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Scholars and Literati at the Royal Society (1660–1800)

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This note is a summary description of the set of scholars and literati who were members of the Royal Society from its inception in 1660 to the eve of the Industrial Revolution (1800).

1 The Society

Alongside the establishment of several different academies in Italy, Prussia and the *Académie Royale des Sciences* in Paris, another academy came into being in the mid-seventeenth century, namely the Royal Society of London. The date normally given for its foundation is 1660, but it has been argued by the first historian of the Royal Society, Thomas Sprat, that the academy came into existence earlier than that, in 1645. The origins of the Royal Society lay in informal meetings of several well-known, intelligent and charismatic natural philosophers and physicians. The first meeting of the Royal Society took place at Gresham College, following a lecture by the astronomer Christopher Wren. The idea to create a society came from twelve polymaths, followers of the tremendous scientific works of Sir Francis Bacon. King Charles II supported this endeavour by becoming its patron in 1662. The concept for the Royal Society was to become the leading organization in the UK and to promote scientific research. Even from the first years of its existence, the Royal Society made its mark on human endeavour by publishing Robert Hooke's "Micrographia" in 1665 and Sir Isaac Newton's "Principia Mathematica" in 1687. The history of the Royal Society is well documented, including in the following sources: Sprat (1702), Purver (2013), Lyons (1960), and Weld (2011).

2 Sources

The website of the Royal Society, https://royalsociety.org, lists all of its members since inception, with some biographical information. Other sources also provided useful information. These are sources of additional information about members, mostly those who had multiple affiliations, in the period we observe: Munk (1878), Applebaum (2003), Michaud (1811), Boulliot (1830), Ward (1740), Shemivot (1873), Burtchaell and Sadleir (1935), Del Negro (2015), Origlia Paolino (1754), Grant (1884), Vallauri (1875).

3 Some statistics

Table 1 provides useful descriptive statistics. The sample consists of 2639 individuals, spanning the period from the foundation of the Royal Society in 1660 to the eve of the Industrial Revolution in 1800. The fraction of people with a known year of birth is remarkably high. In total, we have documented the birthplace of 83.9% of the society's members. Although the percentage of the society's fellows with a known place of birth decreases slightly compared to the known year of birth, the quality of information remains quite high. This is due to the low number of obscure people in our sample. The life expectancy conditional on living to at least 30 remains around 65 years to be exact (63.2).

Table 1 also presents the median distance between society's members birthplaces and London. It also shows the percentage for each century of those who left a footprint either on Wikipedia or Worldcat. 66.7% of the society's members have a Wikipedia page, and 68.4% left a footprint in the

catalogues of the world's libraries, namely Worldcat. Expected age at death is the only variable which shows some time variation. Finally, the median distance between the scholars' birthplaces and the society is relatively high, at 604km across the entire sample. One reason for the high median distance is that, among these exceptional scientists who achieved membership and honorary membership, were citizens and residents of countries that were colonised by Britain. In general, there is no significant variation in the descriptive statistics of the three different periods we have reported, apart from the increase in the median distance between place of birth and the institution they taught at, or the academy's base in London.

Period		nb.	% birth year	mean age	mean age	exp. age
Start	End	obs	known	at appoint.	at death	at death
1618	1685	399	83.2	40.6	64.5	60.1
1686	1733	698	82.8	37.8	63.2	60.9
1734	1800	1542	84.6	41	67.8	65.1
1000	1800	2639	83.9	40.1	66.1	63.2
			% birth place known	median distance birth-institution	% with Wikipedia	% with Worldcat
1618	1685		60.7	286	67.9	67.9
1686	1733		62.6	571	61.6	64.5
1734	1800		60.4	701	68.6	70.2
1000	1800		61	604	66.7	68.4

