



American Animals in Pehr Kalm's Travels Publication: Experience, Animal Behavior and Interactivity (1749-1755)

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ABSTRACT

This article analyses Pehr Kalm's (1716–1779) observations of American wildlife, as recorded during his travels to North America between 1748 and 1751. Alongside the naturalist John Reinhold Forster (1729–1798), Kalm published his observations of American flora and fauna in a work entitled *Travels into North America, Containing Its Natural History, and a Circumstantial Account of Its Plantations and Agriculture in General, With the Civil, Ecclesiastical, and Commercial State of the Country, and the Manners of the Inhabitants*. This was published in two volumes in London in 1772. Through qualitative analysis of Kalm's texts, descriptions and correspondence with Linnaeus, as well as some of Forster's manuscripts, this article aims to understand the significance of animal interactions in the development of new areas of study for naturalists interested in advancing agriculture and studying natural economies in America. To this end, I engage with Ewa Domanska's (2010) concept of 'disobedient objects' and Chris Pearson's (2015) discussion of animal resistance throughout history. Through this article, I demonstrate how first-hand experience shaped a more detailed understanding of the relationship between animals and their habitats.

Keywords: Pehr Kalm; travel; american animals.

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Pehr Kalm was born in Sweden but moved to Finland after 1721. Educated in Vaasa, he attended the *University of Åbo* from 1735. There, he studied with influential scientists including Herman Diedrich Spöring (1733-1771) and followers of Carl von Linnaeus (1707-1778), such as Johan Browallius (1707-1755) and Carl Fredrik Mennander (1712-1786). In 1740, he began working at Baron Sten Carl Bielke's estate in Sweden, after catching the nobleman's attention. He later enrolled in *Uppsala University*, where he attended the lectures of Anders Celsius (1701-1744) and became a friend and pupil of Linnaeus. Under the guidance of Bielke and Linnaeus, his interest in applied botany, particularly as it agriculture and industry, grew. Linnaeus planned an expedition to North America to study economically useful plants, and in 1747 Kalm was chosen to lead it. Before leaving, he was appointed professor in Åbo (Jarrel, 2003).

The Swedish naturalist was sent by the Royal Swedish Academy of Sciences to the former Swedish colonies in North America, specifically along the Delaware River in the mid-18th century. This region lies on an Atlantic coastal plain, with rivers flowing into the Atlantic Ocean. The climate is temperate continental with mild seasons. These colonies lasted about seventeen years and were gradually dismantled with the English conquest. The attraction of new European settlers resulted in changes in the region. Kalm's travel, documented and first published in 1753 – in Swedish and then translated –, had as its primary objective to find plants of economic value for Sweden and Finland, in addition to collecting scientific information for the Academy (Larsen, 1957). Kalm wasn't the first Swedish naturalist to write about North America lands. For example, in 1653 Johan Paulinus published a brief treatise of defense about a government from Swedish colonies in America. However, it is possible to observe that Kalm's work was constructed with a more scientific approach (Benson, 1933). For Pehr Kalm and his professor, knowing nature and its characteristics – such as the climate, fauna, flora etc. – was to observe historical information about earth. Therefore, it was possible to understand how American colonization changed its climate and its natural habitats (Johnson, 2015).

In November 1747, Kalm left for England and then arrived in Philadelphia in September 1748. There, he met some American naturalists, studied the natural history of the British colonies, and was instructed to spend most of his time in Canada, for its climate, like that of Sweden and Finland. In July 1749, he entered New France at Fort Saint-Frédéric, where he was received by the fort's officers. Surprisingly, they were collecting rocks and botanical specimens at the orders of Commander General La Galissonnière (1693-1756), a naval officer and the commandant of New France. After three weeks, Kalm went to Montreal, received by Baron de Longueuil. Upon arriving in Quebec on August, he met La Galissonnière, who made a great impression on him. He praised American naturalists but compared La Galissonnière to Linnaeus. With the royal physician and naturalist Jean-François Gaultier (1708-1756), he collected seeds from economic plantations in the region. Kalm realized that Quebec's climate was more extreme than Sweden's and that some Canadian plants wouldn't do well there (Jarrel, 2003).

As written above, Kalm had contact with important officers from New France, just as he had with other government officers from provinces in North America. It is the case of Peter Collinson (1694-1768). Collinson, who was a great friend of Linnaeus, was an English botanist and member of the Royal Society. He opened extensive trade with America, and through this activity, he contacted American botanists and other scientists. Collinson became particularly friendly with North American botanist John Bartram (1699-1777), who started the first botanical garden in America. The English botanist established a scheme whereby Bartram supplied seeds and seedlings to British patrons in return for an annual subscription. There were at least sixty subscribers, many from the gentry, including Lord Petre, who planted over 40,000 American trees on his Essex estate. In 1765, Collinson secured for Bartram the position of king's botanist in North America. Kalm was in contact with Bartram while he traveled through North America, especially in Philadelphia. The correspondence between them revealed that Kalm could have access to Bartram's plants and, at the same time, sent some of his plants to Linnaeus. Collinson, just as Galissonnière, were important contacts that Kalm

had to access collections and gardens during his travel (Merriam, 2006; Larsen, 1950; Linder, 2014).

Johann Reinhold Forster, a Scottish naturalist who participated in the second James Cook's travel through Pacific Ocean in between 1772 and 1775, was one of the important names with whom the Sweden naturalist had contact. He published with Kalm the book about his experiences in North America, which also had relevance to Kalm and, consequently, Linnaeus's New World natural knowledge². Forster had a long correspondence activity with Linnaeus, who believed that Forster was a true hero for travelling so far away. Most of the discoveries that Forster made through his travels were communicated to Linnaeus by correspondence, so the Swedish botanist could actualize his knowledge and works of classification and natural descriptions. Forster was particularly interested in zoology, as it is possible to note in his publications and manuscripts those that, for the most part, deal with the description of animals.

When it comes to animals, in the records Kalm made about the living beings that inhabited the lands where he was, it is notable that his descriptions also aimed to better understand the development –or lack thereof– of local agriculture in the colonies. This is the case of animals, such as the weasel, known by the name of 'polecat' and the gray squirrel, which were recorded in his travel diary as animals that could cause crop damage, which led to them being constantly hunted. Still, some other animals, such as bison, were described as domesticable and capable of consumption.

