

Manuel Galvão da Silva's philosophical journey to Goa (1784)

<https://doi.org/10.1590/1982-02672022v30e48>

MAGNUS ROBERTO DE MELLO PEREIRA¹

<https://orcid.org/0000-0002-2277-0773>

Universidade Federal do Paraná / Curitiba, PR, Brasil

CLÁUDIO DENIPOTI²

<https://orcid.org/0000-0002-0862-5203>

Universidade Estadual de Londrina / Londrina, PR, Brasil

ABSTRACT: At the end of the 1770s, Portugal began to prepare to participate in the global strategic repositioning process carried out by the European colonial powers in the second half of the 18th century. The study and the exploration of nature according to the paradigm developed by Linnaeus were part of the process. In 1783, the Portuguese crown sent naturalists to explore its colonies in Africa and America. Portuguese India was practically left aside, were it not for the hurried passage of Manuel Galvão da Silva, on his way to Mozambique. The article addresses the presence of this naturalist in the region of Goa.

KEYWORDS: Philosophical Trips. History of Botany. History of Mineralogy.

RESUMO: Ao findar a década de 1770, Portugal começa a se preparar para participar do processo de reposicionamento estratégico global conduzido pelas potências coloniais europeias na segunda metade do século XVIII. O estudo e exploração da natureza segundo o paradigma

1. History PhD from the Federal University of Paraná (UFPR), carried out a post-doctoral internship at the universities of Lisbon and Coimbra. He is a retired professor at the Federal University of Paraná, where he works in the Postgraduate Program in History. E-mail: magnusdocs@gmail.com.

2. History PhD from UFPR, has carried out postdoctoral studies at the Jaime Cortesão Chair at the University of São Paulo (USP) and a Senior Lecturer at the Faculty of Arts of the University of Lisbon. He is currently an associate professor at the State University of Londrina (UEL) and professor of the of the Masters in History, Culture and Identities of the State University of Ponta Grossa (UEPG) and of the Masters in Social History, of UEL. E-mail: denipot@uel.br.

desenvolvido por Lineu faziam parte do processo. Em 1783, a coroa portuguesa enviou naturalistas para explorar suas colônias da África e América. A Índia portuguesa foi praticamente deixada de lado, não fosse pela apressada passagem de Manuel Galvão da Silva, a caminho de Moçambique. O artigo aborda a presença desse naturalista na região de Goa.

PALAVRAS-CHAVES: Viagens filosóficas. História da botânica. História da mineralogia.

NATURAL HISTORY COMPLEXES

3. Cañizares-Esguerra (2006, p. 27).

4. Cook (1993, 2007).

During the second half of the 18th century, the main European powers unleashed a race of scientific exploration on a global scale. Portugal arrived late in this race, as it was only in the 1770s that the construction of natural history museums and botanical gardens dedicated to the scientific collection of specimens began, one at the University of Coimbra and another in Lisbon, annexed to the Ajuda Palace.

Scientific botanical gardens, such as these, were the result of a long transition process that started from medieval gardens, destined for the cultivation of medicinal species, until reaching eighteenth-century gardens of collecting, study and acclimatization. The *Orto Botanico di Pisa*, founded in 1543, is considered the oldest modern botanical garden, but it was in Padua, in 1548, that the garden was first integrated with an institution of higher education. This model was adopted by other Italian universities, such as Bologna, and from there it spread to northern Europe. The Leyden University created its garden in 1587 and Montpellier, in 1593.

We cannot forget, as Cañizares-Esguerra warns, that the development of botany did not take place only in these spaces created from the humanist tradition.

The genealogy of the botanical garden (from medicine to ornamentation to plantation agriculture) does not pay sufficient attention to developments in sixteenth-century Portugal and Spain, however, for early modern botany was rooted in the entrepreneurial, utilitarian efforts of apothecaries in gardens and hospitals in Seville, Lisbon, Goa, and New Spain as the humanist culture of the medical faculties of Padua, Leiden, and Montpellier.³

The historian Harold Cook maintains a similar thesis, for whom the emphasis on values such as objectivity, description and accumulation, typical of the great Renaissance trade, provided the epistemological bases on which modern sciences were built.⁴ In any case, as regards botanical collecting, the first steps towards a new epistemological level were being taken.

Throughout the Seventeenth Century, new botanical gardens were created and the old medical, academic, and Iberian utilitarian traditional gardens were reconfigured to become places for the study of botany and plant collections. Many of them would assume the character of imperial botanical gardens, sponsored by royalty. Increasingly, they became the destination of exotic plants shipped from the Americas and the East. The botanical garden at the University of Amsterdam is a good example of this passage. To characterize the change in its purpose and scope, it changed its name from *Hortus Medicus* to *Hortus Botanicus*. The *Jardin Royal des*

5. Pereira and Cruz (2016).

6. See Regourd (1999).

7. Colbert (1865, p. 487).

8. See Bourget and Bonneuil (1999, p. 11).

Plantes Médicinales, created by Louis XIII in 1635, slowly took on another purpose and abandoned the name *Médicinales*, to become the *Jardin des Plantes*, or officially the *Jardin du Roi*, in 1718.⁵

France was the first country to set up scientific complexes of Natural History on a planetary scale, as it became a colonial power during the first half of the 17th century, when it managed to consolidate its presence in North America, the Antilles and Guyana. By the end of that century, French colonization expanded towards the Indian Ocean. This was also the period of Jean-Baptiste Colbert's government, in whose conceptions of state administration, tropical nature was thought of as an economic asset of primary importance.⁶ In a letter sent to the director of the West India Company in 1670, Colbert had already announced his purposes:

I want you to carefully examine all the flowers, fruits and even the animals, if there are any that are native to the country that do not exist in Europe, and everything that should be necessary to bring them. You will have to send them to me by every ship that comes, so that if one fails, the other can succeed; especially send me pineapples, in order to try to make them sprout here.⁷

In the 1670s, the Royal Academy of Sciences and the *Jardin du Roi*, which had been restructured by Colbert, became the main centers for conducting the French project of natural collecting and the diffusion and acclimatization of species considered of economical interest. Under the coordination of the Academy, a network of informants and collectors was created that fed French scientific institutions with tropical specimens or took responsibility for attempts to introduce European plants into the colonies.⁸

Regarding botanical collecting, with Colbertism decisive steps were taken towards a new epistemological level. The process began, either through the reconfiguration of old medical gardens or through the creation of new ones, to impose on such places the character of botanical gardens of an imperial-colonial hue, financed by royalty. The next step was taken by Carl Linnaeus. The Swedish naturalist consolidated his scientific reputation after wandering through distant Lapland, Sweden's arctic colony. He later took charge of the former medical garden at Uppsala University, created in 1655, adapting it to his new designs. In this modest garden, he elaborated his great project of survey, classification and universal acclimatization. With a view to obtaining specimens of minerals, fauna and flora, he spread his disciples on pilgrimages to the four corners of the world, thus building a large network of scientific informants. Through this network of traveling naturalists, he managed, between 1746 and 1772, to collect specimens and information from

the most varied regions of the globe.⁹ Finally, his recognition of merit was such that virtually everyone involved in the natural sciences sought to join his network. Exchanging correspondence with the Swedish naturalist or sending him copies was almost mandatory for anyone seeking recognition in the scientific world at the time.

In addition, Linnaeus was indirectly involved in the process of disciplining shipments and the exhibition of natural products. Under his guidance, two students from the University of Uppsala produced manuals designed to instruct the activities of collecting and organizing natural history collections. David Hultman published, in 1753, an instruction manual designed to guide the organization of Swedish natural history offices and museums, including those of the King and Queen. In 1759, Eric Anders Nordblad defended and published the thesis *Instructio peregrinatoris*, starting a new generation of collection manuals that met Linnaean scientific principles.

