Associations and Other Groups in Science

Associations and Other Groups in Science: An Historical and Contemporary Perspective

Edited by

Ana Delicado

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INTRODUCTION

ANA DELICADO

Scientific societies or associations are quite an under-researched issue. Science studies have historically paid much more attention to non-formalised collectives in science: the "republic of science" of Polanyi (1962), the "scientific community" of Hagstrom (1965) and Merton (1973), the "invisible colleges" of Crane (1972), the "scientific field" of Bourdieu (1975), or the "transepistemic arenas" of Knorr-Cetina (1982). Theories of the Mode 2 production of knowledge (Gibbons et al. 1995; Nowotny, Scott and Gibbons 2001) postulate that in contemporary science there is a wider array of institutions taking part in the construction of scientific knowledge, but scientific associations are barely mentioned. Recent literature has devoted considerable attention to the "triple helix" formed by universities, government and industry (Leydesdorff and Etzkowitz 1996; Shinn 2002), but leaving out all other actors involved in science.

Most of the existing literature on scientific associations focuses mainly on the historical dimension of scientific societies, such as their role in the birth of modern science (see Merton 1938 or Shapin 1996, for instance) or the genealogy of individual institutions, such as the Royal Society (Hunter 1989). Just a few noteworthy exceptions can be found: for instance, an in-depth case study of the Society of German Chemists authored by Rilling (1986), Schimank's (1988) survey of German scientific associations, the studies on the development of international scientific associations by Shofer (1999, 2003). Some published research also deals with particular aspects of scientific associations' activities, such as publishing (Levitan 1979), policy advice (Teich 2002), ethical regulation (Levine and Iutcovich 2003), award giving (Crosland and Galvez 1989), public understanding of science (Rogers 1981), or membership profiles (Mackie 2000).

And yet, scientific societies in Europe seem to be gaining momentum both in individual countries (see, for instance, Guinovart 2009 on the Spanish Federation of Scientific Societies) and on a transnational level. This is apparent, for instance, in the Initiative for Science in Europe - ISE,

a platform of European learned societies and scientific organisations created in 2004, which led to the creation of the European Research Council (Zaragoza 2007).

Overall, there seemed to be a gap in the social studies of science concerning the role of scientific societies in contemporary science. In 2008, a team of social scientists sought to bridge this gap with a research project,[1] focusing on the case of the Portuguese scientific system, which intended to explore both the functions and activities of scientific societies and the associative behaviour and representations of scientists.

This research project developed a two-tiered approach. First, a census of existing Portuguese scientific societies was conducted, followed by an online survey. A sample of organisations was then selected for an in-depth analysis, based on document collection, interviews with members of the governing boards, observation at events and a survey of their members. The purpose of these procedures was to gather information on the activities of the associations, their internal functioning, their resources and handicaps, how they are articulated with other associations and organisations in the scientific system and what roles they play in some specific areas: policy advice, science and business links, science and society relations, the social responsibility of scientists.

Second, an internally diverse sample of scientists working in Portuguese institutions was surveyed, in order to inquire on their associative behaviour and representations, at both national and international levels. Here, the main purpose was to ascertain the role associations play in scientific careers, in research practices and in mediating the relation between individual scientists and wider collective structures (their discipline, the scientific community, the government, industry).

This research project relied on a wide definition of scientific societies (or associations), which encompassed private non-profit institutions devoted to professional and disciplinary aims, labour activism, public engagement with science, links with innovation and industry, diaspora networks. The particular topic of scientific associations was expected to stimulate the reflection and discussion of wider issues in science, such as the need for building bridges within the scientific community and with society at large. Although it was focused on a national case, it is deemed relevant to the international community of social studies of science, since

[1] *SOCSCI Scientific Societies in Contemporary Science*, funded by the Portuguese Foundation for Science and Technology (PTDC/CS-ECS/101592/2008), hosted by the Institute of Social Sciences of the University of Lisbon, in collaboration with CIES-IUL and SOCIUS-ISEG.

it has yielded results that are valid across borders and can be used to integrate comparative research with other scientific systems. And though scientific societies may occupy a relatively small place in a field dominated by other institutions, this research meant to contribute to highlight the work of these organisations, bringing science and society a little closer, and to inform decision-making at several levels (science and technology policies, the strategies and actions of associations and individual scientists).

In June 2012, in the final stage of this research project, a conference was held to showcase its main results but also to give an opportunity for other researchers to present their work in this and other connected areas.[2] A call for papers was issued and proposals from historians, anthropologists and sociologists, working in many different areas, poured in. In what can be a sign of the lack of research on this issue, despite the fact that the call was disseminated internationally (in English, in several international mailing lists and newsletters) barely any proposals from other than Portuguese scholars were received. This book is the result of that conference. It brings together some of the papers presented on that day, revised and expanded in order to accommodate a fruitful dialogue between them.

The book is divided in two parts, reflecting a temporal and thematic chasm. The first part concerns historical studies focused mostly on the part that associations (and other groups) played in the development of particular scientific disciplines in the nineteenth and twentieth century; the second part is dedicated to contemporary analyses that chiefly highlight the engagement between associations and wider publics.