Table 1: Summary statistics by period

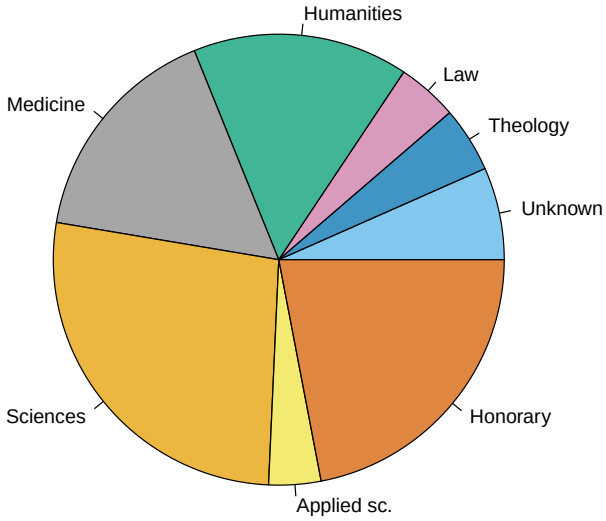

Figure 1: Broad fields at the Royal Society

4 Fields

Figure 1 shows the relative importance of fields of study at the Royal Academy, broadly defined. Unsurprisingly, Figure 1 illustrates the dominant position of sciences and medicine in the Royal Society. Together with applied sciences, these were the fields of study of a little less than half the

members of the Royal Society. There is also a large number of honorary members with no clear scientific identity, including military officers, members of parliament, and church dignitaries.

5 Place of birth

Figure 2 shows the different places in Europe where the members of the Royal Society were born. The vast majority of its members were born either in Great Britain or Ireland. The map only shows birthplaces in Europe, but members of the Royal Society also came from other continents, in most cases from countries that Britain had colonised.