Through this set of actions, which brought in themselves a universalizing character, Linnaeus provided systematic bases for what would become the great project sponsored by the European crowns of (re)cognition of the world, through the survey and general cataloging of flora and fauna, minerals and even 'men'. The process gained impetus with the Seven Years War (1756-1763), when conflicts between England and France surpassed the European scope and expanded to North America, the Caribbean, the Senegambia Confederation and India. The Spanish invasions of the southern part of the Portuguese possessions of America, in the 1760s and 1770s, were part of this climate of strategic wars from the 18th century. Increasingly, the colonies became the theater of European wars and the process of scientific exploration became part of the framework of the repositioning strategies of the colonial powers.

From the point of view of the natural sciences, the most expressive result of these expeditions was the consolidation of the epistemological paradigm composed of the tripod: (1) Linnaean taxonomic model, (2) European imperial pilgrimages and (3) Natural History complexes (garden-museum-menagerie); which started to be reproduced everywhere. Joseph Banks, after participating as a botanist on one of James Cook's voyages, became a central figure in the Royal Botanic Gardens of Kew and began to control the policy of sending naturalists in expeditions dispatched by the Admiralty to all continents.¹⁰ Despite ignoring Linnaean taxonomy, Buffon conducted a similar collection process from the Jardin du Roi.¹¹ In Spain, the Royal Cabinet and the Royal Botanical Garden of Madrid would centralize the imperial policy of collecting and cataloging specimens. Across Europe and in some colonies new facilities were created and old ones were adapted to meet renewed demands.

In Portugal, the process would not be different. Antônio Ribeiro Sanches was a Portuguese doctor who went into exile in Paris to escape the Inquisition. Despite

9. See Ueberschlag (1977).

10. See Drayton (2000) and Lacroix (1990).

11. See Spary (2000).

12. Sanches (1763).

13. See Lacerda e Almeida (1944, p. 3).

this, he exerted great influence on the scientific reforms carried out by the Marquis of Pombal. In 1763, Sanches outlined a scientific *aggiornamento* proposal that involved training qualified personnel in Natural History and sending exploratory expeditions to America and Africa, in search of species useful to medicine and trade. He also advocated the creation of Botanical Gardens on these continents for the transplantation of exotic species.¹² Ribeiro Sanches' proposals must have inspired Portugal's adoption of the Linnaean program for exploring nature.

In 1768, the professor and naturalist at the University of Padua Domingos Vandelli arrived in Lisbon at the invitation of the Marquis of Pombal. His most immediate tasks were to start scientific teaching at *Colégio dos Nobres*. He was also commissioned to install a complex dedicated to Natural Sciences near the Royal Palace of Ajuda. The model that Vandelli would implement in Portugal followed the booklet established by Linnaeus, which had already been established in other countries. With the creation of the Natural History Museum and the Botanical Garden, the intention was to establish a knowledge production nucleus from which the Portuguese network of botanical, zoological and mineralogical specimen collection would be extended, including international contacts for the exchange of copies. Along with Vandelli, his assistant, the gardener Júlio Mattiazzi, came from Italy and took responsibility for the facilities at Ajuda when the naturalist moved to the University of Coimbra. In that city, the naturalist created a complex similar to the one in Lisbon. In these spaces designed for the teaching and dissemination of science, the first naturalists in the Portuguese world were trained.

The Philosophical voyages

At the end of the 1770s, the long Portuguese process of preparations for the scientific exploration of nature, which began with the hiring of foreign professors and the reform of the University of Coimbra, changed its scale. As with the other European colonial powers, the strategic-military component of the process played a decisive role. Thus, the initial step of hiring newly graduated students in Coimbra for missions in the colonies was not for Natural History trips, but on expeditions to demarcate borders in the Amazon and Mato Grosso region, where Portuguese mathematicians-astronomers were sent, including Brazilians Francisco José de Lacerda e Almeida and Antônio Pires da Silva Pontes. After a period of preparation in Portugal, under the supervision of the Italian professor and astronomer Antônio Siera, they left for America on January 8, 1780.¹³

Vandelli tried to include his naturalist disciples in this expedition, according to a letter sent to the Marquis de Angeja, at the end of 1777.¹⁴ They would be better prepared than mathematicians for tasks relating to natural history and would be the eyes and legs of the Paduan master in the exotic overseas lands.

I wished I wasn't so tired, nor so weak in my health, to be able to go and discover in the new world the immense riches we ignore, and which are envied by foreigners. But this impossibility of mine can be supplied by some of my disciples, who have been attending college for six years, and can be usefully employed in this new expedition so glorious to Portugal. They are the only ones capable of this end; for they have applied themselves by profession, and not like the Mathematicians, who did it as preparatory only, scorning, after they had passed, even that same superficial knowledge; what I have witnessed as their Master. Added to this is the fact that Mathematicians do not know Chemistry, which is so necessary for Mineralogical discoveries.

If you carry out this wish of mine, we will have a Cabinet that is the richest and most precious, and one that will be envied by strangers. [...]

Please, therefore, explain to Mr. Visconde [of Vila Nova da Cerveira] this thought of mine, and promote this business together with him. If Your Excellency is pleased, I will propose the subjects who seem to me capable, and I will take care to instruct them as experienced in travelling, writing down the entire plan by which such an expedition should be guided, contributing also to this with all of my faculty, which finds itself with the same intentions, as zealous for the public good, which it has the job of promoting.¹⁵

Angeja and Cerveira apparently agreed with Vandelli's proposal. However, it did not go beyond the plan of intentions and the mathematicians went to the Amazon without the company of naturalists. As Vandelli had predicted, astronomers were not very inclined to Natural History and when any one of them got involved in it, he was censured by his colleague, as can be seen in Lacerda Almeida's complaints about Silva Pontes.

As my companion and colleague, dr. Pontes was distracted by his philosophies, spending much of the day copying monkeys, rats, etc., for that reason, he let many directions pass by, giving the river a different course than it actually had, I decided from this day to configure it daily.¹⁶

Although not carried out, Vandelli's plan seems to have marked the immediate future of the study of Natural History in Portugal.¹⁷ In the years that followed, the Paduan master wrote his instructions for traveling naturalists¹⁸ and, in partnership with the overseas minister Martinho de Melo e Castro, began preparations for

14. See Brigola (2003, p. 184-192).

15. See *Jornal de Coimbra* (1818, p. 47-50).

16. Lacerda e Almeida, *op. cit.* (1944, p. 40-41).

17. See Brigola, *op.cit.* (2003, p. 5).

18. See Vandelli (1779).

19. See Simon (1983), Patata (2006) and Pereira and Cruz (2012).

20. *Breves instruções* (1781).

21. See Pereira and Cruz, op. cit. (2012).

sending a large scientific expedition to Brazil, very probably to Rio de Janeiro. Vandelli selected some of his former students from the University of Coimbra to be part of this philosophical journey.¹⁹ Gathered in Ajuda, they went through a kind of preparatory stage designed to complement their education before setting off on a scientific trip. The team, made up entirely of Portuguese-Brazilians, included Alexandre Rodrigues Ferreira, who was given the leadership role, João da Silva Feijó, Joaquim José da Silva and Manuel Galvão da Silva. The botanical designers and gardeners who would accompany them on the expedition were also trained at the same occasion. During this period they engaged in some small exploratory trips and were also involved in the elaboration of manuals for scientific travels, including the *Brief Instructions* which sought to discipline the shipments of products of Natural History to Lisbon.²⁰ The manual was printed by the *Academia das Sciencias de Lisboa* and was widely distributed among the administrators of the colonies.²¹

At the end of 1782, there was a change in plans and the team of the great expedition to Brazil was dismembered. There was, at the time, a dispute between European nations for the collection and classification, according to Linnaeus's taxonomy of new mineral, plant and animal species. The dismemberment of the team may have been a way to speed up the collection of natural products from different parts of the Portuguese colonial empire, in order to catalog them as soon as possible, which would yield academic and political dividends. Collecting and making known as many species as possible had become a matter of national pride.

