beyond Galilei, famous examples are:

Andrea Morosini (Venice 1558 – 1618, censored in 1624) was a politician and historian. His *Historia Veneta*, published after his death, was included in the Roman index because it included praise of Paolo Sarpi, who was excommunicated and defended the Republic of Venice against Pope Paul V. The Republic of Venice did not comply with the orders from Rome, and granted permission to print *Historia Veneta*.

Girolamo Gigli (Siena 1660 – Rome 1722, censored in 1714) was a writer and playwright. His lexicographic booklet *Vocabolario Cateriniano*, which questioned the Florentine language, was controversial within the Accademia della Crusca. The book was forbidden before its printing was complete (the letter R was in press). Due to the lack of physical copies of the book, the public burning of *Vocabolario Cateriniano* used different books with a similar dimension to the original. In 1695, he became a member of the Academy. He composed a cantata titled "Il sogno di Venere" (The dream of Venus), to celebrate the election of Doge Valier.

Francesco Grisellini (Schio 1717 – Milan 1787, censored in 1762) was a naturalist, botanist and literary man. He was a freemason and he edited the newspaper *Giornale d'Italia*, which focused on agriculture and commerce. His *Memorie*, a biography of Paolo Sarpi, was included in the Index of forbidden books because it defended Sarpi from accusations of heresy.

11 FAMILIES OF SCHOLARS

Figure 5 shows an extract of the Papafava family tree (data from Ceoldo (1801) and De Marchi (1842)). We were able to find 14 family members who were members of the Ricovrati Academy.

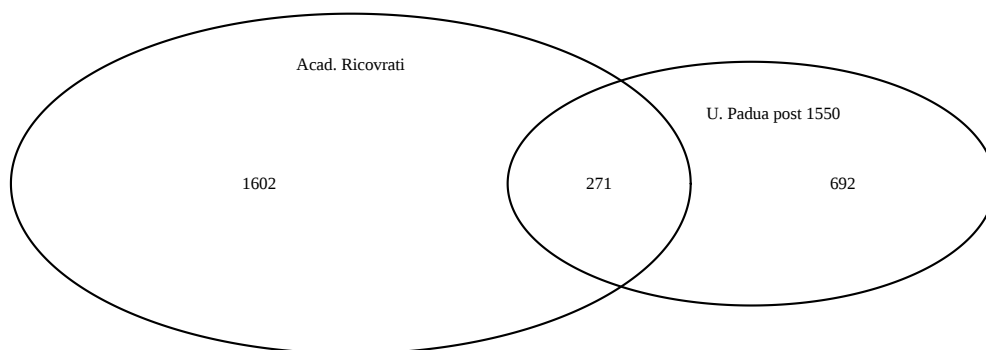


Figure 6: Intersections of the lists of scholars between the University of Padua and the Academy of the Ricovrati

12 INTERSECTIONS WITH NEARBY UNIVERSITIES

Figure 6 shows that many members of the Academy of the Ricovrati were also professors at the University of Padua. This is an example of close a relationship between a University and the an Academy at a local level. It also runs counter to the view that universities were stuck in old thinking while academies advanced new research.

13 A NETWORK OF INDIVIDUALS

Another way to look at the intersection between two institutions is to consider the network of scholars. The network of scholars will represent individuals as nodes. Edges (links between individuals) will be assumed when two scholars share the same institution during the same period. Once such a network is built, it can be represented, for example, by the standard Fruchterman-Reingold force-directed algorithm that groups persons more closely together when they are linked to each other. Figure 7 shows the network of scholars of the University of Bologna and the Academy of the Ricovrati. Blue nodes represent the scholars at Bologna, green nodes are for the Ricovrati, and orange nodes are for those who were members of both. The size of the nodes is bigger for highly notable persons (a human capital index above 8). Edges (links) are pink. The foundation of the University of Bologna is not represented: we start with Francesco della Rovere (1414-1484), Pope Sixtus IV, on the right. Moving left as time passes, the Academy of the Ricovrati is created in 1599. Few scholars share a joint appointment. This makes the Ricovrati a distinct cloud from the University of Bologna, with some occasional but recurrent bridges.