The book opens with a chapter by Cristiana Bastos on the most traditional of scientific associations: the Royal Academy of Sciences of Lisbon, a congener of similar institutions throughout Europe in the eighteenth century. Rather than opting for a conventional account of the origins of the Academy (which already abound), Bastos develops a highly innovative approach, following a thread that leads us from objects to people, from the South Pacific to Europe, from politics to literature and gender. Focusing on two characters that played a major role in the early years of the Academy, the Abbot Correia da Serra and the Countess Leonor de Almeida, who met only briefly on a coach trip between Vienna

[2] The conference took place at the National Museum of Natural History and Science of the University of Lisbon, a landmark of Portuguese science and the birthplace of several of the most prominent scientific societies in the country. We are grateful to Marta Lourenço for welcoming us in the Museum.

and Lisbon, this chapter offers an engaging interpretation of scientific networks and the circulation of ideas during the Enlightenment.

Chapter Two, on the Association of Portuguese Archaeologists, by Ana Cristina Martins, also deals with material culture in museums but in this case in connection with the institutionalisation of archaeological sciences. Against the backdrop of the development of archaeology in Europe and in Portugal, this chapter highlights the role the Association and its mentor, Possidónio da Silva, played in the field of heritage preservation throughout the nineteenth century and in the first decades of the twentieth century. It traces the changes the Association underwent, as well as the impact it had on national and local government policy.

Hugo Pereira's chapter concerning the Civil Engineers Association delves as well on the Association's influence over government policy, this time on the particular issue of railway development. The chapter charts the growth of railroads in Portugal in the later part of the nineteenth century, examining the lobbying strategies of the Association, the technical advice it proffered through its journal and the part it played in generating a debate on planning issues. The chapter also emphasises the conflicting interests within the Association and the predominance of centralised, political decision-making over expertise-based judgments.

Chapter Four marks a return to a classical nineteenth century type of scientific association: the Geographical Society of Lisbon. Rui Pinto touches upon some of the key moments of the early days of the Society, strongly influenced by the colonial power play in Europe: expeditions in Africa, exhibitions of exotic products, training of colonial officers, political statements at critical moments.

The following chapter, by Ricardo Moreira, moves the analysis of scientific associations forward into the twentieth century. Focusing on the particular case of the disciplines of oncology and radiology, this chapter connects the origins of several scientific societies to teams and individual actors working on cancer research and treatment. Modern practices in medical research, laboratory work or hospital organisation influenced the internal organisation of scientific societies. A new type of association, of a professional nature, also emerges in this context, reflecting the trend of medical specialisation and responding to the growing anxieties of medical practitioners concerning the risks and dangers of radiation.

Chapter Six, by Dulce Freire, concludes this part with an account of the origins and activities of a research organisation which sought to promote the modernisation of Portuguese agriculture, under the aegis of a private foundation and negotiating the pitfalls of a science-unfriendly authoritarian regime.

Part II of the book begins with three chapters resulting from the SOCSCI project. Chapter Seven, by Raquel Rego, claims that despite their outstanding growth in recent years, scientific associations still attain low levels of professionalisation and institutionalisation, which in turn have a bearing on their limited ability to exert political influence. It pays particular attention to associations of a professional nature, formed around new occupational groups in science.

The next chapter analyses the participation of researchers in these professional associations, aiming to characterise their membership base, motivations for belonging and modes of participation. Luis Junqueira draws from the literature on labour movements in universities and academic capitalism, as well as the growth of the Portuguese science and technology system, to explain the rise of these associations.

Cristina Palma Conceição and Ana Delicado's chapter examines the science communication activities of the other two types of association: scientific societies (mostly of a disciplinary nature) and scientific dissemination associations (astronomy clubs, nature groups, science promotion NGOs). In the former, public understanding of science is becoming an increasingly important issue, though part of a wider array of activities and functions, much as a result of the competition with international associations that depleted the traditional roles of these societies. The latter type tends to involve a more diverse range of members (scientists, teachers, students) and a wider variety of dissemination activities, much more oriented towards public engagement with science (and even the production of new scientific knowledge). Its growth can be an indicator of an increasing link between science and society, as well as of the growing professionalisation and specialisation in science communication.

The following two chapters offer two prime examples of this trend, by presenting the case of two associations devoted to scientific dissemination. Chapter Ten focuses on the role of a local association in promoting a fairly neglected field in academia, speleology. Based mostly on contributions from amateurs, AESDA reproduces most of the practices carried out in the scientific field: conducting systematic research, collaborating with other teams, presenting paper at conferences, submitting articles to peer-reviewed journals, publishing its own periodical, donating interesting specimens to museums.

The chapter of Sandra Assis and Vanessa Campanacho examines the creation of the Group of Studies in Human Evolution, a non-profit association constituted in the year 2005 by a group of students with the aim of disseminating scientific knowledge among the general public. The

authors describe the comprehensive array of activities the Group has developed over the years, fulfilling its mission to bridge the sometimes wide gap between academic institutions and society at large.