Alexandre Ferreira was tasked with exploring the Amazon region. He left Lisbon in 1783, accompanied by two draftsmen and a gardener, on what can be considered one of the most successful philosophical journeys of the 18th century. In the more than 10 years that he remained in the Amazon and Mato Grosso, Ferreira wrote compulsively and sent an impressive amount of botanical, zoological and ethnographic material to Europe. Remittances from it are now scattered throughout several museums on the old continent.

João da Silva Feijó was given the task of studying the Cape Verde islands and sending specimens of the archipelago's fauna and flora to Portugal. When he returned to Lisbon, he continued in the service of the crown. In 1799 he was sent to Ceará and later to Rio de Janeiro, where he became professor of Natural Sciences at the Military Academy.

Manoel Galvão da Silva traveled through Bahia, from where he went to Portuguese India, and from there on to Mozambique. Joaquim José da Silva, went to Angola. Both accumulated the positions of crown naturalists with the bureaucratic function of secretaries of the governments of those colonies, which prevented them

from fully developing scientific activities, as they were prevented from leaving the capitals. Both sent vast botanical material to Portugal, but were only able to make a few small exploration trips into the interior of the colonies. Neither showed any great scientific inclination. Joaquim José da Silva raised a family in Angola and stayed there for the rest of his life. Little is known about the fate of Galvão da Silva. At the end of his official mission in Mozambique, or even during it, he began to devote himself to the slave trade. The latest news about him is from 1794.

22. See Cortesão (1978).

23. Orta (1563).

24. Drakestein (1678-1693).

25. Rumphius (1741).

26. Pereira (2017).

27. See Almeida (1975).

Portugal and knowledge of Eastern nature

During the first century of Portuguese colonial expansion, the conquests of the East were considered the jewels in the crown. The center of the empire of the East was Goa, the Golden, which became a mythical place whose riches excited the European imagination. Conquered by the Portuguese, the city became a feverish urban center, which brought together a community of scholars that included merchants, men-at-arms, religious, administrators and aristocrats of the East. Tomé Pires, an apothecary who was part of this group, was the first to elaborate a book in which the flora of a vast region that today is made up of India, Malaysia and Indonesia was described: the *Suma Oriental*.²² In Goa, a pioneering work was also published, the *Colóquios dos simples e drogas e cousas medicinais da Índia* (Colloquies of the simple and drugs and medicinal things of india), by Garcia de Orta.²³

During the 17th century, Portugal would lose most of its Indo-Pacific colonies to the Dutch and also the primacy of Western knowledge about the nature of the Orient. As a result, during this period, two Dutchmen, working for the VOC (*Vereenigde Oost-Indische Compagnie*), would develop scientific knowledge of the fauna and flora of this region of the globe, starting with the monumental work, designed by the Dutch governor Hendrik van Rheedee, the 12 volumes of the *Hortus Indicus Malabaricus*.²⁴ The other scholar of Eastern nature was Georg Everhard Rumphius, who for decades lived on Amboin Island, where he wrote the *Herbarium Amboinense*.²⁵ These were pre-Linnaean works, but they helped Linnaeus build his taxonomic method. Many of the botanical names proposed by these scholars of oriental flora are still in use today.

With the loss of most of the eastern empire, the region would no longer occupy the center of the Portuguese colonial agenda, which increasingly turned to America and, secondarily, to Atlantic Africa.²⁶ Since the period the kings of Spain ruled Portugal (1580-1640), discourses defending the idea of abandoning the eastern colonies and starting to produce spices in Brazil became frequent.²⁷ After

28. Macedo (1675a and 1675b).

29. Almeida, op. cit. (1975, p. 358).

30. Melo (1760).

31. Domingues (2001) and Kury (2004).

32. Pereira, op. cit. (2017, p. 668-669).

all, the Portuguese monopoly on spices had already been lost and the transfer of production to the Atlantic would be a way to face the powerful VOC. As we have seen, under the influence of Minister Jean-Baptiste Colbert, the French had begun the creation of a network of botanical gardens that would allow them to face the exclusive Dutch. It was exactly in Paris that the Portuguese diplomat and economist Duarte Ribeiro de Macedo, a follower of Colbert's ideas, wrote his speeches on the transplantation of spice plants from the East to Brazil.²⁸

It can be seen that, from that time on, the Portuguese crown began to slowly give in to pressure to release the production of Eastern spices in Brazil, starting with ginger. However, the expenses of the deficit State of India, which depended on the spice trade, weighed in favor of maintaining the Eastern monopoly. Breaking a centuries-old interdiction, the Portuguese crown gave orders, in 1677, to send seeds of ginger, nutmeg, cloves, cinnamon and pepper to colonies in America and Africa.²⁹ To help with the cultivation of cinnamon, some Goans were even sent to Bahia. This intercontinental transplantation effort was, however, quickly forgotten with the beginning of gold rush in Minas Gerais.

The Portuguese interest in the natural things of the East would only reawaken from the mid-eighteenth century onwards, within the framework of the modernization effort in Portugal led by the Count of Oeiras, the future Marquis of Pombal. In 1760, Sebastião de Carvalho e Melo himself was involved in a project to transfer pepper plants from India to Maranhão. The purpose was to recover the participation in the "Trade of this kind made by Foreigners after having snatched it from us by the strange ways that are very evident".³⁰ However, the acclimatization project did not go ahead, nor were more consistent attempts to study Indian nature carried out.

When the Coimbra Botanical Garden and the Ajuda Natural History complex were formed, the naturalist Domingos Vandelli and the minister Martinho de Melo e Castro sought to create a network of employees and amateurs, both in Portugal and in the colonies, aiming to establish the collections of these institutions.³¹ The Overseas Minister even issued orders to the governors of the Eastern conquests to send all kinds of natural products to Portugal. In Portuguese India, as in other eastern colonies, the responses were rather shy.³² During following decade, when the great Portuguese project of sending Natural History expeditions to the colonies was formulated, the East was restricted to a hasty passage of Galvão da Silva through Goa.

On the eve of the big trip

Shortly before leaving for the colonies, Manuel Galvão da Silva drew up a manifesto letter, most likely addressed to the Minister Melo e Castro, in which he exposed considerations about his future mission and about the role of philosophical expeditions in general. the naturalist's expectations and his personal travel program, beginning with a long speech about the relevance of Natural History Gardens and Museums, in which he repeated Enlightenment slogans about scientific journeys.³³

Without travelling one does not learn useful Philosophy. It is not in the books of the wise, nor in the Cabinets of Natural History, where Nature must be contemplated: the entire Universe is His great Book of Works; you have to look for it scattered everywhere; equally occupied in producing the greatest and the smallest things. Travels do not only serve to increase the theory of Sciences, nor are they limited, thanks to good Philosophy, to sterile knowledge; to metaphysical examinations; nor to literary trifles, and disputes of nothing. They serve to demonstrate to the Sovereigns how much they can take from their possessions, they serve to show the Peoples which products, necessity, or luxury have made appreciable in the World, and to teach them at last the means of maneuvering them into looking like others, or totally transforming them.³⁴

In general, the notions exposed by Galvão da Silva summarized the proposals that were embodied in the basic documentation used in the training of Portuguese naturalists of the period. The "Book of Nature", more than once mentioned by the naturalist from Bahia, was an image frequently used by Vandelli and which was already present in the pedagogical-scientific program of the Philosophical Course, as established in the new *Estatutos da Universidade de Coimbra*.³⁵

And how the quiet speculations of the Cabinet, and the knowledge acquired by the Books, cannot form a complete Naturalist; the teacher will have great care, and attention in training his disciples in taste, and the Art of observing; to make themselves truly skilled in the History of the sensible World by the great Book of the same Nature.