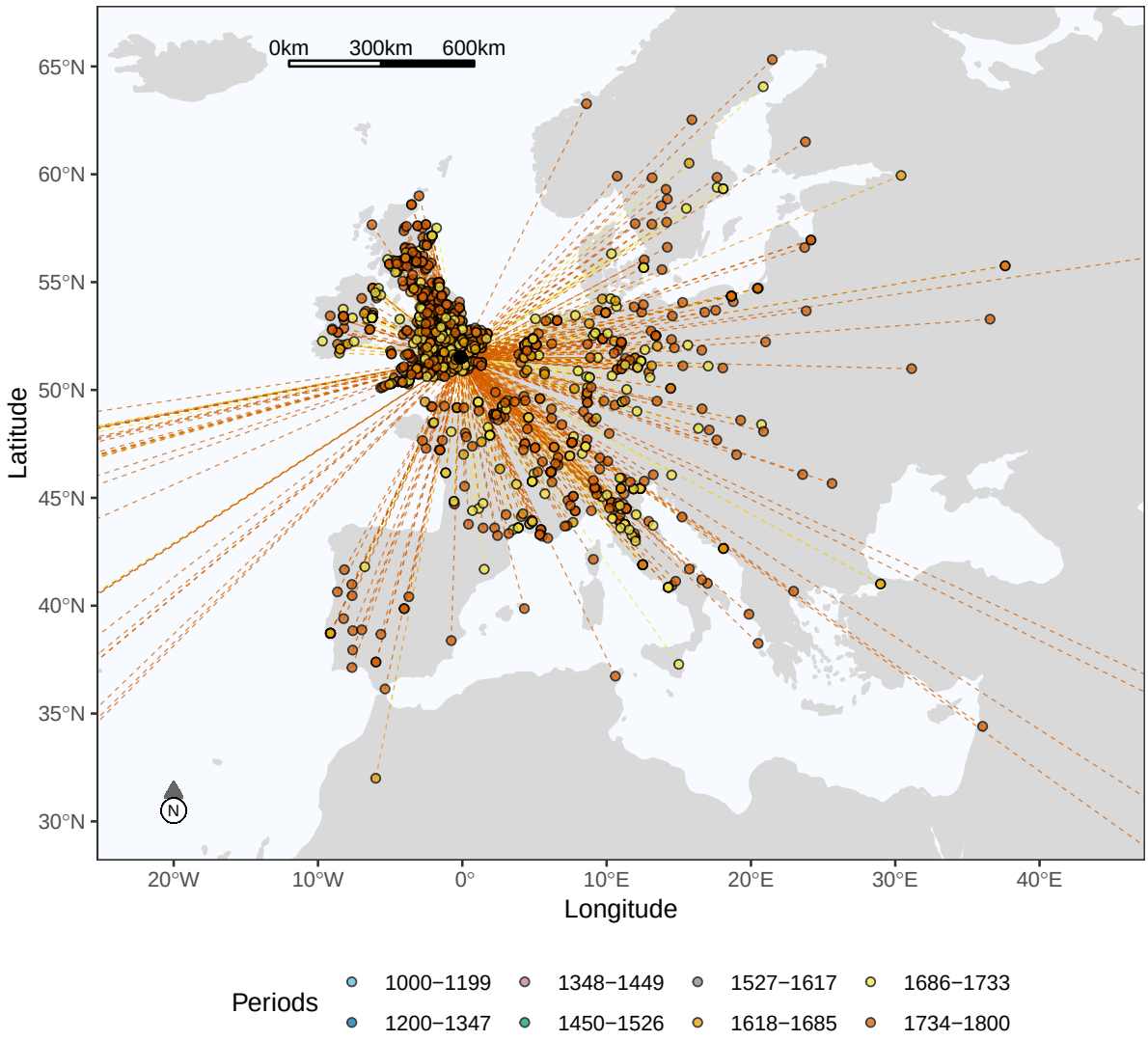

Figure 2: Places of birth of the members of the Royal Society

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 principal component analysis. Details are given in RETE in volumes 1–5. Figure 3 depicts the names of all the members of the Royal Society with a positive human capital index. The vertical green lines (rug plot) show the distribution of all the members, including the obscure ones, from 1660 to 1800. The orange line denotes the notability of the society based on how well published its top members were.