By analyzing Kalm's descriptions of American quadrupeds, this article demonstrates the relevance of personal and on-site experience for producing more profound knowledge of the relationships between species and their habitat regions, as well as for the study of animal behavior and habits³. This work endorses that those beasts, such as the polecat, the gray squirrel and also, the bison and the so-called moose-deer, had important roles in the searches in the economy of nature of North America, by not being a passive object to naturalists and to the stability and balance that

² Kalm also published together with Forster a list of quadruped animals from its provinces and landscapes, along with animals – specially bird – sold by the *Hudson's Bay Company* in the same context.

³ This work is an extension of my PhD thesis' study.

this nature should pursue and produce for itself. Being non-passive means, in other words, being “disobedient”, as they have not collaborated with the expectations, intentions, or the colonial and commercial attempts to reduce the distribution space of these animals (Domanska, 2010). Therefore, “disobedient objects”, or “strange objects”, which are the two notions that I use here to understand the role of American animals in Kalm’s works, were defined by Domanska (2011), based on her reading of the work of Andrew Pickering (1999), as part of a historical and culturally situated agency, not easily grasped through the methods and approaches existing in its time. In other words, a certain disobedient object, by resisting the traditional limitations of a field of knowledge, changes the definitions of this knowledge. This conceptual framework resonates with Chris Pearson’s (2015) proposition in *Beyond ‘resistance’*, where he argues for a rethinking of nonhuman agency beyond mere opposition to human control. Pearson suggests that animals should be seen as active historical agents within a “more-than-human” world, capable of shaping environments, disrupting colonial projects, and challenging scientific expectations. By articulating Domanska’s notion of disobedience with Pearson’s expanded view of agency, it becomes possible to interpret the animals in Kalm’s narratives — such as the possum, the squirrel, and the insect that devastated pea crops — not simply as obstacles, but as participants in the production of natural knowledge. Their unpredictable behaviors and ecological interactions exemplify how nonhuman life could redefine the boundaries of scientific understanding in the eighteenth century.

ANIMALS AND NATURAL KNOWLEDGE

Writing histories that are shaped by multiple agencies remains challenging. Nevertheless, a large body of work has been produced and published worldwide since the 1980s that has sought to address the role of animals and other beings in history. This work has been informed by historiographical developments that have sought to centre other actors, such as women and enslaved individuals, in historical analysis. Some previous works were references for these investigations, such as those of Keith

Thomas (1983), who analysed human attitudes towards others beings, like animals and the plant world between 1500 and 1800, with a special focus on England and Harriet Ritvo's (1987) work on the agency of animals in history also laid the foundations for the development of new research on these historical subjects (Duarte, 2019).

After a few years, studies in the field of Anthropology (Viveiros De Castro, 2002; Vander, 2012), Environmental History (Crosby, 1986; Pádua, 2010; Oliveira, 2007, 2010; Duarte, 2005), History Of Animals (Nance, 2015; Domanska, 2017; Fudge, 2002, 2004; Baratay, 2012; Aprobato Filho, 2007; Duarte, 2006, 2014, 2017, 2019; Ostos, 2017) And The History Of Sciences (Lopes, 2019; Rader, 2004; Clark, 2011), to cite some examples, have been discussing, with increasing scope and depth, the place of non-human animals in history, based on analyzes of the human and biological sciences. To study the exchanges between men and other animals is to comprehend the proximities and distances between them. Analyzing these relationships over time can illuminate changes and continuities in the roles animals play across varied societies, as well as their meanings, uses, domestication (or not), and their effects on human life.

In Brazil, studies on animal history are still quite incipient, although there are researchers who have been contributing to this field of investigation for years, such as Nelson Aprobato Filho (2007), who in his thesis studied the soundscape of São Paulo's urban animals; Regina Horta Duarte (2006, 2014, 2017, 2019) who has been discussing the relationships between history and nature, especially through environmental history, and who has focused on the history of animals from the history of zoos in Latin America; Valéria Mara de Oliveira (2007, 2010) who studied, since her doctorate, the fight against leafcutter ants from the Campaigns that constituted political and agrarian interests in 1935; Gabriel Lopes (2017), who in his doctorate studied the arrival, dissemination and extermination of the African mosquito *Anopheles gambiae* in Brazil, from the point of view of the history of sciences in dialogue with political factors that permeate this historical process; and Natascha Ostos, (2017) who investigated the animal protection societies UIPA and SUIPA, and which continues to analyze the history of animal rights and the first vegetarian societies in Brazil (Ostos, 2021). It is essential

to highlight that, in 2021, a special issue⁴ of the journal *História, Ciências, Saúde, Manguinhos*, dedicated to the study of the history of animals, was published. It can be considered a milestone in the historiography of animals in Brazil.

This article articulates the history of animals with the history of science, specifically the history of natural history. It is important to highlight that animals have played a fundamental role in the development of certain fields of study, such as the economy of nature, which was examined more closely in the 18th century. In the case of the study of the natural economy of North America, Pehr Kalm provided descriptions and informed his teacher, Linnaeus, of the importance of animals in understanding the natural dynamics of the region's provinces and cities. Knowledge about the interactions witnessed in North American landscapes became objects of investigation for naturalists, due to the possibility of reading and interpreting the way of life of animals in their environments. Therefore, the interaction between living beings and their habitats, including how one affects the other, began to indicate a first idea of landscape as a scenario of multiple and continuous dynamics capable of transforming itself. In addition to the study of the economy of nature, animals could be a type of symbol⁵ – or analogy – to the populations, such as native people and settlers⁶, that were living in America. Therefore, animals could, also, be a “translation” of American nature.

CORRESPONDENCE

Knowledge about nature was particularly produced in the XVIII century through correspondence. The active exchange of correspondence between Kalm and Linnaeus throughout Kalm's travel is a valuable source for analyzing the daily life of the Swedish naturalist in North America. Pehr Kalm documented his quotidian, from the

⁴ See: Duarte, R. Horta; Lopes, G.; Aprobato Filho, Ne.; Ostos, N. “Reciprocidade em desequilíbrio: história das relações entre animais”. *História, Ciências, Saúde – Manguinhos*, Rio de Janeiro, 18, sup.1, (2021).

⁵ Here, I refer to symbol as an imaginary form of knowing nature.