The book concludes with an analysis of individual and collective "scientific activism" in nuclear controversies, by Ana Delicado. The chapter scrutinises the participation of scientists and associations in the recurring debate on resorting to nuclear energy in Portugal, connecting it to trends in scientific advice and governance and to the rise of the environmental movement. The events narrated in this chapter reveal the tensions within the scientific community, but also the alliances that are formed with external actors when matters of societal relevance are at stake.

Though the role of associations in science is the main thread that binds the chapters in this book, a few other common strands can be found. Several chapters show the role charismatic leadership can have in promoting and mobilising collective action: Correia da Serra in the Academy of Sciences (Chapter One), Possidónio da Silva in the Association of Portuguese Archaeologists (Chapter Two), Luciano Cordeiro in the Lisbon Geographical Society (Chapter Four), Mark Atthias in the Society of Natural Sciences (Chapter Five), Mário de Azevedo Gomes and Henrique de Barros at CEEA (Chapter Six). The importance of international networks is a recurring theme, demonstrating that Portuguese science and its associations have not evolved in isolation, but rather benefited from the circulation of knowledge afforded by forging links with foreign organisations and scholars. Another issue that emerges in several chapters is the sometimes fraught relations between the scientific community and government. Either asserting their labour rights or proffering technical advice, researchers clamour to be heard in political decision-making. However, politicians and officials seem to seldom welcome these contributions, upholding a centralised and hierarchical form of governance. Finally, some chapters also illustrate the importance of non-human actors, so dear to the Actor-Network Theory. In some of the stories told here, material objects take centre stage and sway the relations around them: museum artefacts, ruins, railways, hospital buildings, caves, bones.

Thus, scientific associations, though a fairly neglected issue in science studies, do offer the opportunity of examining broader matters concerning the functioning of the scientific system and its connections with the social context in which it operates.

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PART I

THE ROLE OF ASSOCIATIONS IN THE DEVELOPMENT OF SCIENTIFIC DISCIPLINES

CHAPTER ONE

OF OBJECTS, NETWORKS, POLITICS AND POETRY: THE ROYAL ACADEMY OF SCIENCES OF LISBON IN THE CONTEXT OF THE ENLIGHTENMENT

CRISTIANA BASTOS

Objects of curiosity

Well-kept in the historical building of the Academy of Sciences in Lisbon, a number of artefacts from around the world co-exist with books, paintings, furniture and other rare objects from a time when knowledge, wealth, pomp and some degree of cosmopolitanism went together. Among them there is a small collection that includes a helmet, masks, hooks, oars and some other artistically crafted objects from the islands of Hawaii and the coast of Vancouver. These objects piqued the visitor's curiosity, not only due to their beauty and presumed value, but also, and foremost, for their unusual origin. Tinglit, Nootka and Kwakiutl are familiar names to anthropologists, but their artwork remains exclusive of very few international collections. They are absent from Portuguese museums. The same goes for Hawaiian peoples and their artefacts. None of them belonged to the far-reaching Portuguese networks in maritime trade, political relations or military conquest of colonial times, and from which the Portuguese brought back the goods, knowledge, crafts and artwork that compose existing ethnographic collections. Most of the ceremonial masks, religious artefacts, religious statuettes or domestic utensils that exist in Portuguese museums come from Africa or, to a lesser degree, from Asia,

South America or Melanesia/Timor. There are scarcely any objects from the northern regions of America, Asia or Europe.[1]

Maybe for that reason, the Northern Pacific objects of the Academy of Sciences had been initially classified as African, and for over a century remained misclassified, indistinguishable from many other museum objects, as if metonymically affected by the majority. Only towards the end of the twentieth century were they correctly identified and given appropriate museological care.[2] They were placed in special display cases in a front room at the Academy of Sciences, and can be visited on special occasions, but not photographed. The reasons and routes that brought them to Lisbon are still a matter of speculation. When did they arrive, how did they travel, through whose networks, and under what circumstances?

The travels of Captain Cook and his objects

My first acquaintance with the artefacts dates to a special visit to the *Aula Maynense* of the Academy of Sciences in March 2010, where I also became familiar with the oral history running in the institution: the objects had been collected by Captain Cook on his third and last trip around the world, made their way to England after his death, and from England were transferred to Portugal due to the connections of one of the Academy members.[3]

It is widely known that Captain Cook lost his life in Hawaii in 1779, during his third great voyage after exploring the coast of British Columbia and searching for the Behring passage. He first arrived in Hawaii during the Lono god festivals; whether he was taken for Lono himself, treated as a god, or something else, constitutes a matter of debate among

[1] For a wider discussion about Portuguese museums and collections, see Brigola (2003), Cantinho Pereira (2005) and Delicado (2009).

[2] A special thanks to Manuela Cantinho Pereira, PhD and specialist of colonial collections, for sharing her valuable knowledge with the author and research assistant Patrick Figueiredo on an interview at the Lisbon Geographical Society in Lisbon, 2011.