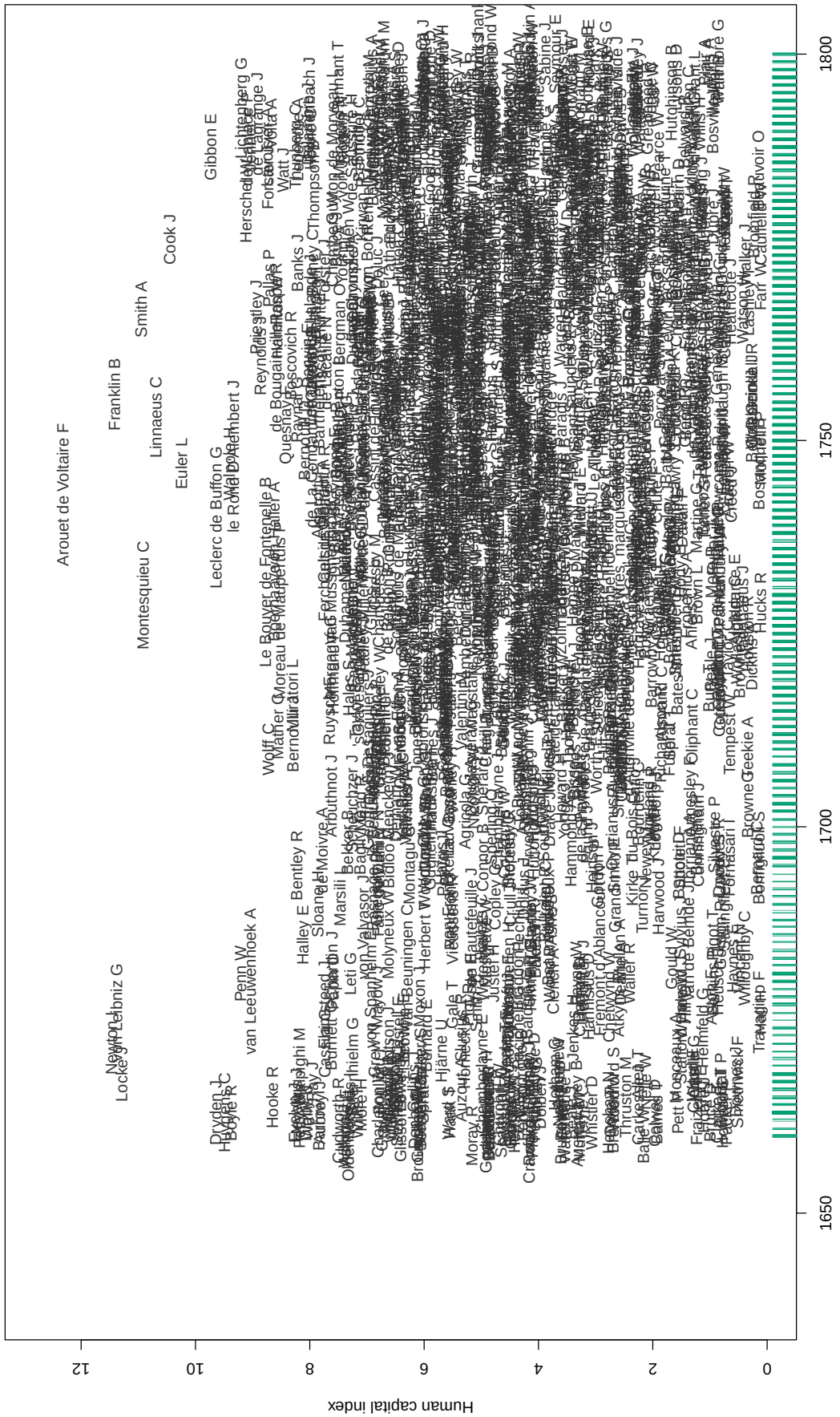

Figure 3: Famous scholars at the Royal Society

Figure 3 shows that the Royal Society has high quality research outcomes because there is a mass of very active people. The Royal Society has many fellows from abroad such as François-Marie Arouet de Voltaire (De la Croix (2022)), Leonhard Euler and Daniel Bernoulli (De la Croix and Doraghi (2021)) who left a research footprint and at the same moment were members of several different academies. Many British scholars have a relatively high human capital index as well. Finally, the scale of the vertical axis ranges between (0 and 12), the same as in the *Académie Française* (De la Croix (2022)).

7 Top 11 British fellows

All the members of the Royal Society are fellows, without distinction between local members and foreign or corresponding members. There are many famous foreign scholars on the list, who we also found in many other academies. Here, we do not describe these foreign scholars, we only list them to see where they appear in our ranking. We provide a brief overview of the eleven British members of the Royal Society with the highest human capital index.

François-Marie Arouet de Voltaire

Isaac Newton (Woolsthorpe-by-Colsterworth 1642 – Kensington 1727) was a British natural philosopher and mathematician who taught at the University of Cambridge for many years. He is one of history's greatest researchers. His knowledge spans several branches of science, contributing research to mathematics, dynamics, mechanics, celestial mechanics, astronomy, optics, and natural philosophy. Sir Isaac Newton is widely-known for Newton's laws of motion published in "Principia Mathematica" by the Royal Society. He became a member of the Royal Society in 1672, having been proposed by the Bishop of Salisbury Seth Ward. Queen Anne granted him a knighthood for his political work in 1705. He was also an inventor, constructing a reflecting telescope to observe the motion of stars. He died in London and was buried in Westminster Abbey.

Benjamin Franklin

Gottfried Wilhelm von Leibniz

John Locke (Wrington 1632 – High Laver 1704) was a British physician and colonial administrator with remarkable research in the fields of philosophy, natural philosophy, and medicine. He received his education at the University of Oxford. He was a lecturer in Greek, Moral Philosophy and Rhetoric for a few years in the second half of the seventeenth century. He is renowned for his work on economics, specifically price theory and the theory of value and property. He published several reputable works such as "A Letter Concerning Toleration", "An Essay Concerning Human Understanding", and "Some Thoughts Concerning Education". Although John Locke was a proponent of Liberalism and wrote against slavery, he held several administrative positions in government where he was directly involved in the slave trade, and from which he benefited financially. He became a member of the Royal Society in 1668, having been proposed by Sir Paul Neile, one of the founders.