Galvão da Silva was an empiricist who attributed primacy to knowledge obtained through direct observation. Not only him, but most men of science trained in Coimbra, "notably those who attended Vandelli's classes, had a profile strongly influenced by fieldwork and empirical research. As a result, they nurtured a certain disdain for cabinet scholars".³⁶ It was common for the Luso-Brazilian intellectuals of the period to express this point of view.³⁷ The physician and naturalist from

33. See Roche (1999) and Pimentel (2003).

34. Silva (1783, f. 47v).

35. *Estatutos da Universidade de Coimbra* (1772, book 3, p. 358).

36. Cruz (2004, p. 182).

37. The use of the word intellectual and its derivatives to refer to the men of letters of the period is almost always reputed to be an anachronistic use of contemporary sociological jargon. There is a deep misunderstanding in this assessment. William Guthrie (1798, v. 1, p. 236) said that in Russia "*ne manquoit nullement des intellectuels*". He referred exactly to members of universities and academies, which is our case. As noted, the word intellectual (*intellectuel*) to designate *savans*, *philosophes* or *hommes de lettres* was already in use at the end of the 18th century. It is not, therefore, an anachronism, nor a recent sociological jargon. Intellectual is just a common word, used for a long time to designate the members of this social group.

38. Câmara (1982, p. 253).

39. Couto (1994, p. 82).

40. Silva (1783, f. 47v).

41. Linné (1749, p. 57-58).

42. *Id.*, 1748, p. 134.

43. See Vaz (2005, p. 6-10).

44. See Koerner (1999, p. 199).

Pernambuco Manoel Arruda Câmara would criticize, for being idle, the theories made by “office dreamers”.³⁸ The naturalist from Minas Gerais, José Vieira Couto defended his studies stating that they were not “department details, nor chimeras”.³⁹ Manuel Galvão da Silva went beyond this perception, as he insisted on the importance of the work carried out in Natural History museums and offices. Through it, the specimens sent to Portugal by the explorer naturalists would overcome the condition of “mere curiosities to entertain the eyes”.

Once the products are shipped, the Naturalist is left with the knowledge, and the small examination of the three Kingdoms of Nature, Animal, Plant and Mineral: of the chain, which binds all the Created Beings: of the harmony of the System of the World, and of its influence, and application to the Human gender.⁴⁰

The references contained in this fragment of the letter to Melo e Castro show the principles that guided the classes that Vandelli taught his students in Coimbra. Through the teachings of the Paduan master, Galvão da Silva and the other Portuguese naturalists of the period became supporters of Linnaeus's ideas, for whom the Economy of Nature was the “very wise disposition of Natural Beings, instituted by the Sovereign Creator, according to which they they tend to common purposes and have reciprocal functions”.⁴¹ The Swedish naturalist used the notion of economy because he considered that divine creation constituted a totality that excluded nothing and in which nothing was created in vain. At the center of this organization balanced by the divine hand was man, who had received the globe to inhabit and was the ultimate end of the creation and testimony of the Sacred Scriptures and the Natural System.⁴² Man was a kind of automaton, to use Linnaeus's own words, who had been created by God and who shared with him the will of creation and who was responsible for perfecting the divine work. These were notions that, together, we can call anthropocentric utilitarian ecologism with a religious basis.⁴³ Galvão da Silva, as noted, adhered to these principles.

Linnaeus' affluence is not only due to his taxonomic system, but to the fact that he transformed botany into an instrument of colonial policy. Despite constantly referring to the benefit of humanity, Linnaeus was a staunch Swedish nationalist who had the improvement of his country's economic conditions at the center of his attention. The idea was that science would make it possible to transform Sweden into a small mercantile empire.⁴⁴ His direct or indirect influence on Galvão da Silva and his colleagues is evident. The Portuguese naturalists of the period, regardless of birthplace, cultivated forms of Portuguese imperial nationalism. Galvão da Silva belonged to a generation of enlightened colonists whose formation took place under royal auspices.

Almost all Luso-Brazilian scholars trained in Coimbra at the time considered themselves Portuguese in America, loyal subjects of the crown and were directly involved in the creation of a “Great Empire”,⁴⁵ in which the colonial elites held some power. This is the “homeland” that the Bahian naturalist referred to at all times in his texts.

Galvão da Silva left for Goa and Mozambique full of Portuguese patriotic spirit and self-imbued with the mission of developing the economy of that portion of the Portuguese colonial empire. It is not surprising, therefore, that he assiduously visited the theme of the usefulness of the natural sciences.

Travels do not only serve to increase the theory of Sciences, nor are they limited, thanks to good Philosophy to Sterile Knowledge; to metaphysical examinations; nor to literary trifles, and disputes of nothing. They serve to demonstrate to the Sovereigns how much they can take from their possessions, they serve to show the Peoples which products, necessity, or Luxury have made appreciable in the World, and to teach them at last the means of maneuvering them so that look like others, or transform them at all.⁴⁶

In his perception, there was a binary opposition between pure and applied sciences. For him, the observations regarding the “increase in Medicine, Agriculture, Commerce and the Arts” should have priority over the “speculative arts”, which would not serve “more than an Ornament to [Natural] History”.⁴⁷

When talking about science in the Iberian Peninsula in the 18th century, it is almost mandatory to make an explanatory inflection, to go beyond the heights of “Iberian utilitarianism”.⁴⁸ For a long time, there was a certain shrug of shoulders about the Spanish and Portuguese scientific production for being eminently applied science. Currently, however, a large portion of contemporary historiography has sought to demonstrate that utilitarianism in the sciences was not a general hallmark of the Enlightenment. Thus, while some authors still tend to see the Portuguese colonial-scientific project as something backward, due to its supposed exclusively “utilitarian” character, the modern historiography on the subject considers that it is precisely this “utilitarian” side that gives relevance to the study of the theme.

Historians James McClellan III and François Regourd have argued that the rise of modern science and European colonial imperial expansion are indisputably two defining elements of contemporary world history.⁴⁹ According to Schiebinger and Swan, botany was a “great science” in the early modern world; but it was also a “big business”, which, while it became possible, was crucial to the flourishing of European trade and colonialism.⁵⁰ Paula de Vos summarizes the state of this issue very well.

45. See Lyra (1994).

46. Silva (1783, f. 47v).

47. *Ibid.*, f. 48v).

48. See Kury, op. cit. (2004, p. 110).

49. McClellan III (1992) and Regourd (1999).

50. Schiebinger and Swan (2005, p. 3).

51. Vos (2007, p. 213).

52. Silva (1783, f. 54v).

53. *Ibid.*, f. 49.

54. *Ibid.*, f. 49.

The utilitarian character of natural history investigation in the eighteenth century – and of Enlightenment pursuits generally – is admittedly not a new concept. Works on French botany in the Paris Academy of Sciences and King's Garden have documented clear evidence of attention to utility and applied science with regard to botanical investigation. The preponderance of useful items in Dutch cabinets of curiosity has been widely interpreted as a natural consequence of their capitalist spirit. It is the historians of the British Empire, however, who have tended to dominate the field, establishing clearly the prominence of utility in British Enlightened science, and the gathering of natural history specimens and information with a view toward their applied uses. Similarly, histories of British botanical gardens stress the utilitarian goals of plant cultivation and the idea that increased knowledge would lead to general "improvement" of society. Their detailed evidence and careful argumentation have led to the conclusion that scientific research could indeed take place in the service of empire.⁵¹

Galvão da Silva was definitely imbued with this "spirit of lights" and intended that his activities in the colonies would not be limited to "collecting, preparing, preserving and shipping Natural productions". The primary motivation that led him to write to Minister Melo e Castro seems to have been exactly that. It showed due vassal servility, but conveyed the desire to go beyond.