⁶ To learn more about the intertextuality of knowledge and the participation of other actors, such as Amerindians, in its production, see: SAFIER, Neil. Global knowledge on the move: itineraries, Amerindian narratives, and deep histories of science. In: RAJ, Kapil; SCHARF, Sara; SETH, Suman (Org.). *Historicizing the circulation of knowledge*. Oxford: Oxford University Press, 2010; SANJAD, Nelson. Intertextuality and knowledge translation in travel reports: the Capim River and its inhabitants in the narratives of Alfred Russel Wallace (1849), João Barbosa Rodrigues (1874–1875) and Emil Goeldi (1897). *Tapuya: Latin American Science, Technology and Society*, v. 5, n. 1, 2022.

start of his *voyage*, when he was sent to London, and then to the other parts of this route, in North America provinces. The correspondence, in a more general way, expose details about Kalm's daily life outside of Sweden, with the specific intention of sending messages about the news in Natural History that were being produced in England, and in the New World colonies. Kalm's letters are part of a vast exchange of correspondence between him and Linnaeus about the botanist's travels. The botanist sent news about the plants, seeds, wood, fishing and other animals he found in the provinces he passed through, as did his other students who were on the continent and in other locations in the Old World. Johann Reinhold Forster also corresponded with Linnaeus, who considered him one of the most courageous and prolific naturalists of his time. Linnaeus's work in taxonomy was based mainly on classic works of natural history, which the botanist cites in the volumes of his classification works, but, above all, on the experience and on-site study of his students, who traveled to some places in Europe, Asia, and America, who sent him letters, drawings and boxes of preserved seeds, plants, and animals for study. Therefore, the role of experience and correspondence was fundamental for the contact of Linnaeus with other natures and its operations.

At the beginning of Pehr Kalm's incursion into the American provinces, in 1749, when he was leaving the province of New York to continue his journey, Kalm sent a new letter to Linnaeus portraying some characteristics of the fauna of Canada, a region that, with luck, he managed to achieve on this same expedition:

[...] when corn is sown, there are many enemies that come and take the grains, such as starlings, black starlings, which the Swedes who live here call Maystiufvar, crows, etc. [...] when the bird eats a grain, it falls and falls asleep; the others then become afraid and dare not venture further; the cattle never touch it [...] What can I say about the birds here? some are so similar, but their sounds are very different [...] they are like our most familiar ones, but let them be different or else have other burdens. With Quadrupeds it is almost the same; here are mainly all the types that exist in Sweden, but they are different, so they must be a special species or a rather large variety; so it is with foxes, hares, deer, oxen, rats, squirrels, etc.⁷

⁷ Kalm, P. [Letter] May 28. 1749, New York [to] Linnaeus, C. Von, Uppsala. 2f.

The fauna of Canada, as with most animals that occur in North America, was familiar to the Swedish explorer. As we currently know, Canada's predominant biome is the taiga, which includes large boreal and coniferous forests, as well as some temperate forests in the north of the country. In Sweden, the predominance is also of coniferous forests, constituting a territory covered by taiga. Both insects and other animals, birds and quadrupeds, were described from species like those that lived in Sweden. Indeed, it was believed that the climate of the regions of Canada and Sweden would have benefited the survival of the species in this region of North America. It is interesting to note that Kalm presented, in this correspondence, the idea that the animals observed in Canada could be considered 'special species' or 'varieties' of those found in his country. Linnaeus considered that there were varieties of plants and animals, resulting from the mixture of the oldest relatives of each species. In any case, even considering the changes that this "mixture" could cause, for Linnaeus, there were essential characteristics that remained in the species, which were not recognized in the case of varieties (Klepka; Corazza, 2018). The aspects that, at the time, could indicate such variety were generally visible in morphology and external anatomy, such as coat size and color, as well as some habits, often evidenced by the animals' interactions with the spaces where they lived and were collected. The example of the starling and other birds, which supposedly learned that they could not eat corn sown in Canada, highlights the differences in habits from one place to another, even when the species were the same, or one variety of the other, as appeared to be the case reported by Kalm. In any case, within the scope of Kalm's expedition, this more careful analysis was made difficult by the conditions that the trip entailed. It is relevant to indicate that, in writing about the relationship between Canadian and Swedish fauna, Kalm demonstrated the great relevance of studying more complex mobility, including for the more complete development of the economy of nature.

Therefore, according to the record, the functioning of nature in Canada differed from that in Sweden, even though Canada's climate and vegetation favored the

survival of some animal species that also occurred in Europe. Furthermore, in correspondence, Kalm discussed other animals that occurred in the region, such as the red fox. Kalm raised speculation about how the fox probably arrived in Canada. The hypothesis presented by Pehr Kalm, that this animal would have arrived in Canada from Greenland, which, according to the botanist, would have been introduced to this place at least 100 years ago, is a demonstration that animal mobility, in this case caused by humans, was a characteristic that, when capable of tracking, proved to be important for understanding the possible connections between the Old and New Worlds.

It is possible to note some details Pehr Kalm wrote about animals and insects he found in North American lands. In these correspondences, he exposed the density of information that coexistence with such animals could provide to nature scholars. For example, Kalm recorded, in correspondence exchanged with Linnaeus at the end of his journey through North America, comments on a small number of animal specimens he managed to take from North America to Europe, which then began to live in European gardens. This is the case of an opossum, which he did not know whether it was carrying offspring, three small rodents, the female of which could have twelve offspring with her and a turtle.

I have been thinking about bringing some rare live animals to Sweden, but fear does not allow me, because they would be very expensive; [...] I chose Didelphis, which is called the Possum here; I have 2 of them, a male and a female, both of which run loose in my room; But it is as tame as a dog or a cat, that I can handle it between my hands as I please; but the female is miserably angry; they eat everything a man eats; they sleep almost all day, but still roam at night [...] ⁸

The development of animals in the initial phase of life and the changes they could undergo over time, until reaching adulthood, as is the case of the female Polecat and her offspring, which Kalm also mentioned, were relevant information, as they could corroborate the identification of the genus or species of an animal that is still little

⁸ Kalm, P. [Letter] 1 Aug. 1751, Stockholm [to] Linnaeus, C. Von, Uppsala. 3f.

known, or not at all known, for example. In addition to these details, which took up a large part of his correspondence, there is also information about the possibility of Kalm transporting specimens of American animals back to his homeland. The transit of live animals was not a common task and even when desired, the animal often did not resist the crossing. In this case, as is evident in Kalm's record, the smell that the Polecat released to defend itself from other animals and humans could infest the ship and, therefore, would be a major impediment to transporting it to Europe, even if it was your wish. In any case, the possibility of causing continental mobility of some animals was also important and occurred, in addition to situations in which they were sold or ordered as diplomatic gifts. The daily study of the lives of animals and their interactions with other environments was a subject under discussion and still needed to be better developed by the Natural History of the 18th century. As can be seen, knowledge produced *in situ* carried weight with naturalists, given the volume of information Kalm observed and heard during his *voyage*.