[3] The official page of the Museu Maynense at the Academy of Sciences states that among its ethnographic collections are "the precious, high quality and partly unpublished collection from British Columbia and Hawaii obtained in the third and last expedition of James Cook and transferred to the Academy thanks to Sir Joseph Banks (President of the Royal Society and a member of our Academy) and his friend the Abbott Correa da Serra" (http://www2.acad-ciencias.pt/joomla/index.php?option=com_content&view=article&id=255&Itemid=81, accessed on July 29, 2013).

anthropologists—who also use his case to engage in further discussions about issues as diverse as first encounters, human rationality, European culture and the art of butchery (Sahlins 1985, 1995; Obeyesekere 1997). The fact is that after having first left Hawaii in glory, his unexpected return to the island had dire consequences: he was killed and his body was ritually disassembled.

When the vessel *Endeavour* returned to England leaving Captain Cook's body parts behind, it is likely that there were quite a few artefacts on board, both from Hawaii and from British Columbia. It is also likely that they landed in England. Yet there is no evidence, so far, that the Lisbon Academy objects were among them, nor is it clear how they would have travelled to Lisbon. With some speculation and creative thinking, oral history suggests that the objects travelled from one place to the other due to the special friendship between two important men of science, one in London, the other in Lisbon.

One of those men was the famous naturalist Sir Joseph Banks (1743-1820). Banks had accompanied Captain Cook on his first voyage around the world on board of the *Endeavour* (1768-1771). Although the Cook-Banks connection prevails in historical and popular imagination, Banks did not participate in Captain Cook's second trip, aboard the *Resolution* (1772-1775), nor in the third, back on the *Endeavour* (1776-1779). He nonetheless remained at the centre of knowledge-making of his time. He surveyed, identified, collected and systematised knowledge about different species; he supervised their cultivation at Kew Gardens (Desmond 1995, Gascoigne 1998). He was at the core, and he had a vast network of collaborators, interlocutors and friends collecting data in numerous places.

The other man of science mentioned in the legend was the Portuguese naturalist Correia da Serra (1751-1823), one among Joseph Banks' friends and interlocutors, and one of the founders of the Royal Academy of Sciences in Lisbon in 1779 (Beale Davis 1993, Teague 1997, Carneiro *et al.* 2000, Diogo *et al.* 2001, Simões *et al.* 2006)

Objects and scientific networks

Rather than the less noble and more common reasons of colonial plunder or trade, friendship and intellectual camaraderie in the age of the Enlightenment explained the presence of these unusual pieces in Lisbon. They travelled to Lisbon as a gift, after a series of transactions involving several scientific celebrities; an attractive tale of high pedigree, in sum. Collected *in loco* by no less than Captain Cook and traveling after his death in Hawaii, the pieces would have made their way to Europe and

were later given by Sir Joseph Banks, Captain Cook's associate and famous naturalist, to the Portuguese naturalist Correia da Serra, as part of the exchanges that sustained their friendship. If we apply Marcel Mauss' theories about "the gift" (Mauss 1925, 1990), we see that after this journey the objects possessed an overwhelming abundance of *Hau,* enriched by the vitality and notoriety of each of their owners, givers and receivers. Captain Cook, Joseph Banks and Correia da Serra had imbued their personas in the wonderful, rare and authentic masks, ceremonial helmet, hooks, oars and ornaments kept at the Academy.

The story seemed too good to be true: Banks at the centre of Enlightenment networks, the objects physically traveling from the islands of Hawaii and the shores of Vancouver to the city of Lisbon, via Banks, with Cook at one end and Serra on the other. Whether true or false, the story led me from objects to relationships and to a range of questions about the networks that at that time brought together naturalists and things, projects, research interests, sites on earth, flows of knowledge; about the insertion of the Lisbon Academy of Sciences in the wider Enlightenment networks; about the elusive Correia da Serra, who spent two-thirds of his life abroad and yet was one of the major contributors to science in Portugal; about his connections to Joseph Banks and other key figures of the Enlightenment, in France, England and the United States.

As much as the masks, oars, and helmet enchanted me, the questions around them enchanted me even more. I followed the threads that would lead me from the objects to the networks, trends, scientists and institutions of the Enlightenment. I also came upon unexpected scenarios involving not only science and politics, but also literature and poetry, class and gender , Freemasonry and religion, police and persecutions. The beautiful Kwakiutl objects and Cook's adventures in Hawaii were just the beginning of an exploration that led me away from the Pacific and into the heart of Europe's tensions at the end of the eighteenth century. While the route the objects took to Lisbon is still unclear and the subject of research by qualified scholars,[4] and while there is no support for the speculative hypothesis that they came to Lisbon via the Banks-Serra connection,[5] one

[4] There is a forthcoming chapter on the topic written by the specialists Manuela Cantinho Pereira and Miguel Telles Antunes which will lay out the state of the art on the matter. Unfortunately, however, the article is under embargo and no further research on the collections is encouraged, or allowed, before its publication.

[5] There was no mention of those objects on the correspondence between Joseph Banks and Correia da Serra that I consulted and that the authors of the scientific biography of Serra (Simões *et al.* 2006) systematically examined (Simões, Diogo and Carneiro, personal communication).

thing can be gathered regarding the *Hau* of those objects: they possess the magical ability of bringing new subjects to life.