Your Excellency is responsible for forming the plans, which I must carry out with the most prompt obedience, that is, by ordering myself to be involved in Agriculture, Mining, and the Arts; in other words, by employing any other person who belongs to my profession, because not only, as you know, a Naturalist learns to collect, prepare, conserve and send Natural productions; but to make use of them, and to add to them all the physical and chemical observations.⁵²

Galvão da Silva drew a kind of plan of the observations he would make during his mission in Mozambique, but which were applicable anywhere. The first "class" of his plan referred to the "Moral Knowledge of the People". The second was the "Physical Knowledge of the Country" or Geography, which included the observation of climate and its effects.⁵³ This was precisely the aspect most scrutinized by the naturalist, the only one in which he went beyond general considerations. The issue that most seemed to preoccupy Galvão da Silva was, if we can call it that, that of the habitability of the tropics. It was questioned "how, under a harmful climate, healthy housing can be made".⁵⁴ The bad reputation of the climate of Goa and Mozambique frightened those who left for these colonies. The naturalist must have written under this powerful impression.

A COIMBRA NATURALIST IN GOA

Manuel Galvão da Silva was appointed secretary of the government of Mozambique on November 23, 1782 and left Lisbon for Africa at the beginning of April in 1783,⁵⁵ however his journey involved some stopovers. Before reaching the African continent, he was in Bahia, where he developed certain scientific activities specially commissioned by Vandelli.⁵⁶ From there he went to Goa, where he arrived on December 4 of the same year. The naturalist headed a small team made up of draftsman Antônio Gomes and botanical gardener José da Costa. The orders from Lisbon to Frederico Guilherme de Sousa, Governor of the State of India, determined the urgency of the mission and the route to be followed by the group.

The so-called Naturalist Manoel Galvão da Silva, and the two who accompany him, are particularly recommended to navy Lieutenant João Vito da Silva, and as soon as they arrive in that State, without the slightest loss of time, you must send them to the coast and shore of the Island of Goa, and more Islands, and of the adjacent Provinces, making their journeys by water, and being able to jump ashore in those places, where they can find, or discover everything that concerns Natural History; making them then pass the examination of the Gates, Province of Pondá, Bicholim, and Panelim, to collect everything that belongs to the same History; and sending whatever you find to Goa, that you will have it boxed up with all the care to be sent to this Kingdom, not only on this voyage ship, which is now going, but successively on the others that dock there; employing the so-called Naturalists in this work the months that linger there from its arrival to the departure of the voyage vessel for Mozambique, which hold me back is from the end of January to the beginning of February, in which the ship must infallibly make the voyage without further delay.⁵⁷

To guide the expedition, the governor appointed the Assistant of Agriculture, Simeão Rodrigues Moreira, "a skilful and intelligent person with a lot of knowledge of the country and its productions"⁵⁸ and who was the assistant of Colonel Gustavo Adolfo Hércules de Chermont, General Intendant of Agriculture of Goa.⁵⁹ However, Galvão da Silva himself would claim that this script was not strictly followed.

55. See Simon, op. cit., p. 62.

56. See Boschioli (2011, p. 2-3).

57. See Melo e Castro (1783).

58. See Sousa (1784).

59. In the documentation he is often referred as Assa Chermont.

60. Silva (1784a).

61. Melo e Castro, *op. cit.*

62. See Pereira (2002, p. 37-39).

63. See Melo e Castro, *op. cit.*

64. Silva (1784b).

Even though the time was so short, I didn't lose a moment, that I didn't apply to the examination of Goa, and of the said Islands; but with so little happiness that no matter how hard I worked, there was nothing that could be called a profit; not even Serve for the Royal Museum. So, full of desolation, hearing that there was a gold mine in Mormugão, and that immense pearls were being taken from that sea, I wanted to see if in this way I could compensate so much work so uselessly done; but all in vain, not finding anything that deserves particular attention in the places I traveled. It is true that time gave no place to pass the Gates, nor to walk beyond Bandura, where perhaps some more interesting discoveries were made; but how would I risk staying one more year in Goa? Knowing that it is not Your Excellency's intention, nor is it useful to the Service of Her Majesty to apply the expeditions to matters of little entity; even when what appears can be sent from Goa by the Adjutant d'Agricultura, and if something appears that deserves to be drawn, here there is a painter capable of executing it if you send him. This is the reason that obliges me to leave Goa and go to Mozambique, having only made a reflection that, as there are no mines other than iron mines in these islands, nor in the places where I have been, nature has created these lands the most suitable to be farmed, even though at the same time their natives are so lazy, that they would let themselves die of hunger rather than plant that little rice that is produced here, and that they cultivate, more driven by fear than driven by need.⁶⁰

Martinho de Melo e Castro often insisted that the mission of Galvão da Silva and his colleagues scattered throughout the colonies was to collect natural products.⁶¹ During this period, the minister was deeply imbued with the purpose of setting up the National Cabinet, that is, the Museum of National History of Ajuda, and he was explicit about this. João da Silva Feijó, who at that time was in Cape Verde, had already been censored on these issues: the "useless words" of a naturalist were "nothing, or little more than nothing". What interested Melo e Castro was the regular and well-packaged shipment of minerals, vegetables and animals.⁶² The mission of Galvão da Silva was explicit. Despite his pleas, the minister insisted that his primary task was "to collect, prepare, and send to this Court everything that may be addressed to it, in accordance with the copies of the Instructions, which the Lisbon Academy of Sciences published to this respect".⁶³

Such tasks did not arouse Galvão da Silva's enthusiasm. The Linnaean naturalist who defended the scientific interest in "the biggest, like the smallest things" and who said there was "no place on earth that could be called sterile", claimed in his correspondence that he had found nothing in Goa that was "worthy of notice". He even spent some of his short time in the colony listing specimens of Goan flora, but he himself knew that his work in the area was limited and unsatisfactory.

The plants, which I have listed, I am not ashamed to say, that I knew them before, or that they are the ones that I was able to discover with less effort; nor does it seem worthy of remark that, being innumerable plants, which are born in the Islands and places of Goa, and which will come to hand, I have been satisfied with so few.⁶⁴

In part he had reasons for the dismay he showed. To begin with, two months later it would not be possible to make any further observations in the area. From the point of view of Linnaean epistemology, botanical studies require long periods of permanence, as it is necessary to monitor the different phases of the plant, especially flowering. Apparently, the time when the expedition arrived in Goa was not the most favorable: "There are plenty of plants around here, but as few are already flowering, they cannot be known", he stated in a letter to Júlio Matiazi.⁶⁵ He would also say that it was "entirely impossible to reduce to Linnaeus' system plants, some of which only had flowers, others only fruit, the rest of which neither flower nor fruit".⁶⁶ Furthermore, he complained that he did not have the works of Van Rheedee and Rumphius to help him. He thought it possible to have described and named three new species, but he doubted whether naturalists who preceded him in studying the flora of Asia had not already done so.

Dissatisfaction with his botanical observations was also repeated with mineralogical ones. As he couldn't find more than iron oxide, he decided to expand the itinerary of his travels "to see if he took some fruit from my efforts, enriched the Royal Natural History Office, and at the same time found some production that could be useful to my homeland". However, the results were not as expected: "I climbed hills and hills, descended deep valleys, inquired about land, and examined the crevices of the mountains, which I found, finding everywhere but the same iron more or less in its Natural state".⁶⁷

Despite the modern training he had received in Coimbra, Galvão da Silva seemed to be in search of rare and valuable things. As a pioneer out of time, he imagined he could find gold mines or other treasures. He took the initiative of departing "to Mormugão driven by a great desire to see both a gold mine and the shells that produce the pearls, for which such a general fame flowed in Goa".⁶⁸ In vain. To his disappointment, the gold mine was a "chimera" and the oysters did not produce pearls. Galvão da Silva's *auri sacra fames* continued to manifest during his stay in Mozambique. In the trips he made to the Tete region in 1788, the excuses were similar: "the lack of a draftsman, the Station was unsuitable for herborizations, everything contributed to merely applying myself to the knowledge of the Mines".⁶⁹

His correspondence makes evident the difference between an official envoy who was preparing for a scientific mission in the Indian Ocean region, and the naturalist who was in the field. In the plans he presented to Melo e Castro, he highlighted the observation of local populations.