At the end of his expedition through North America, in 1751, Kalm sent another letter to Linnaeus, writing about the problems he encountered in some pea plantations that Europeans had long ago introduced into North America:

The fact is this: when the English and Swedes first arrived in North America, among other plants, they also planted peas for their food, which they brought with them from Europe; they prospered and paid well for their loss at first; but when they had lived in the field for some time, a worm, a mean little worm, began to spoil all their peas, but it did not happen in the way, as here in Sweden, that the pea is eaten by the worm while the pod is green and the pea is still in the field [...] when in autumn the peas were brought in and threshed, they all looked so glorious that one could rejoice in it; but here it is not all gold that glitters: inside the pea is a small egg, which does not hatch until the second winter, if it is not too cold, or very early in the spring, when it continues to empty the pea, which is seen in them, now I have the honor to send it to you Sir⁹; and thus the worm completely spoils the pea. This worm has now grown both in Pennsylvania, New Jersey, New York and New England, where they used to have the most beautiful fields of peas, and although they annually send out a large quantity of peas, they are now unable to sow them just, because when the peas are in flower, certain insects, the mothers of these worms, come and lay their

⁹ Kalm is referring to Linnaeus.

eggs in the flower, which then become the bane of the pea. It is remarkable that these worms move in America more and more northward.¹⁰

This other example of correspondence I just showed is interesting to analyze the habits and distribution of a tiny animal. In this quoted excerpt, Kalm highlighted the action of climate change in the interactions between the afore mentioned insect and the development of pea plantations in American provinces, such as Pennsylvania, New Jersey, New York and New England. According to the botanist, there was a difference in the interaction of this animal with pea plantations located in Sweden and those planted in North America. Furthermore, Kalm also recorded in correspondence that this animal was reaching the lands of Canada, indicating that it was probably an insect of extensive spatial mobility in America. The practice of monitoring was essential for the more complete study of the establishment and development of European plants in other soils, as well as vice versa. The insect, as indicated in the letter, interfered with the full development of peas more significantly in the American provinces. The unpredictability demonstrated by Kalm, regarding the effects that this animal could still cause on plantations, is what reveals that, as a “disobedient” animal, it would deserve greater attention from Linnaeus.

Kalm's correspondence is also opportune, as an example, to indicate some important elements of the taxonomic description work of Linnaeus and his collaborators and students. The action of the climate and the environment on the organisms arranged in each location was another fundamental factor for the full production of Linnaeus' ideas about the distribution of living beings across the Earth. The Swedish botanist elaborated his considerations on these changes in his statements on the habitability of the world and the nature's ability to establish a balance and maintain its functioning system. The study of the climate and ecological relations of a location formed part of the concerns of History and Natural Theology in modernity and,

¹⁰ Kalm, P. [Letter] 1 Aug. 1751, Stockholm [to] Linnaeus, C. Von, Uppsala. 3f.

after Linnaeus's statements, especially his investigations into the distribution and transfer of plants between continents, Historical Geography.

The collection of specimens of fauna and flora, as well as the description of the functioning of the nature of the spaces in which Kalm was, have been facilitated by the Swedish population that inhabited Racoon, the French and some other Europeans who occupied the provinces spread across North America. The eyewitness testimony and the experience of the settlers and communities, located in the cities and farms where Kalm said he had passed, were reports that needed to be "put to the test", to prove the then Linnaean classifications, but they also served as evidence for Kalm's that little, or nothing was known about a "new" and rare species of plant or animal.

TRAVEL IN NORTH AMERICA

When Kalm arrived in America, he settled in Racoon, currently known as Swedesboro, in New Jersey, and from there traveled through the provinces, passing through North Carolina, New York, Philadelphia, New England, Pennsylvania until arriving in Canada. It is believed that the city where Kalm settled was named for its abundance of wild animals, particularly raccoons (Moyer, 1958). Kalm's path was facilitated by New Sweden's location, a coastal and border region of the other provinces through which he traveled until leaving for Canada.

In addition to the letters sent by Kalm to Linnaeus, the Swedish botanist's student also recorded his observations in the book entitled "Travels Into North America: Containing Its Natural History, and a Circumstantial Account of Its Plantations and Agriculture in General [...]", about his voyage through North America, which had its first edition in 1753, and was divided into two volumes. The narrative records the daily life of Pehr Kalm, from province to province. In the first volume, in which Kalm presented a good part of the provinces through which he traveled, there is an excerpt dealing with his passage through Pennsylvania, in October 1748, at the beginning of his stay in America, in which the botanist wrote about wild animals' species found in this region. According to the author, contrary to what was thought, some of them, despite

being wild and little-known animals, could be traded in the same way as domestic cattle known in Europe.

[...] several people of widespread opinion have obtained calves from the few wild cows, which are to be found in Carolina, and other provinces at the mouth of Pennsylvania, and bred them among the tame cattle; when grown up they were perfectly tame, but at the same time very undisciplined, for there was no enclosure of sufficient strength to fill them, if they had intended to break it [...] they copulated with the last, and so generated as if it were a new race. This American species of ox is the *Bos Bison* due to Linnaeus.¹¹

Pehr Kalm and, consequently, Linnaeus, as well as naturalists and botanists of his time, classified species as domesticable or wild, which helped understand the possible uses of domestic and wild species and genera. The possibility of domesticating four-legged animals was a fundamental element in the development of modern propositions about the distribution of animals across the Earth at the end of the 18th century. The domestication of some species mobilized the movement of animals and caused their mobility, assisted and ensured by humans. The animals that were brought to the New World, as part of the colonization processes of lands occupied by Europeans, processes that have already been well scrutinized by historians such as Miguel de Asúa and Roger French (2017) and Virginia DeJohn Anderson (2004), can demonstrate how these animals modified the American environmental landscape (Crosby, 2011).

In the case of bison, it was a predominant animal in most regions of North America. This quadruped is an inhabitant of the great plains, which served as its pasture, especially throughout the summer, when large numbers of herds were seen gathered, as demonstrated by Andrew Isenberg (2000), indicating that, in some cases, it was said have seen about 20,000 heads of bison at a single time. Currently, the Great Plains occupy the United States, specifically the regions of New Mexico, Texas, Oklahoma, Colorado, Nebraska, Kansas, Wyoming, South Dakota, and North Dakota, as

¹¹ Kalm, P. Travels into North America; containing its natural History [...]. (London: T. Lowndes, 1770): 207.

well as the Canadian provinces of Saskatchewan and Alberta, where they are known as the Canadian Prairies. In winter, the community of bison, which gathered for copulation, then divided into small groups that dispersed across the lands of northern America, looking for forage. The aridity of the Great Plains, as explained by Andrew Isenberg (2000), was a determining characteristic for the dispersal of these animals, which, when they migrated, were often killed by predators, such as wolves, or had to share their sustenance with other animals from the same ecological landscape, such as elk.