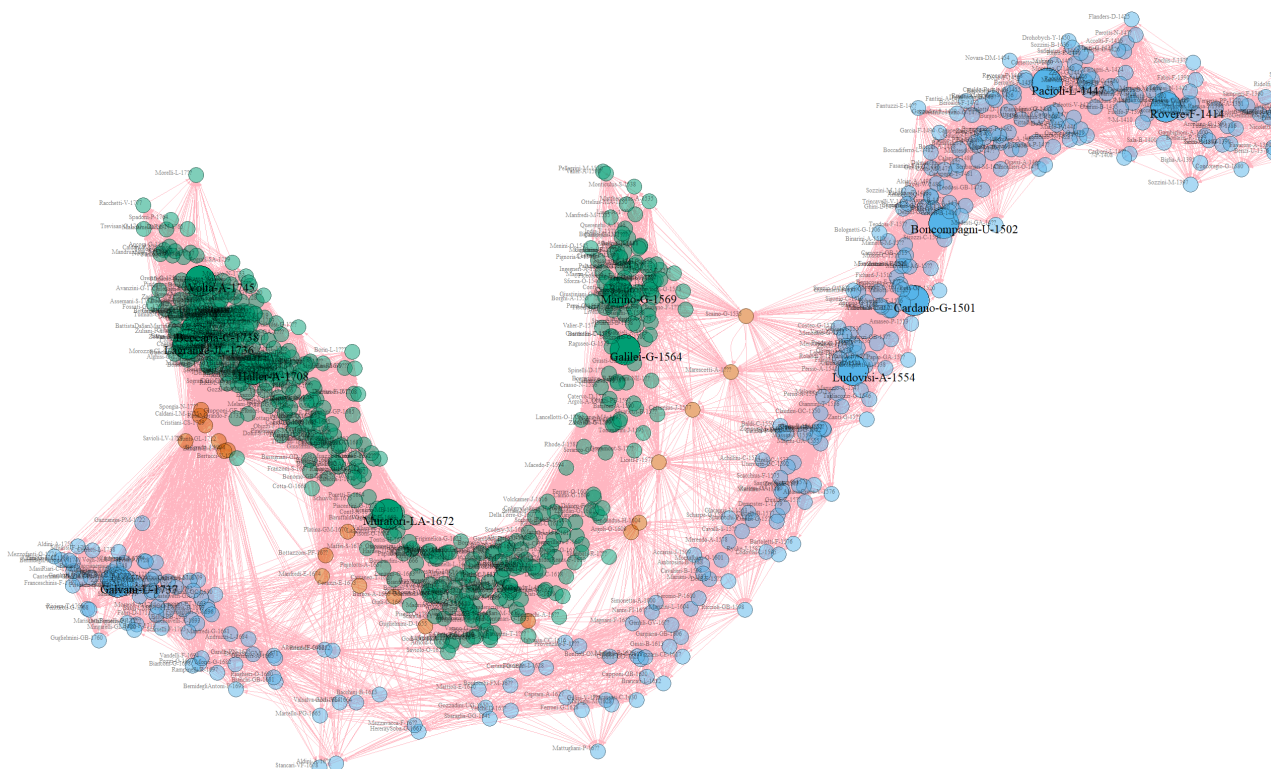


Figure 7: Network of scholars: University of Bologna and Academy of the Ricovrati

If we repeat the same exercise, considering now the University of Padua and the Academy of the Ricovrati, we obtain Figure 8. Now the professors at the University are in light orange, academicians are still in green, and those with a joint appointment in blue. We start the history of the University of Padua on the right with Vesalius. As soon as the Ricovrati is created, there are many more persons in blue (joint positions). They form a structure around which persons with single positions orbit.

Strikingly, at the end of the period, on the left of the map, we see that the famous persons are all from the Ricovrati, as if the Academy has replaced the University as the main center of knowledge. This is probably explained by the decline of the Serenissima (the Republic of Venice), and the subsequent departure of several scholars (De la Croix and Vitale 2021). In fact, during this period the University of Padua, while providing the academic freedom that had always characterized it, ceased to be attractive to many professors who were prominent at the time. One example would be Nicolas I Bernoulli, who left his chair in 1719 (Del Negro 2015).