Beyond British Columbia and Hawaii: Banks and Serra in England

Whether or not Banks and Serra, solo or as a team, ever touched, carried, studied, gave, purchased or even saw the Hawaiian and British Columbian objects that are now in the Academy of Sciences in Lisbon, the fact is that the two men indeed shared many interests, knew each other, corresponded, and even went on a joint scientific expedition to the Yorkshire coast. Serra may have been just one more of Banks many acquaintances and interlocutors, but everything indicates that he was an esteemed one (Simões *et al.* 2006).

Sir Joseph Banks had a vast network of correspondents and interlocutors. He was the naturalist of reference at the time, the person who most clearly epitomised the making of knowledge, exploring nature, collecting, naming, comparing, cultivating and foreseeing the uses of such knowledge (Gascoigne 1998). In 1766, at the age of 23, he was already a member of the Royal Society. His first great expedition, that same year, brought him to Newfoundland and Labrador on board of the vessel *Niger*. He described the species found there according to Linnaean terminology (Lysaght 1971). Since the ship stayed in Lisbon for six months, he became acquainted with the place and with some local scientists, with whom he formed lifelong relationships–such as with Domenico Vandelli, who would decades later ask Banks for protection in England during a period of political intrigue in Portugal.[6] But the Abbot Correia da Serra, then 15-16 years old, was not in Portugal at that time–he was probably in Naples with his family, pursuing studies he would continue in Rome. Banks and Correia would meet later (Teague 1997, Simões *et al.* 2006).

When Correia da Serra moved to England in a rush, in 1795, out of fear of persecution, he was already a mature man of science with good credentials and connections throughout Europe. He had been the co-founder of the Academy of Sciences in Lisbon, and reputedly its mastermind. He had lived in Rome, Naples and Paris in past years, and would live again in Paris and in Philadelphia in the future. He knew James Edward Smith, interacted with several other peers, like Richard Anthony Salisbury and Robert Brown (Diogo *et al.* 2011, 358). Banks was a most esteemed colleague, with whom he shared interests and engaged in joint

[6] Correspondence of Joseph Banks, Museum of Natural History, London.

work. While in London, Correia da Serra published extensively and participated in many scientific activities (Simões *et al.* 2006).

Correia da Serra's time in England was one episode in a life full of variety; his relationship with Banks was an important, cherished and prestigious one, but also one among many others. A worldly character with a wide range of interests, Correia da Serra drifted in different directions, to different places and towards different scientific interests. He hardly concentrated on a single topic long enough to write a monographic study but, instead, he made many small and incisive contributions in assorted fields. He travelled since he was a child; he moved easily, and made himself at home in different places, sometimes running from one place to the other in fear of persecutions. His was a very full and multifaceted life, elusive to his biographers up until now (Teague 1997, 11).

Who was this man who so uniquely epitomises the Enlightenment in Portugal and in Europe, who spent most of his life abroad yet had a crucial influence on his country, who embodies the character of the *estrangeirado*,[7] who co-founded the Academy of Sciences, who had important Masonic connections, who interacted closely with the major figures within and outside of Portugal, who made a home in Naples, Rome, London, Paris and Philadelphia, who came to be a dear friend of President Thomas Jefferson in the United States, to the point of having his own room at Monticello, Virginia, who took orders and earned the title of *Abbé* (Abbott) but never practiced much, who had a common law wife and a son, who befriended people from the ancient regime and the revolutionaries that fought against it? The variety of characters he embodied mirrors the complexity of interconnected worlds that coexisted at that time of radical change in politics and in knowledge-making. He was a man of his time, he resembled the time he grew up in; he engaged in different streams of knowledge—letters, philosophy, natural history, botany, carpology (study of fruits), geology, ethnography, politics, diplomacy (Diogo *et al.* 2001). He was a polymath, in the words of his biographers (Teague 1997; Beale Davis 1993).

[7] Literally, "foreignised", or those who have undergone foreign influence. Carneiro, Simões and Diogo (Carneiro *et al.* 2000, Digo *et al.* 2001) suggest that the best translation is "Europeanised". Mostly as an effect of political exile from authoritarian regimes–Pombal, above all–the *estrangeirados* abounded in late eighteenth century Portugal and contributed to major reforms in education and science. While most of them merely imported to the country what had been developed elsewhere, Correia da Serra genuinely contributed to the advancement of knowledge on several fronts (Diogo *et al.* 2001, 354).

Correia da Serra, a polymath of the Enlightenment: his youth

José Francisco Correia da Serra came into the world in 1751 in the southern town of Serpa, Portugal. His maternal and paternal families had known each other and maintained a close relationship for generations, a solidarity that may have emerged from their status as New Christians—meaning that their great-great-grandparents had been forced to convert from Judaism to Christianity (Teague 1997, 29-30). Throughout the centuries they suffered Inquisitorial accusations of "Judaism, heresy and apostasy" (Teague 1997, 30). When José was ordained in Rome, he produced the required documents denying that his parents, grandparents or great grandparents were prosecuted by the Inquisition. It is unlikely that he was unaware of his ancestors' ordeals during the Inquisition; more likely, he was concealing his Jewish and freethinking background on purpose (Teague 1997, 31-32).