65. *Id.*, 1784c.

66. *Ibid.*

67. *Id.*, 1784b.

68. *Ibid.*

69. *Id.*, 1788, p. 311.

70. *Id.*, f. 49.

71. See Vandelli, *loc. cit.* (1779).

72. The *manxila* is a kind of hammock in which the elite were carried by slaves or servants.

73. Silva (1790, p. 325).

74. *Ibid.*, p. 324.

The first class includes the Moral knowledge of the People, which includes Customs, Laws, Religion, Rites, Parties, Games, the way to celebrate Wars, Peaces, Nuptials, Funerals; the manner of costumes, bellicose and musical Instruments, and in a word, everything that barbarity combined with the grossest superstition has introduced into the Heart of Uncultured Peoples.⁷⁰

In this excerpt, Galvão da Silva summarized the chapter on the “Physical and Moral Knowledge of Peoples” contained in the instructions for Philosophical Journeys prepared by his mentor.⁷¹ His own prejudice was the prejudice that led him to treat the customs of non-European populations as barbarism, superstition and lack of culture.

It should be noted that he was writing at a time when a significant portion of Portuguese and Luso-Brazilian intellectuals had already adhered to notions of cultural relativism disseminated by the main thinkers of the Enlightenment. It is not surprising, therefore, that the anthropological component has been completely neglected. In his shipments from Goa, Galvão da Silva included no artifacts of human industry, no curiosity, none of what Vandelli advocated when he dealt with the physical and moral knowledge of peoples. The Indians simply did not arouse the slightest curiosity in him and he did not go beyond unraveling base prejudices typical of imperialist travelers. They were “so lazy, that they would have let themselves starve to death rather than plant what little rice that is produced here”.

Years later, in Mozambique, where inattention cannot be excused by haste, he continued to show the same disinterest and prejudice towards the local populations. On his trip to Manica, he says that he did “part of the way on foot, part of the *manxilla*”,⁷² carried by his *kaffirs*, he looked with annoyance at the African landscape and found nothing “worthy of note”.⁷³ He preferred to sleep in the open, “wanting to suffer a night of severe cold exposed to the serene rather than the harassment of the *kaffirs* of a neighboring village”.⁷⁴ Of all the Luso-Brazilians trained and sent to the colonies during this period, Galvão da Silva was the one who showed the least sensitivity towards the natives and the least inclination towards descriptions of an anthropological nature. The notions of backwardness and harassment have always governed his contacts with local populations.

In the letter written to Martinho de Melo e Castro, Galvão da Silva made a long digression on health in the Portuguese colonial world, all of it based on the theories of aeration. The diseases were caused by the decomposition of organic matter, mainly in stagnant water, and disseminated by the carrying capacity of air. The health of the environment was achieved in part by the action of nature itself, which was responsible, through the winds and flowing rivers, to carry the contaminating particles away, and, in part, by the action of the “Public Authority”, which would act:

thinning out the woods, where there are any, so that the sun coming in daily might volatilize those particles which, piled up, would later cause the plague; making river cuts, opening channels and closing lagoons; regulating in the same way the matter of what the houses were to be and how they were to be made; because in the Torrid Zone, high houses are less infected, as they are freer from humidity.⁷⁵

75. *Id.*, f. 51.

76. *Id.*, 1784a.

77. See Pereira (2005, p. 122).

Part of the naturalist's job was knowing the climate and health, he claimed. Thus, he did not fail to show his mastery of the topic. The Goan colony in India was famous for its unhealthiness. The city of Goa itself had been abandoned by the extremely high mortality of its residents caused by successive outbreaks of cholera, generated by the contamination of water sources, by all indications. Shortly before Galvão da Silva left for the Orient, the Portuguese crown had made attempts to revive the city, unsuccessful due to its inability to solve the sanitary problem. Since the 16th century, pests had mowed down a large portion of Europeans as soon as they landed there. The naturalist left his diagnosis on the subject.

Having observed, Your Excellency, that almost every day the transport people die in the Hospital, who came well, despite having endured the great inconveniences that such a long journey brings with them; I don't know the real cause, as I have always been outside Goa; but I can certify to Your Excellency that the same Hospital, and the healers who assist it, will destroy as many people as Her Majesty sends to those States. The Hospital, instead of being ventilated, of course, and having the proper cleanliness, is a dungeon full of bars, kneecaps and oyster windows, where the Air never has free access: the terrible smell that gives off a pipe, which comes from inside very close to the sea does not allow any boat to pass by there.⁷⁶

His observations were typical of scholars of the period, whose knowledge of health still suffered the same olfactory limits as medieval knowledge. Galvão da Silva worked together with scientists and Portuguese colonial officials, who became expert sniffers, dedicating themselves with passion to the judicious examination of the nauseating and its description. There was no sewer, swamp, well, plumbing or longhouse that was not sniffed in the insatiable search for the mephitic particles that contaminated everything and everyone.⁷⁷

78. Silva, op. cit. (1784b).

79. *Id.*, 1862.

80. *Id.*, 1784c.

81. *Id.*, 1784a.

82. Most likely it was Francisco Luís de Meneses, who made several shipments to Lisbon, including drawings of some animals. See Bracht (2016, p. 113-115) and Pereira, op. cit. (2017, p. 674-677).

83. Simon, op. cit., p. 62, and Hamy (1908, p. 63).

84. Pereira, op. cit., p. 677-682.

THE NATURALIST'S LEGACY

The main result of Manuel Galvão e Silva's visit to Goa was a short report, in Latin and Portuguese, in which he included his attempts at Linnaean classification of some minerals and plants.⁷⁸ The narrative, however, would only be published in the mid-nineteenth century, by the librarian and historian Cunha Rivara.⁷⁹ Remittances sent to Lisbon were also poor. The naturalist had a predilection for geology and it was in this area that he concentrated his collections and shipments. "There are several pieces of iron from different parts, there is a stone that is used here on altars, there are some bags of clay, and that is the entire shipment; and a tin jar with fish. There are also five plans drawn, and painted; and a few in a herbarium".⁸⁰

On January 31, 1784, Galvão da Silva and his assistants left India for Africa.⁸¹ His quick stay in Goa was the only official initiative taken by Portugal with a view to the autonomous study of the natural things of the colony throughout the 18th century. The results were quite melancholic. The naturalist had the expectation that the assistant Simeão Rodrigues Moreira would assume the role of providing help with products of Indian nature. He also mentioned that there was a person in Goa capable of drawing the local flora and fauna.⁸² None of this actually happened. Finally, the proceeds of their collections ended up in other hands. The *herbarium* sent by Galvão da Silva was taken to France in 1808, as part of the looting of Portuguese scientific institutions, ordered by Napoleon.⁸³ The nature of the colonies in the East would only re-interest the crown during the administration of D. Rodrigo de Souza Coutinho. However, his focus was not exactly the possessions of Asia or Oceania, but those of America. The main intention was to provoke transformations in agricultural and forestry production in the colonies of Brazil, in Bahia in particular. At the end of the 18th century and beginning of the 19th, the purpose of acclimating eastern species of economic interest such as Indian pepper, nutmeg, cinnamon, cloves, teak and sandalwood came to life again. The purpose of recovering the spice trade of the East and disputing the market with the new colonial powers returned to the agenda.⁸⁴

REFERENCES

HANDWRITTEN SOURCES

MACEDO, Duarte Ribeiro de. *Discurso sobre a transplantação de fructos da Índia a Brasil*. Paris: [s. n.], 1675a. Coleção Linhares. Biblioteca Nacional do Rio de Janeiro, códice I-29,14,3-4.