The introduction of European animals into the North American landscape and the mobility, often forced, of native species of animals, such as the bison, as happened in other places in America, in their respective processes of occupation and colonization, threatened the survival of this animal, as European domestic cattle and horses, which reached the Great Plains region in the 17th century, helped prepare the soil for the implantation of European plants, reconfiguring the pasture and, therefore, making it difficult for the bison to stay in these regions occupied and progressively modified (Isenberg, 2000). Allied to this colonizing enterprise, which Crosby called “ecological imperialism”, the economic interest in their skin and meat is also an aspect that can explain the gradual decline of the bison in North America (Isenberg, 2000).

Despite the ecological changes already established in the American Great Plains in the 18th century, a large bison population persisted across North America. The survival of most of these animals was made possible by their nomadic nature and unpredictable habits, especially after they encountered new non-native organisms in North America. In some cases, as Kalm demonstrated, even animals that eventually proved to be domesticable could display unpredictable behaviour. According to Kalm, animal unpredictability was fundamental to Linnaeus's taxonomic classification of American species of *Bos bison*, as this would have been the result of an 'improper' cross.

In the tenth edition of *Systema Naturae*, this animal was described by the name *Bison* and classified as an animal of the genus *Bos*, with hollow horns and deciduous lower teeth. Other animals that are part of this genus, according to Linnaeus, would be

bulls and *buffaloes*. Bison were described as long-haired animals with humped backs and split horns. In this edition, Linnaeus indicated that this animal would only occur in Mexico and Florida, and the references cited by Linnaeus, from other authors who had also described and classified this animal, were Conrad Gessner, John Ray, Francisco Hernández, and Mark Catesby, who named it such as *Bison*, *Taurus mexicanus* and *American Bison*, respectively. In Kalm's record, collected years before the publication of this edition of Linnaeus's *Systema*, the American bison, or *Bison bison*, as it was later named, also occurred in Canada and was the result of a cross between wild and tame oxen.

Pehr Kalm used, in the excerpt highlighted above, a term that illustrates part of the functionality of his expeditions: 'test'. It was also essential to test whether animals of different faunal and floral species differed and how they functioned in the natural economy of the North American provinces, to reaffirm existing natural descriptions and classifications or to challenge them. It is also worth remembering that domestic animals, in addition to being a source of income, food, carrying loads, transport and working in the pasture of the fields occupied by the settlers, also indicated the domination of Christian civilization over that land which it was said, by the beginning of the early modern period, not to be inhabited or to have animals to live in its large and rich fields.

In one of the publications of the *Royal Academy of Sciences* in Paris, dated 1772, the Dutch naturalist and collector Arnout Vosmaer (1720-1799), curator of the Natural History cabinet of the then 'Prince of Orange' wrote about the American bison, whose considerations of Linnaeus were considered in relation to the update that the Swedish botanist made on the animals of the genus *Bos* that were known to scientists. His text revealed that this animal in question was found in North America, near the Mississippi River and Arreco, but that, at the time of Vosmaer's publication, it was possible to find numerous bison living in cities in the Netherlands. Vosmaer worked as director of Natural History for the collection and *ménagerie* of Princess Anna of Orange and Nassau, and was a member of several scientific societies, including the Dutch one in

Harlem and the *Imperial Academy*. Over the years 1766 and 1806, he published a series of paintings and descriptions of animals from some places, such as Africa and America. Among them, the bison.

As was included in the document from the *Royal Academy of Sciences of Paris*, in which the American bison was described, according to Linnaeus, it would be possible to say that there were at least 4 varieties of *Bos*, namely the common *Bos*, the *Aurock*, the *Bonasmus* and the *Bison*. In this text, however, it was recorded that there was significant doubt among naturalists of the period, especially regarding the possibility of the bison being, or not, just a variety of the wild ox that occurred in Europe (*Aurock*), or whether it was a new species. Vosmaer seems to have agreed with Linnaeus's statements, despite some of his contemporaries believing that more than eight species could exist, not varieties of the species listed above.

Figure 1.Table. x. Bison. 1772.



Source: Available online from the French National Library

Vosmaer gave a morphological and anatomical description, including details about the color of this animal's hair, its size, which was one of the characteristics that stood out most to the naturalist, as there did not seem to be any significant proportions between the organs' sizes, and how they reproduced. The drawing in the publication appears to be faithful to the fur's color, but Vosmaer said the animal's legs seemed very small in the illustration. What draws attention to this document, even more than the

description itself, is that Vosmaer confirmed the existence of many of these animals living in cities in the Netherlands, contradicting Buffon's statements.

The bison, therefore, proved to be a quadruped with great commercial and agricultural potential, which increased its esteem in Europe. As seen above, the possibility of domesticating this animal was a highly relevant factor and may have been used as a criterion for its transport to European cities, where it would have begun to live and reproduce. Even though Kalm did not mention this animal again in his travel record across America, and did not even inform Linnaeus of other things about it in correspondence, the bison, as one of the animals with the highest incidence in North America, has been configured as a species with the capacity to represent some of the qualities of the spaces of North America, whether due to its size, corresponding to the most common occurrence of large animals in these places, the color of its fur and, perhaps most importantly among them, its great commercial value, given its rapid adaptation to other types of pasture and vegetation.

In addition to the testimonies collected on site, and his observations in the provinces described, Kalm also referred to Mark Catesby (1683-1749), an English naturalist whom Linnaeus referenced, and who was also one of the scientists most cited by Kalm in his report of shipping across North America, as can be seen above. Catesby, in 1712, traveled to Virginia, an English colony, and during the seven years he was in the New World, he traveled throughout the colony, observing natural resources and collecting samples of plants, birds, shells, snakes, and other specimens to send back. After his return to his land, a second *voyage* was sponsored by a group of English botanists and naturalists, who were reportedly impressed by the descriptions and collection established by Catesby in the colony. Later, in 1722, the explorer set out on his second trip to America. This second time, the Englishman expanded his collection and began creating his more extensive drawings of American nature. He made two extended visits, first to Virginia between 1712 and 1719 and then to Carolina and Florida between 1722 and 1726. He also traveled to the West Indies, visiting Jamaica in 1714 and the Bahamas in 1725.