His own parents had moved to Rome in 1756-57 anticipating Inquisitorial prosecution, according to most biographers (Teague 1997, 33; Diogo *et al.* 2001, 355, note 2). In Rome, his father Luis Dias Correia kept a successful medical practice and trade in medicines. Yet they had to move again in 1760, when the Portuguese were expelled from the Papal States as retaliation against Pombal's expulsion of the Jesuits from Portugal. The family moved to Naples and lived there for the following decade. New births expanded the family, but several died in childhood. In 1765, his mother Francisca died at the age of 31, giving birth to her 12th child—a girl who became one of the five siblings, from a total of twelve, who made it to adulthood (Teague 1997, 27).

José lived in Naples from the ages of nine to 19 (Teague 1997, 37). It is known that while in Naples he studied, although briefly, with the abbot Antonio Genovesi (Diogo *et al.* 2001, 355); it is less clear whether it was there that he studied with Luis Antonio Verney, a reference figure of the Portuguese Enlightenment and the author of "The True Method of Study" (Verney 1746), since their periods in that city did not necessarily coincide (Teague 1997, 38); the two may have met in Rome (Diogo *et al.* 2001, 356). It is also likely that the boy was influenced by the vibrant Napolitan culture of that period, with its lively *palazzos,* semi-secret associations and temples of knowledge—among which the famous pharmacy of the *Ospedale del Reame (Incurabili)* stands out (Valerio 2010; Rispoli 2010).

The young José went on to study in Rome with the priest Maratta, who contributed to his taste for botany; he also took classes in medicine and frequented the Papal *Orto dei Simplicy.* At the age of twenty he corresponded

with Carl Linnaeus and Antonio Turra (Teague 1997), although later in life he chose Jussieu's system over Linnaeu's (Diogo *et al.* 2001). While in Rome, José planned a scientific expedition to Sardinia with his college roommate Jean Desmete, a Frenchman. Instead, however, they went for a shorter trip to Liguria in 1774. On that trip he wrote abundant notes and reflections on everything he observed, natural or social and cultural, from geology and botany to diving and fishing methods (Correia da Serra 2003).

In the meantime, José was ordained. Whether due to family pressure, efforts to conceal his research activities from the Inquisition (Carvalho 1948), or merely the pragmatism of security and protection (Simões *et al.* 2006), he became a man of the church, the Abbé Corrêa da Serra, yet one who was not overly enthusiastic about the endeavour (Diogo *et al.* 2001; Teague 1997, 45). He engaged in activities often opposed by the church: science, research, secret societies, civic associations to promote the development of science. He had relationships with women and even had a son with his French partner Esther Lavigne. He engaged with the free thinkers that on the opposite side of the Atlantic built the United States of America. He also took part in scientific expeditions, although more modest than the round-the-world explorations of Cook and Banks, to the English coast of Yorkshire, the Italian coast of Liguria, the Portuguese island of Berlenga, and other sites in Europe and the United States.[8]

Correia da Serra, Lafões and the Royal Academy of Sciences

When Correia da Serra returned to Portugal in 1777, after his studies in Rome, he found he had just lost his father, who had returned home a few years before. Dr Luis Correia had lost his wife Francisca and his business had been in frank decline. José Francisco Correia da Serra inherited no wealth, but stress and sorrows—which would erupt to torment him later in life.

[8] His travel papers include: "Journal d'une Course en Avril 1774: Avec Mr. Demeste"; "Observations d'histoire Naturelle dans le Patrimoine de S. Pierre en 1776: Juin avec Mr. L'Abbé Chaupuy (?)"; "Observations faites en parcourant l'Espagne et le Portugal: N° 1. Voyage de Cadiz a Serpa, 1777"; "Observações sobre a formação e estructura Fisica das tres Provincias Meridionaes do nosso Reino"; "Observações feitas a huma jornada pela Provincia do Alentejo em Mayo e Junho de 1785"; "On a Submarine Forest, on the East Coast of England"; and "Observations and Conjectures on the Formation and Nature of the Soil of Kentucky", compiled in Correia da Serra (2003).

To his fortune however, the rich and influential Duke of Lafões had also returned to Portugal following a long exile during Pombal's government under King José. Lafões was a close relative of the new Queen, D. Maria, enthroned in 1777. He was also an opponent of the ancient regime, a sympathiser of the ideals of the Freemasonry and an enthusiast of progress, science and human growth through learning.

Through some connections with Beja's friar Manuel do Cenáculo, a man close to Pombal's circle of influence and at some point the head censor of the country (Carneiro *et al.* 2000, 599), Correia da Serra accepted the sponsorship of the Duke of Lafões and in 1779 moved to his palace in Lisbon–the *Quinta dos Alfinetes ao Grilo,* in today's Beato-Xabregas neighbourhood. There he found the material, emotional and social support necessary for his intellectual work. There he wrote in abundance; he left behind many of his notes when he fled to England, even though Lafões later denied their existence in order to cover up for his friend. It was also there that he and Lafões planned the details for the society they were about to create. Its purpose was to promote science, research, knowledge and freethinking in general, to push the country forward, away from the ancient regime's lethargy and backwardness that they abhorred so much. That society would become the Royal Academy of Sciences—"the sole sheet anchor in this wreck", as Correia referred to it in a letter to Manuel do Cenáculo (quoted by Diogo *et al*. 2001, 356).