MACEDO, Duarte Ribeiro de. *Discurso sobre se poderem transplantar todas as plantas, que há na Azia, na nossa América, e conveniência que disso podem resultar ao Reino*. [S. l.: s. n.]. 1675b. Biblioteca Nacional de Portugal, códice 1730.

MELO, Sebastião José de Carvalho e. Carta ao Conde de Ega, 5 de abril de 1760. In: *Livro de registo de ordens régias e mais ofícios do Reino para o Conde da Ega, vice-rei da Índia*. Lisboa: Arquivo Histórico Ultramarino (AHU), códice 425.

MELO E CASTRO, Martinho de. Carta a Frederico Guilherme de Sousa, Governador do Estado da Índia, 1 de abril de 1783. In: *Livro de registo de ordens régias e avisos para o Estado da Índia, da Secretaria de Estado da Marinha e Ultramar*. Lisboa: Arquivo Histórico Ultramarino (AHU), códice 517, f. 185v-186.

SANCHES, Antônio Nunes Ribeiro. *Apontamentos para descobrir na America Portuguesa quellas produçoens naturaes que podem enriquecer a Medicina, e o Commercio*, Paris, 2 out. 1763. Coleção Manuscritos Reservados. Lisboa: Biblioteca Nacional de Portugal, códice 6941/4.

SILVA, Manuel Galvão da [Carta]. Destinatário: Martinho de Melo e Castro, [s. l.], 25 jan. 1784a. Museu Nacional de História Natural e da Ciência (MUHNAC), rem. 387.

SILVA, Manuel Galvão da [Carta]. [Viagem filosófica feita em Goa], Índia, 1784b. Arquivo Histórico Ultramarino (AHU), Índia, caixa 365.

SILVA, Manuel Galvão da [Carta]. Destinatário: Júlio Matiazi, 28 jan. 1784c. Museu Nacional de História Natural e da Ciência (MUHNAC), CN/S -27.

SILVA, Manuel Galvão da. [Memória sobre as viagens filosóficas]. [Lisboa], 1783. Biblioteca da Academia das Ciências de Lisboa, ms. azul 318.

SOUSA, Frederico Guilherme de [Carta]. Destinatário: Martinho de Melo e Castro, 20 mar. de 1784. Museu Nacional de História Natural e da Ciência (MUHNAC), rem. 386.

VANDELLI, Domingos. *Viagens filosoficas ou Dissertações sobre as importantes regras que o filosofo naturalista nas peregrinações deve principalmente observar*; 1779. Biblioteca da Academia das Ciências de Lisboa, ms. azul 405.

BOOKS, ARTICLES AND THESES

ALMEIDA, Luís Ferrand de. Aclimação de plantas do Oriente no Brasil durante os séculos XVII e XVIII. *Revista Portuguesa de História*, Coimbra, n. 15, p. 339-481, 1975.

BOSCHIROLI, Veridiana de Azevedo. O naturalista Manuel Galvão da Silva. *In: ENCONTRO REGIONAL DE HISTÓRIA: USOS DO PASSADO*, 12., 2011, Rio de Janeiro. *Anais [...]*. Rio de Janeiro: ANPUH-RJ, 2011.

BOURGET, Marie-Noëlle; BONNEUIL, Christophe. Présentation. *Revue Française d'Histoire d'Outre-mer*, Paris, v. 86, n. 322-323, p. 7-38, 1999.

BRACHT, Fabiano. Condicionantes sociais e políticos nos processos de produção de conhecimento: o caso da Índia portuguesa do século XVIII. *In: POLÓNIA, Amélia et al. (Org.). História e ciência: ciência e poder na primeira idade global*. Porto: Faculdade de Letras da Universidade do Porto, 2016. p. 94-121.

BREVES instruções aos correspondentes da Academia das Sciencias de Lisboa sobre as remessas dos produtos e notícias pertencentes à História da Natureza para formar hum Museo Nacional. Lisboa: Regia Officina Typographica, 1781.

BRIGGS, Robin. The Académie Royale des Sciences and the Pursuit of Utility. *Past and Present*, Oxford, n. 131, p. 38-88, 1991.

BRIGOLA, João Carlos Pires. *Coleções, gabinetes e museus em Portugal no séc. XVIII*. Lisboa: FCG/FCT, 2003.

CÂMARA, Manuel Arruda da. *Obras Reunidas*. Recife: Fundação de Cultura Cidade do Recife, 1982.

CAÑIZARES-ESGUERRA, Jorge. *Nature, Empire and Nation: Exploration of the History of Science in the Iberian World*. Stanford: Stanford University Press, 2006.

COLBERT, Jean-Baptiste. Carta a Guillaume Pélassier: 21 de junho de 1670. *In: CLÉMENT, Pierre; BRETONE Pierre de. (Org.) Lettres, instructions et mémoires de Colbert*. Paris: Imprimerie Impériale, 1865. p. 483-487.

COOK, Harold John. *Matters of Exchange: Commerce, Medicine, and Science in the Duch Golden Age*. New Haven: Yale University Press, 2007.

COOK, Harold John. The Cutting Edge of a Revolution?: Medicine and Natural History near the Shores of the North Sea. *In: FIELD, Judith V., JAMES, Frank A. J. L. (Org.) Renaissance and Revolution: Humanists, Scholars, Craftsmen and Natural Philosophers in Early Modern Europe*. Cambridge: Cambridge University Press, 1993. p. 45-61.

CORTESÃO, Armando (Ed.). *A Suma Oriental de Tomé Pires e o Livro de Francisco Rodrigues*. Coimbra: Universidade de Coimbra, 1978.

COUTO, José Vieira. *Memória sobre a capitania das Minas Gerais: seu território, seu clima e produções metálicas [1799]*. Belo Horizonte: Fundação João Pinheiro, 1994.

CRUZ, Ana Lúcia Rocha Barbalho. *Verdades por mim vistas e observadas Oxalá foram fábulas sonhadas: cientistas brasileiros do Setecentos, uma leitura auto-etnográfica*. 2004. Tese (Doutorado em História) – Programa de Pós-graduação em História, Universidade Federal do Paraná, Curitiba, 2004.

DOMINGUES, Ângela Maria Vieira. Para um melhor conhecimento dos domínios coloniais: a constituição de redes de informação no Império português em finais do Setecentos. *História, Ciências, Saúde*: Manguinhos, Rio de Janeiro, v. 8 (supl.), p. 823-838, 2001.

DRAKESTEIN, Hendrik Andriaan van Rheede tot. *Hortus Indicus Malabaricus*. Amsterdam: Johannis van Someren et Joannis van Dyck, 1678-1693.

DRAYTON, Richard Harry. *Nature's Government: Science, Imperial Britain, and the 'Improvement' of the World*. London: Yale University Press, 2000.

ESTATUTOS da Universidade de Coimbra. Coimbra: Na Regia Officina Typografica, 1772, book 3.

FERREIRA, Breno Ferraz Leal “Memória sobre as Viagens Filosóficas”: um manuscrito setecentista do naturalista Manuel Galvão da Silva. *Revista Brasileira de História da Ciência*, São Paulo, v. 12, n. 1, p. 138-152, 2019.

GUTHRIE, William. *Nouvelle Géographie, Universelle, Descriptive, Historique, Industrielle et Commerciale des Quatre Parties du Monde*. Paris: Langlois, 1798.