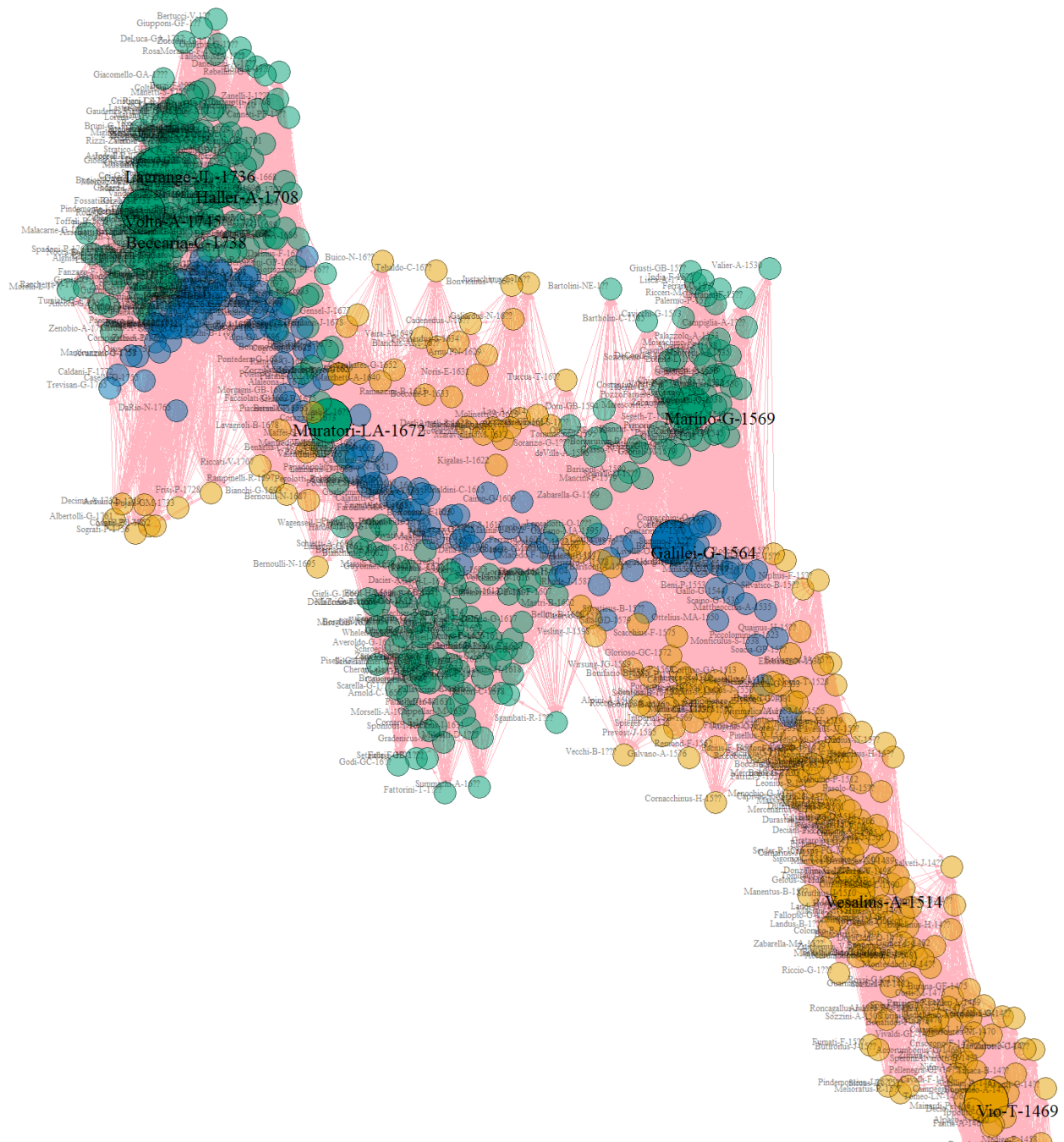


Figure 8: Network of scholars: University of Padua and Academy of the Ricovrati

14 ANECDOTES

Caldani used the rooms at the Ricovrati academy to conduct his experiments on the sixth sense. He filled rooms to see how blind bats avoided obstacles. These experiments are the basis of the studies

on echolocation or biosonar (Ronconi 2000).

Manfredo Settala had a museum that brought together more than three thousand naturalistic, ethnographic and scientific instruments from all over the world. Manfredo had devised a curious system for enumerating his treasures. He entrusted to young Milanese painters the task of reproducing with drawings and paintings all the objects of the Museum: a visual catalogue of seven volumes which has unfortunately disappeared (Tavernari 1976).

APPENDIX

The individual human capital index q_i of an individual i is given by:

$$\begin{aligned} q_i = & -1.76 + 0.43 \ln(\text{nb. of characters of the longest Wikipedia page}) \\ & + 0.40 \ln(\text{nb. of Wikipedia pages in different languages}) + 0.47 \ln(\text{nb. of works in Worldcat}) \\ & + 0.46 \ln(\text{nb. of publication languages in Worldcat}) \\ & + 0.47 \ln(\text{nb. of library holdings in Worldcat}) \end{aligned}$$

We assume that having no Wikipedia page is similar to having one page with a length of 60 characters and that having no Worldcat page is similar to having a page with one work in one language held by one library. The constant -1.76 normalizes q_i at 0 when there is neither a Wikipedia page, nor a Worldcat page. The weights (0.43, 0.40, etc) are obtained from the first principal component of the five indicators (De la Croix et al. 2020).

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