The Royal Academy of Sciences was officially founded on December 24, 1779, sponsored by the Queen D. Maria. The main figureheads were the Duke of Lafões, its first president, and Correia da Serra, who became its first secretary and was appointed permanent secretary in 1788 (Diogo *et al.* 2001, 357). Soon botanist Domenico Vandelli joined them. Although the latter pushed for a focus on natural science, the Academy kept broader interests. With the motto "*NISI UTILE EST QUOD FACIMUS STULTA EST GLORIA",* the Academy bylaws stated its commitment to promoting public happiness, developing national education, improving science and arts, and advancing popular industry (see Cardoso 1990, Figueiredo forthcoming).

The Academy had different sections, or classes: natural sciences, hard sciences, beaux-arts and letters. At the time, letters or *Literário* meant more than fiction, and included most written work involving knowledge. There were full members, corresponding members, and foreign members. Via personal networks, international celebrities were invited to become corresponding or honorary members of the Academy and earn yet another distinguished title while broadening the Academy's networks, reach and prestige (see Simões *et al.* 2006, 53-54). Joseph Banks was among these,

along with other key scientists and people of knowledge of the time. As noted by today's analysts, "in order to be effective, the Academy should function both as a centre of production and dissemination of knowledge in the country and as a part of an international network of scientific institutions" (Diogo *et al.* 2001, 356-7). If we follow the analytical suggestions of Actor-Network Theory (e.g. Law 1992), networks per se could account for the Academy's existence and functions. However, the genuine commitment of some of its members to progress, science, knowledge and human improvement should not be left out of the analysis.

In spite of some difficulties, the Academy was able to maintain an independent agenda and worked in parallel with the state. It attempted to keep the production of knowledge in constant flow while the governments drifted and shifted. The Academy, not the government, defined the methods of data collection in overseas territories and provided the guidelines for surveying the mineral, vegetable and animal worlds of each place, as well as the notes to take on the local societies. This created a core of organising principles for specimen collection and for the questionnaires that colonial officers in Africa and Asia used as a basis for their reports. Occasionally, the Academy promoted special expeditions, such as that of Alexandre Rodrigues Ferreira to the Amazon (Raminelli 2008).

In years to come, the Academy was either supported or targeted by the governments, but it always survived with an independent agenda. The headquarters moved between different temporary locations until they settled in the former Convent of Jesus, in 1834, where they remain today. The street was renamed *Rua da Academia das Ciências*. The reform of 1851 divided activities into two sections—Letters and Sciences, much similar to what today would be called Humanities and Sciences.

The Academy supported public education not just in theory but also literally. Its headquarters temporarily hosted higher education and entire sections of the University of Lisbon in the early twentieth century. Currently, the headquarters house the geology museum, which is open to the public, and the not yet open Maynense museum (after Father Mayne's class), with a precious collection that includes the Hawaiian and Pacific pieces mentioned earlier among other ethnographic rarities, as well as zoological and botanical specimens, scientific instruments and the remains of the former convent. Besides a vast library and numerous paintings and sculptures, the Academy produces its own publications, including the *Memorias da Academia*. The building itself is a gem with a majestic, gilded main hall, marble-paved corridors and stairways, beautiful rooms and cloisters.

With the mission of promoting knowledge against the country's backwardness and its absolutist governments, politics has permeated the existence of the Academy since its very beginnings.[9] It had to compete with projects promoted by other groups, which had ties to former or future scientific societies, vying with networks for influence, fighting for the prevalence of the knowledge produced according to the principles of science and reason. There were also some periods of lethargy; when Link visited Portugal at the end of the eighteenth century for the botanical survey that led to his monumental Flore Portugaise (Hoffmansegg and Link 1808-20), he found an incipient scientific society that had little to be proud of (Link 1801; see also Bastos 1988, Diogo *et al.* 2001, Simões *et al.* 2006, 73).

Those were times of intense turmoil, interrupted projects, short term governments and shifting political agendas. The waves of republicanism that came from France and its sympathisers were felt as a threat to the established powers; scientific activity was often considered suspect and scientists were accused of Jacobinism and Freemasonry, and the Academy was seen as a breeding ground for these ideologies (Taegue 1997, 57). Both Correia da Serra and Lafões were constantly targeted by the police superintendent Pina Manique (Diogo *et al.* 2001, 357). For reasons not fully documented, Correia da Serra moved to France in 1786 and returned only in 1791–right before and after the French revolution. In 1794, the French physician of Girondist persuasion Pierre Maria Auguste Broussonet, a known freemason, came to Lisbon and was hosted by the Academy of Sciences. Pina Manique was after him, and the pressure over Correia da Serra increased. After Broussonet escaped, so did the Abbé, who sought refuge in England in 1795(Diogo *et al.* 2006, 59-61).[10]

[9] The relationship between the Academy and the Portuguese state is intriguing up to our days. No longer a private association but under the sponsorship of the government (Ministry of Education and Science), its collections are kept under reserve and only occasionally become available to the public–as if the Academy's original mission of promoting science above the state was still in the agenda.