When Catesby returned to England, he began work on his “Natural History of Carolina, Florida, and the Bahamian Islands”, which was published, in parts, between 1729 and 1747 and eventually comprised 220 illustrations. In this way, Catesby became a contemporary and updated reference for Linnaeus and his students. Pehr Kalm mentioned other wild animals that settlers supposedly domesticated. After writing about the American bison, Kalm noted that animals such as the beaver, otter and raccoon, as well as turkeys and squirrels, could also be domesticated and live alongside men:

Beavers were so domesticated that they began fishing and brought home what they had caught to their owners. This is often the case with otters, of which I am aware, who were like dogs and followed their master's wherever they went. [...] Gray and flying squirrels are tamed by boys, which fit on their shoulders and follow them everywhere. Roosters and hens and turkeys run through the woods of this country and are in no way different from our tame ones, except that they are larger and redder in size, although their meat is tastier.¹²

In the example above, Kalm dealt with other animals that could learn to obey their owners and even cooperate, as is the case with the mentioned beaver. Kalm, still at the beginning of his travel, wrote more about one of the animals that seemed to be most easily domesticated, squirrels:

The gray squirrel is widespread throughout Pennsylvania and other provinces in North America. Its size corresponds to the Swedish squirrel; but the first ones differ from the others, as they maintain their gray color throughout the year, in addition to being, in terms of size, sometimes a little larger. The forests in all these provinces, especially in Pennsylvania, consist of trees of transitional sizes, and these squirrels like to live in them. Ray, in his *Synopsys Quadrupedum*, p. 215 and Catesby, in his *Natural History of California*, Vo. 2, p. 74, call him the Virginian greater gray Squirrel, and the last one added a picture of him after he died. The Swedes call it gray Ickorn, which is the same as the English gray Squirrel. Their homes are generally in tree holes, and are made of moss, straw and other soft materials. Their food is basically walnuts, hazelnuts, walnuts, etc. [...] As soon as winter arrives, the cold and snow confine them to their homes for days at a time. During this period, they consume what they have saved as food. [...] The Swedes reported that, during the harsh winter that occurred here

¹² Kalm, P. *Travels into North America; containing its natural History [...]*. (London: T. Lowndes, 1770): 208-209.

in 1741, such a large amount of snow fell that the squirrels were unable to reach the place where they stored their food, and many ended up dying of hunger. The damage these animals due to the corn fields is enormous, as I have already described [...]. Of all the wild animals of this country, the squirrel is the easiest to domesticate, especially when they are captured young; I could see them so tame, that they followed boys and ran after them through the forest. Sometimes, when they run, they only enter part of the forest and then return home.¹³

The color of this small quadruped was one of its most prominent features, as it served to differentiate it from the Swedish species of squirrel, better known to the author. Kalm noticed that this squirrel maintained its fur color throughout the year, even as the seasons changed. Kalm cited the passages in which John Ray and Mark Catesby described this animal in their respective works, using the same nomenclature to refer to it. Despite its potential for easy domestication, Kalm recalled that this animal was harmful to corn plantations, as he had previously mentioned when describing the squirrel species found in North America. About American squirrels, Ray wrote the following:

There are several species of squirrels here. The ground squirrels, or *Sciurus Striatus*, Linn. S.N., is generally kept in cages, because they are very beautiful: but they cannot be completely domesticated. Greater Squirrels, or *Sciurus cinereus*, Linn. S.N., often causes a lot of work on the plantations, but particularly destroys the corn [...]. They sometimes number in the hundreds in a corn field and then destroy a peasant's entire crop in one night. In Maryland, therefore, everyone is required to bring four squirrels annually, and their heads are given to the furrier, to prevent fraud. In other provinces everyone who killed squirrels received two pence from the public for them, handing over the heads. Its flesh is eaten and considered delicate. The children are bent, but they are not held in high esteem. Squirrels are the main food of rattlesnakes and other snakes [...].¹⁴

The description made by John Ray, published in 1693, the Virginia gray squirrel, as it is named and classified, was described morphologically, with emphasis on its color and size. Ray also included in the record the places where this animal occurred,

¹³ Kalm, P. *Travels into North America; containing its natural History* [...]. (London: T. Lowndes, 1770): 312-314.

¹⁴ *Ibidem*.

highlighting New Spain and Virginia as the spaces where it lived. In Kalm's travel report, the botanist emphasized that the animal, in fact, occurred mainly in the forests of Pennsylvania, where he was passing when he recorded its occurrence. The observations made in situ, as in the case mentioned above, helped to better locate these animals, but were still unable to explain and delimit the vast area in which these animals occurred, since, as has been demonstrated and will still be discussed and analyzed, the Americas had many little or no explored and known regions in their interior. Catesby, in turn, described the squirrel, using the nomenclature The Gray Fox-Squirrel:

These Squirrels are as big as a half-adult rabbit; the whole structure of their bodies and limbs, thicker in proportion, and of a coarser and more clumsy form than our common squirrels; their heads and ears are stronger. The color of their bodies is gray, as are their tails, which, when turned backwards, extend their entire length and cover their bodies. They have the same five characteristics as common squirrels. Their size is no protection against the afflictions and prey of voracious hawks. They harm Virginia and Carolina farmers by destroying their corn.¹⁵

Like Kalm, Catesby revealed that this small animal could damage corn crops. Furthermore, the author noted a visible similarity between the so-called common squirrel and this animal, but the latter seemed to have a larger, more robust structure. All three authors associated the grey squirrel with nuts, the basis of its diet. As shown in the illustration in Volume II of his Natural History, the plant depicted next to the animal occurs in the Bahamas, according to Catesby. Therefore, it is possible that the naturalist made this association between the plant and the animal that possibly consumed it, indicating that the grey squirrel could be found in some areas of the Bahamas.