Adam Smith (Kirkcaldy 1723 – Edinburgh 1790) was born in the first quarter of the eighteenth century in Scotland. He was a moral philosopher and a political economist. He is considered to be the founding father of capitalism and a pioneer of economic science. He began his career as a freelance lecturer at the University of Edinburgh between 1748 and 1751. After that, he was a professor of Logic at the University of Glasgow for one year. He was strongly influenced by the philosopher and historian David Hume, who he met in Edinburgh and with whom formed a lasting friendship. From 1752 he held the chair of Moral Philosophy at the University of Glasgow, and was elected a rector, serving from 1787 to 1789. His research in the field of economic theory is extraordinary. His most famous work, "The Wealth of Nations" was

published in 1776. This book described production and exchange in a modern economy, capital accumulation, the government's role, and economic policy. Another publication that enjoyed astonishing success was his book "The Theory of Moral Sentiments", which was published a few years earlier. He was elected as a member of the Royal Society in 1767. He died in Edinburgh and was buried at the Canongate Churchyard.

Charles-Louis de Secondat de Montesquieu

Carl Linnaeus

James Cook (Marton 1728 – Kealakekua Bay 1779) was a British explorer, cartographer, and navigator who served in the British Royal Navy as a captain. He was well versed in mathematics, producing exceptional research on astronomy and maritime discovery. In addition, he contributed to geography and natural history, with two successful voyages to the Pacific, charting land that Europeans had not previously known of, or had not mapped completely. The son of an agricultural worker, he became a member of the Royal Society in 1776. Cook was awarded a Copley Medal, the Society's oldest and most prestigious award, for his achievement in preventing scurvy among his crew on his second voyage. He was killed one year later in Hawaii, on his third Pacific expedition.

Leonhard Euler

Edward Gibbon (Putney 1737 – London 1794) was a British historian, writer and politician. He is particularly known for his outstanding work, the collection of six books on "The History of the Decline and Fall of the Roman Empire", first published in 1776 and finished in 1788. His tenure as a Member of Parliament lasted only a few years. He became a member of the Royal Society in 1788 and died six years later in London.

Georges-Louis Leclerc de Buffon

John Dryden (Aldwincle 1631 – London 1700), also called John Driden, was a British poet, critic and playwright. He was part of a large family, having 13 more siblings. His contribution to the field of literature is tremendous. He was honoured as the first Poet Laureate in 1668 by King Charles II. The Restoration period when Dryden left his footprint on literature is known among scholars as the 'Age of Dryden'. Some of his most famous writings are "The Hind And The Panther, A Poem", "The Assignation, or Love in a Nunnery", and "King Arthur". He was nominated to the Royal Society by Walter Charleton, and elected in 1663. However, he was withdrawn from the Royal Society in 1666 due to non-payment of subscriptions.

Christian Huygens

Horatio Walpole (London 1717 – London 1797) was a British writer, historian and art collector. He was the son of Sir Robert Walpole, the 1st Earl of Orford. He eventually succeeded him in 1791 as the 4th Earl of Orford. He wrote the first Gothic novel, "The Castle of Otranto" in 1764. He was elected a member of the Royal Society in 1747. The youngest son of the first British Prime Minister, he himself also had a substantial parliamentary career.

Robert Boyle (Lismore 1627 – London 1691) was a British-Irish natural philosopher and chemist. He was a pioneer of modern chemistry, bringing the old-fashioned field of alchemy into the realm of modern chemistry. He received his doctoral degree in Physics from the University of Oxford in 1665. He received honours from the Royal Society, to which he was elected as a fellow in 1660. Although he was elected president of the Royal Society in 1680, he declined to take up the position. He is known for his significant formulation that the pressure of a gas is inversely proportional to the volume it binds. His most famous work is "The Sceptical Chymist".