[10] Diogo *et al.* (2006, 60, note 10) transcribe a document from the Inquisition accusing Correia da Serra of a multitude of crimes and misdeeds of sexual nature–naming several women and a young man, plus referring to a number of unknown victims.

The wide networks of the enlightenment: Correia da Serra and Leonor de Almeida, Countess of Oeynhausen, Marquess of Alorna

After moving to London in 1795, Correia da Serra interacted with prominent English naturalists like Joseph Banks, James Edward Smith, Richard Anthony Salisbury and Robert Brown (Diogo *et al.* 2006, 77). Although the *Abbé* found shelter and support for his work in science, he could not secure enough income for his needs. Throughout his life he had a steady stipend from the house of Lafões (Monteiro e Costa 2006), but occasionally he encountered difficulties in making ends meet (Diogo *et al.* 2006, 63). He was chosen for a position at the embassy, but political intrigue prevented him from achieving it; the embassy was in the hands of the Marquis of Ponte de Lima, whose connections with the Inquisition revived the accusations against Correia da Serra (Diogo *et al.* 2006, 74). Seen from today's perspective, Correia's attitude may be considered slightly paranoid, as he so often feared persecutions that did not take place–yet, the accusations existed and supported his feelings of vulnerability, while fuelling his tendency to move from one place to the next.

In 1801, he moved to Paris where he interacted with the major naturalists and philosophers of the time; Lafayette, Cuvier, Pyramus de Candolle, Alexander Humboldt, Christian Persoon, Du Pont de Nemours, Julien La Metrie, plus the Portuguese botanist in exile Avelar Brotero (Carneiro *et al.* 2000, 609; Cardoso 2013, 19). For years, Correia da Serra had a fulfilling life. He had a relationship with Esther Lavigne, with whom he had a son, despite his vows of celibacy as a catholic clergyman. After some years however, France became uncomfortable for his demanding persona. What had once been the place of free thought, and thus the ideal setting for the pursuit of knowledge, had turned into a land of authoritarianism. He refused to write the eulogy of Napoleon and once again packed his belongings and left (Diogo *et al.* 2006, 127).

Correia da Serra crossed the ocean in search of freedom in America. He arrived in Philadelphia in 1812 with letters of recommendation from distinguished French scholars (Carneiro *et al.* 2000, 608). He taught at the University of Pennsylvania, became a member of the American Philosophical Society, engaged in several scientific expeditions and became close friends with Thomas Jefferson. Correia da Serra was a regular guest at Monticello, Jefferson's place in Virginia, where the "Abbé's room" can still be visited today (Teague 1997, Diogo *et al.* 2006, 132). Recent works

on Correia da Serra in America show how intertwined he was with American politics (Beale Davis 1993, Almeida 2013, Cardoso 2013).

But once again he planned to leave; he entertained plans of moving to Brazil, then a colony of Portugal—or, should one say, its centre, albeit a temporary one. In anticipation of the Napoleonic invasions, the old and now demented Queen D. Maria,[11] her son João (future João VI) and a vast number of courtiers sailed from Lisbon to Rio de Janeiro at the end of 1807, establishing it as the capital of the empire in 1808, only to return to Portugal in 1821 (Wilcken 2006). Politics changed dramatically in 1822, when Brazil became a new independent nation and the liberals won in Portugal.

After years of incertitude and occupation by both Napoleon's troops and the English who had come to the country to fight the French, Lisbon was again in the hands of the Portuguese. And to Lisbon it was that Correia da Serra moved as well in 1822. No one can say whether this restless character would be ready to move again in a few years' time; his life was cut short in the following year. He died in 1823 on a trip to the spa at Caldas da Rainha, where he sought treatment for the ailments he had accumulated throughout his life.

In each of the different places he lived, Correia da Serra expanded and cultivated an impressive number of friends, colleagues, interlocutors; a few of them were—like himself—well-travelled, cosmopolitan Portuguese men such as Luis Antonio Verney, his senior, and the Duke of Lafões, co-founder and mentor of the Royal Academy of Sciences. But there was also at least one well-traveled Portuguese woman he interacted with throughout his life: Leonor de Almeida (1750-1839), Countess of Oeynhausen and future Marquess of Alorna, herself a key element in the European Enlightenment. At least once, in 1785, Correia travelled with Leonor and two of her children, who were on their way from Vienna to Lisbon and took him on board in Avignon.[12] A prolific writer of letters and diaries,

[11] The loss of her eldest son, José, who should have become the next monarch (José II), devastated the queen to the point of no return. It is still unclear whether his death was due to accident, poisoning or smallpox. Wilcken suggests smallpox and relates the queen's insanity to plausible feelings of guilt, for she had chosen not to inoculate him at a time when such preventive action carried many dangers (Wilcken 2006).

[12] In a unique book restoring the combination of research and poetry, Maria Teresa Horta presents her extensive research on the life of Leonor de Almeida in the 1,000 pages literary masterpiece *As Luzes de Leonor* (Horta 2011). I am immensely grateful to the author for the book and generous sharing of her research in subsequent encounters.