Linnaeus named this animal *Sciurus cinereus* in the tenth edition of his *Systema*, an animal in the genus *Sciurus*. Among the references that the botanist cited in classifying this animal are John Ray, Mark Catesby and Pehr Kalm, who also named it

¹⁵ Catesby, M. The Natural History of California, Florida and the Bahamas Islands [...] Vol. II. (London: Printed by the Expence of the Author, 1779

as *S. virginianus cinereus major*. According to Linnaeus, this animal inhabited North America, which the Swedish botanist used most of the time in his *Systema*, with a synonym for North America when there was no specific information about which regions a given animal or plant inhabited. Linnaeus described it as a genus of American rodent that was three or four times the size of *Sciurus vulgaris*, an animal of the same genus that inhabited European trees. In his classification of this second rodent mentioned, Linnaeus said that the animal was red in color, with a white belly and some grayish parts and that it produced a globular nest made of mulberry trees. Regarding *Sciurus cinereus*, Linnaeus did not comment on its gray color, an aspect most highlighted by the authors he mentioned, discussed above. In correspondence exchanged between Kalm and Linnaeus, it is also possible to see mentions by their student made about squirrels in North America:

The coldest day was January 4th: 24 degrees below zero, according to Celsius. A clear sign that the winter would be harsh were the hordes of squirrels that invaded the forests to collect acorns, chestnuts and various types of nuts. They also attacked the corn fields. Because of the damage they cause, a premium is paid for shooting them, but without noticeable effect., The Natural History of Carolina, volume II. What makes controlling squirrels difficult is that they often operate at night. Many can testify that squirrels can attack entire acres of corn fields because they number in the hundreds. Fleas are indigenous and no building exists without them. The raucous Swedish crickets have no equal in America. In Canada they did not know of the existence of *Toraka*, only that they were common in the English colonies. The Swedes call them “brödätare” [bread eaters], the Dutch call them *Kackerlack*, and the English name is cockroach. They hide in old wood and thus enter houses. Some people think they originate from South America. Many believe they can hide in the ears and cause incredible pain. If you fill your ears with water, they disappear. There are insects that glow in the dark, and here it is really pitch black. In summer, these fireflies, “eldflygur” in Swedish, “mouches du feu” in French, light up the night.¹⁶

In this correspondence, Kalm wrote about some animals considered “pests,” such as the squirrel, the black bird mentioned at the end of the quote, and insects. In the case of squirrels, once again, the unpredictability of their behavior around corn

¹⁶ Kalm, P. [Carta] 13 de mar. 1750, Philadelphia [para] Linnaeus, C. Von, Uppsala, 2f. Access

crops was a warning to residents of North American provinces, who began promoting hunts for the quadrupeds as a measure to control crop damage. The same situation occurred with the bird, which was hunted for reward to reduce the damage caused by the bird. In the end, despite recognizing the problems the bird could bring to the planted corn, Kalm also stated that the absence of this bird could increase the population of caterpillars that attacked the fields' vegetation, possibly because they were the bird's food. In this passage, the imbalance in the natural economy of these provinces is recounted, suggesting that its cause would not necessarily rest solely on the unpredictability and disobedience of some animals, but also in human actions. Returning to Pehr Kalm's travelogue, throughout his records, the botanist also described other animals that were considered quite common in the regions of North America, but unlike the animals that could be domesticated, such as those mentioned above, were of little or no use:

There is a certain quadruped that is quite common not only in Pennsylvania, but also in other provinces of North and South America and goes by the name of Polecat among the English. In New York, they generally call it Skunk, the Swedes here, by way of nickname, call it Fifkatta, because of the hideous food that it sometimes produces [...]. This animal, which is very similar to the Marten, is of the same size and is entirely black [...] on our return to Philadelphia, we saw one of these animals, not far from the city, near a farmhouse, killed by dogs. I have had many other opportunities of seeing it and hearing about the qualities of this animal [...] when it finds no way to escape, it squirts urine over men and dogs. He does this, according to some, by the aid of his tail, which when he urinates, wetting it, makes a sudden movement and lets the urine escape; but others believe that he could squirt his urine equally far without the aid of his tail [...] the urine has a horrible smell that cannot be compared with anything. [...] if you approach a Polecat when he squirts his urine, you cannot breathe for a moment [...]¹⁷

In Linnaeus *Systema Naturae*, the Snunk is described as an animal of the genus *Viverra*, named *Putorius*. The references used to describe this animal were precisely Catesby and Kalm (Linnaeus, 1758). The example above illustrates the importance of the

¹⁷ Kalm, P. *Travels into North America; containing its natural History* [...]. (London: T. Lowndes, 1770): 17-24.

behavior and unpredictability of some animals that were not domesticated, which make them disobedient objects in the American fauna.

The polecat was very common in many parts of North America, as were other quadrupeds, such as the bison above. According to Kalm and his interlocutors, Benjamin Franklin (1709-1790) and Paul Dudley (1675-1751), the moose-deer was possibly a name that referred to a large species of deer that inhabited the regions of Canada, Iceland and some parts of North America, especially New England. By indicating that, in the past, people referred to this animal using the name Moose-deer, Kalm explained the problem of identifying and relating an animal to the name given to it, especially when it is possible to see it in situ, which often, based on personal observations, contradicts the way in which a particular animal was referred to. The characteristics that would justify the name given to the animal, according to Kalm, did not correspond to the animal he saw. Again, in this passage above, Kalm supposed that the moose-deer found in some parts of North America could, in fact, be a variety of deer that lived in the forests of Sweden, better known to Linnaeus and his students. In another part of the quotation, Pehr Kalm also stated that it was widely believed the American animal could have come from Iceland, a claim that indirectly corroborates the hypothesis that, in ancient times, North America was connected to Iceland. Although Kalm concluded, at the end of his explanation about this animal, that it was probably not the Moose-deer described centuries ago, a large animal, but rather a variety of the common deer found in Europe, the possibility that Iceland had a land connection with North America in the past reinforces his claim that the animal in question was a variety of the one that existed in the Old World, which possibly changed due to the influence of the environment and climate in which it would have come to live in America. The distribution of the animal described, therefore, was a fundamental element for a better understanding of its species, whether it could be a variety of the deer that occurred in Sweden or not.

To comprehend his natural constitution, and if this animal was a variety of deer known in Europe, Kalm and Linnaeus needed to look through other naturalists' work about the same subject. Such works already mentioned were also important to

comprehend if the moose-deer was another kind of animal, it means, a new species, or if it was a variation of the quadruped, which was also living in some lands of North America.

According to Kalm and his interlocutors, specifically Benjamin Franklin (1709-1790) and Paul Dudley (1675-1751), the moose-deer was possibly a name that referred to a large species of deer that inhabited the regions of Canada, Iceland and some parts of North America, especially New England. By indicating that, in the past, people referred to this animal using the name “moose-deer”, Kalm explained the problem of identifying and relating an animal to the name given to it, especially when it is possible to see it *in situ*, which often, based on personal observations, contradicted the way in which other naturalists referred to a particular animal. In this case, the characteristics that would justify the name given to the animal, according to Kalm, did not correspond to the animal he saw. Pehr Kalm also indicated that it was widely believed that the American animal could, in fact, have come from Iceland, a statement that indirectly corroborates the hypothesis that, in ancient times, North America was connected to Iceland. Although Kalm concluded, at the end of his explanation about this animal, that it was probably not the moose-deer described centuries ago, a large animal, but rather a variety of the common deer found in Europe, the possibility that Iceland had a land connection with North America in the past reinforces his claim that the animal in question was a variety of the one that existed in the Old World, which possibly changed due to the influence of the environment and climate in which it would have come to live in America. The distribution of the described animal, therefore, was a fundamental element for a better understanding of its species, whether it could be a variety of the deer that occurred in Sweden or not.