HAMY, Ernest-Théodore. La mission de Geoffroy Saint Hilaire en Espagne et en Portugal (1808). *Nouvelles Archives du Muséum d'Histoire Naturelle*, Paris, série 4, v. 10, n. 2, p. 1-28, 1908.

JORNAL DE COIMBRA. Coimbra: [s. n.], v. 13, n. 72, 1818.

KOERNER, Lisbet. *Linnaeus: Nature and Nation*. Cambridge: Harvard University Press, 1999.

KURY, Lorelai Brillhante. Homens da ciência no Brasil: impérios coloniais e circulação de informações (1780-1810). *História, Ciências, Saúde-Manguinhos*, Rio de Janeiro, v. 11 (supl.), p. 109-129, 2004.

LACERDA E ALMEIDA, Francisco José de. *Diários de Viagem de Francisco José de Lacerda e Almeida*. Rio de Janeiro: Imprensa Nacional, 1944.

LACROIX, Sylvie. Sir Joseph Banks et l'envoi de naturalistes dans les explorations anglaises (1765-1820). *Dix-huitième siècle*, Paris, n. 22, p. 121-126, 1990.

LINNÉ, Carl von. Economie de la Nature (1749). In: LINNÉ, Carl von. (Org.) *L'Equilibre de la nature*. Paris: J. Vrin, 1972. p. 57-122.

LINNÉ, Carl von. La Curiosité naturelle (1748) In: LINNÉ, Carl von (Org.) *L'Equilibre de la nature*. Paris: J. Vrin, 1972. p. 125-144.

LYRA, Maria de Lourdes Viana. *A utopia do poderoso império: Portugal e Brasil: bastidores da política, 1789-1822*. Rio de Janeiro: Sette Letras, 1994.

McCLELLAN III, James Edward. *Colonialism and Science: Saint Domingue in the Old Regime*. Baltimore: Johns Hopkins University Press, 1992.

ORTA, Garcia de. *Coloquios dos simples, e drogas he cousas mediçinais da India*. Goa: Ioannes de Endem, 1563.

PATACA, Ermelinda Moutinho. *Terra, água e ar nas viagens científicas portuguesas (1755-1808)*. 2006. Tese (Doutorado em História) – Instituto de Geociências, Universidade de Campinas, Campinas, 2006.

PEREIRA, Magnus Roberto de Mello. “Las cosas singulares de piedras, animales, plantas”: la formación y el funcionamiento de la red imperial española de remesas científicas en el Virreinato del Río de la Plata. *Anais do Museu Paulista: História e Cultura Material*. São Paulo, v. 21, n.1, p. 91-138, 2013. DOI: 10.1590/S0101-47142013000100008.

PEREIRA, Magnus Roberto de Mello. “Plantas novas que os doutos não conhecem”: a exploração científica da natureza no Oriente português, 1768-1808. *História, Ciências, Saúde: Manguinhos*, Rio de Janeiro, v. 24, n. 3, p. 665-685, 2017.

PEREIRA, Magnus Roberto de Mello. Alguns aspectos da questão sanitária das cidades de Portugal e suas colônias: dos saberes olfativos medievais à emergência de uma ciência da salubridade iluminista. *Topoi*, Rio de Janeiro, v. 6, n. 10, p. 99-142, 2005.

PEREIRA, Magnus Roberto de Mello. Os jardins botânicos coloniais: paraísos utilitários. In: PEREIRA, Magnus Roberto de Mello; CRUZ, Ana Lúcia Rocha Barbalho da (Org.). *Os naturalistas do Império: o conhecimento científico de Portugal e suas Colônias (1768-1822)*. Rio de Janeiro: Versal, 2016. p. 37-67.

PEREIRA, Magnus Roberto de Mello. Um jovem naturalista num ninho de cobras: a trajetória de João da Silva Feijó em Cabo Verde em finais do século XVIII. *História: Questões & Debates*, Curitiba, v. 36, n. 1, p. 29-60, 2002.

PEREIRA, Magnus Roberto de Mello.; CRUZ, Ana Lúcia Rocha Barbalho da. Instructio perigrinatoris: algumas questões referentes aos manuais portugueses sobre métodos de observação filosófica e preparação de produtos naturais da segunda metade do século XVIII. In: KURY, Lorelai Brilhante; GESTEIRA, Heloisa Meireles (Org.). *Ensaio de História das Ciências no Brasil: das luzes à nação independente*. Rio de Janeiro: Eduerj, 2012. p. 115-133.

PEREIRA, Magnus Roberto de Mello; CRUZ, Ana Lúcia Rocha Barbalho da. *Os naturalistas do Império: o conhecimento científico de Portugal e suas Colônias (1768-1822)*. Rio de Janeiro: Versal, 2016.

PIMENTEL, Juan. *Testigos del mundo: ciencia, literatura y viajes en la ilustración*. Madrid: Marcial Pons, 2003.

REGOURD, François. Maîtriser la nature: un enjeu colonial; Botanique et agronomie en Guyane et aux Antilles. (XVIIe-XVIIIe siècles) *Revue française d'histoire d'outre-mer*, Paris, v. 86, p. 39-63, 1999.

ROCHE, Daniel. Voyage. In: FERRONE, Vincenzo, ROCHE, Daniel (Org.). *Le Monde des Lumières*. Paris: Fayard, 1999, p. 341-357.

RUMPHIUS, Georg Everhard. *Herbarium Amboinense*. Amsterdam: Hermanus Uytwerf, 1741.

SCHIEBINGER, Londa; SWAN, Claudia. Introduction. In: *Colonial Botany: Science, Commerce, and Politics in the Early Modern World*. Philadelphia: University of Pennsylvania Press, 2005. p. 1-16.

SILVA, Manuel Galvão da. Diário das viagens feitas pelas terras de Manica por Manuel Galvão da Silva em 1790. *Anais da Junta de Investigações do Ultramar*, Lisboa, v. 9, n. 1, p. 321-332, 1954.

SILVA, Manuel Galvão da. Diário ou relação das viagens filosóficas, nas terras da jurisdição de Tete e em algumas dos Maraves (1788). *Anais da Junta de Investigações do Ultramar*, Lisboa, v. 9, n. 1, p. 311-319, 1954.

SILVA, Manuel Galvão da. *Observações sobre a história natural de Goa feitas no ano de 1784*. Nova Goa: Imprensa Nacional, 1862.

SIMON, Willian Joel. *Scientific Expeditions in the Portuguese Overseas Territories (1783-1808)*. Lisboa: Instituto de Investigação Tropical, 1983.

SPARY, Emma. *Utopia's Garden*. Chicago: University of Chicago Press, 2000.

UEBERSCHLAG, Georges. Les Disciples de Linné: voyageurs, savants et penseurs. In: *Actes du Colloque International des Lumières*. Lille: Publications de L'Université de Lille III, 1977. v. 1, p. 137-151.

VALVERDE PÉREZ, Nuria. *Actos de precisión: instrumentos científicos, opinión pública y economía moral en la ilustración española*. Madrid: CSIC, 2007.

VAZ, Francisco António Lourenço. O grande livro da Natureza nos textos e viagens filosóficas de José António de Sá. *In: NUNES Maria de Fátima; CUNHA, Norberto. (Org.) Imagens da ciência em Portugal: séc. XVIII-XX*. Coimbra: Caleidoscópio, 2005, p. 3-21.

VOS, Paula de. Natural History and the Pursuit of Empire in Eighteenth-Century Spain. *Eighteenth-Century Studies*, Vancouver, 2007, v. 40, n. 2, p. 209-239.

Article submitted on: 06/06/2022. Approved on: 09/22/2022.



All the contents of this journal, except where otherwise noted, is licensed under a Creative Commons Attribution License