Jean le Rond D'Alembert

William Penn (London 1644 – Ruscombe 1718) was a British writer and religious activist. Penn was the foremost exponent of religious freedom, influenced by his Quaker faith. He travelled extensively in Europe and England before moving to America in 1682, where he established the Province of Pennsylvania. Penn was strongly religious, like Robert Boyle. However, because his cultural and religious beliefs did not comply with the attitudes of the era, he was imprisoned and faced various court cases. He became a member of the Royal Society in 1681, having been proposed by John Houghton.

Georg Christoph Lichtenberg

William Herschel

Pierre-Simon de Laplace

Edward Jenner (Berkeley 1749 – Berkeley 1823) was a British physician with noteworthy research on natural history (specifically on zoology), immunology and medicine. He is famous for pioneering the concept of vaccines and creating the smallpox vaccine. He was a pupil of the great surgeon John Hunter and received his MD at the University of St Andrews, after two decades of practising as a GP and surgeon. He was elected a fellow of the Royal Society in 1789.

Antoni van Leeuwenhoek

Joseph Priestley (Birstall 1733 – Northumberland 1804) was born in the second quarter of the eighteenth century in Birstall, England. He is one of the world's preeminent early chemists, discoverer of several gases, such as oxygen, carbon monoxide, and ammonia. His research encompasses electricity and natural philosophy too. He was staunchly religious and served as a Presbyterian Minister. He was an elected member of the Royal Society from 1766, and received a Copley Medal in 1772 for his exceptional contribution to research.

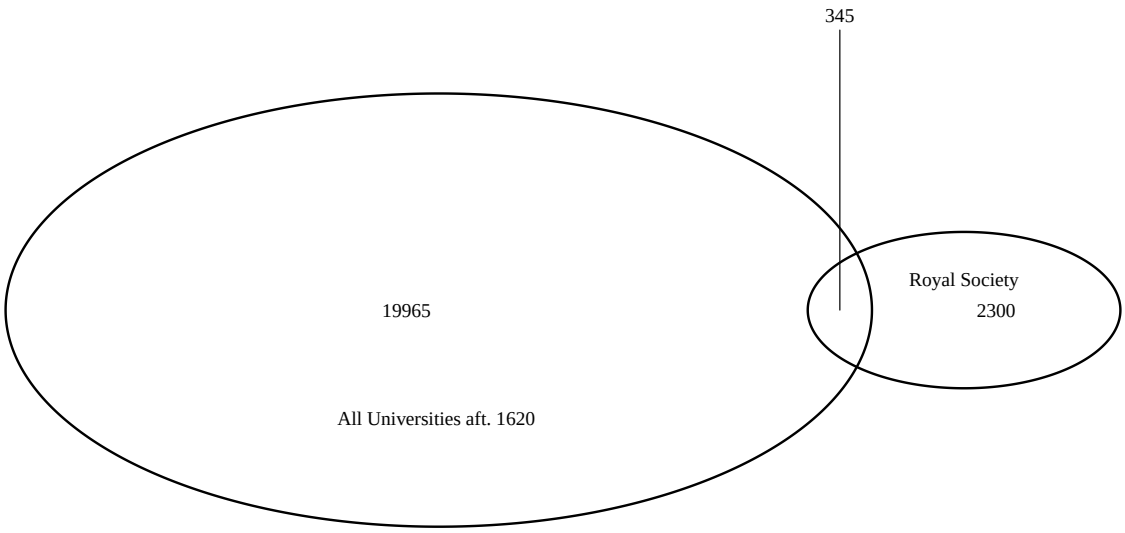

Figure 4: Intersections of the list of scholars between all European Universities and the Royal Society

8 Families of scholars

We were able to find 78 father-son pairs who were both members of the Royal Society.

9 Intersections with Universities

Figure 4 shows that 345 academicians in the Royal Society were also professors at any university in Europe. It might be an exaggeration to see universities as disconnected from the latest trends in sciences discussed in the academies, but it is true that the connection with English universities was not very strong. Among the 345 academicians who were professors, 124 were active at either the University of Oxford or the University of Cambridge (sometimes as fellows).

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