Other contemporary naturalists had largely written about this animal, such as the influential Thomas Pennant (1726-1798). The case of the moose-deer was not closed. Many conclusions did not converge regarding their classification. *In situ* observations and personal experiences remain vital to Natural History. I believe that, in the case of animals, it is even more evident than that *in situ* experiences were fundamental, even

more if the goal was to analyze the function of nature, by observing animals' habits and behaviors.

FINAL CONSIDERATIONS

This study examines the role of animals and in situ experiences in the production of natural knowledge, based on Pehr Kalm's travel records. The coexistence between Kalm, the fauna of North America, and local populations emerges as a central element in his reflections on classification and the economy of nature. Specific examples—such as peas, bison, and polecats—serve as case studies through which the descriptions and correspondence exchanged between Kalm and other naturalists reveal the importance of observing animal behavior and habits in shaping new scientific inquiries related to ecological and economic dynamics.

Additionally, the presence of North American animals prompted renewed debates about taxonomy, species differentiation, and the boundaries between domesticated and wild creatures. The mobility of these animals and their interactions with diverse habitats underscored the significance of ecological data in determining both their classification and practical uses. The interplay between humans, animals, and the environment in North America—combined with its ecological particularities—highlighted the epistemological challenges posed to Natural History, despite the region's climatic similarities to parts of Europe.

REFERENCES

- Abreu, J. Capistrano de. *Capítulos de História Colonial. 1500–1800*. Editor Livre, 2024 [1907].
- Anderson, V. DeJohn. *Creatures of Empire: How Domestic Animals Transformed Early America*. Oxford University Press, 2006 [2004].

Aprobato Filho, N. "O couro e o aço: sob a mira do moderno – a 'aventura' dos animais pelos 'jardins' da Paulicéia, final do século XIX / início do XX". Tese de Doutorado, Universidade de São Paulo, 2007. doi:10.11606/T.8.2007.tde-16072007-113730. Acesso em: 19 nov. 2024.

Asúa, M.; French, R. *A New World of Animals: Early Modern Europeans on the Creatures of Iberian America*. Routledge, 2017.

Baratay, E. "The promotion of the sensitive animal. A revolution in the Revolution". *Revue historique*, v. 66, n. 1, 2012, p. 131–153.

Benson, A. B. "Pehr Kalm's Writings on America: A Bibliographical Review". *Scandinavian Studies and Notes*, v. 12, n. 6, 1933, p. 89–98.

Catesby, M. *The Natural History of California, Florida and the Bahamas Islands*, vol. II. London: Printed by the Expence of the Author, 1779.

Clark, D. L. "Animals... In Theory: Nine Inquiries in Human and Nonhuman Life". *CR: The New Centennial Review*, v. 11, n. 2, 2011, p. 1–16.

Crosby, A. W. *The Columbian Exchange: Biological and Cultural Consequences of 1492*. London; Westport, CT: Praeger, 2003 [1972].

Domanska, E. "Beyond Anthropocentrism in Historical Studies". *Historein*, v. 10, 2011, p. 118–130.

Domanska, E. "Animal History". *History and Theory*, v. 56, n. 2, 2017, p. 267–287.

Duarte, R. H.; Lopes, G.; Aprobato Filho, N.; Ostos, N. "Reciprocidade em desequilíbrio: história das relações entre animais". *História, Ciências, Saúde – Manguinhos*, v. 18, supl. 1, 2021.

Duarte, R. H. "História dos animais no Brasil: tradições culturais, historiografia e transformações". *HALAC – Revista de História Ambiental Latinoamericana e Caribenha*, v. 9, n. 2, 2019, p. 16–44.

Duarte, R. H. *História e Natureza*. Belo Horizonte: Autêntica, 2005.

Duarte, R. H. "Zoos in Latin America". *Oxford Research Encyclopedia of Latin American History*, 2017.

Duarte, R. H. "Pássaros e Cientistas no Brasil: Em busca de proteção, 1894–1938". *Latin American Research Review*, v. 41, n. 1, 2006, p. 3–26.

Duarte, R. H. "Zoogeografia do Brasil: Fronteiras nacionais, percursos panamericanos". *Latin American Research Review*, v. 49, n. 2, 2014, p. 68–83.

- Fudge, E. *Renaissance Beasts: Of Animals, Humans and Other Wonderful Creatures*. Urbana; Chicago: University of Illinois Press, 2004.
- Fudge, E. "A Left-Handed Blow: Writing the History of Animals". In: Rothfels, N. (ed.). *Representing Animals*. Bloomington: Indiana University Press, 2002.
- Holanda, S. B. de. *Visão do Paraíso: Os Motivos Edênicos no Descobrimento e Colonização do Brasil*. São Paulo: Editora Brasiliense, 2000 [1959].
- Holanda, S. B. de. *Caminhos e Fronteiras*. São Paulo: Companhia das Letras, 2017 [1957].
- Holanda, S. B. de. *Monções*. São Paulo: Companhia das Letras, 2014 [1945].
- Isenberg, A. C. *The Destruction of the Bison: An Environmental History, 1750–1920*. Cambridge University Press, 2000.
- Jarrell, R. A. "KALM, PEHR (baptized Petter)". *Dictionary of Canadian Biography*, University of Toronto/Université Laval, 2003.
- Jonsson, F. A. "Climate Change and the Retreat of the Atlantic: The Cameralist Context of Pehr Kalm's Voyage to North America, 1748–51". *The William and Mary Quarterly*, v. 72, n. 1, 2015, p. 99–126.
- Kalm, P. [Carta] 13 mar. 1750, Philadelphia [para] Linnaeus, C. V., Uppsala. 2f.
- Kalm, P. [Carta] 1 ago. 1751, Stockholm [para] Linnaeus, C. V., Uppsala. 3f.
- Kalm, P. [Carta] 28 maio 1749, New York [para] Linnaeus, C. V., Uppsala. 2f.
- Kalm, P. *Travels into North America; containing its natural History*. London: T. Lowndes, 1770.
- Klepka, V.; Corazza, M. J. "A natureza da classificação dos seres vivos na Grécia antiga". *Diálogos*, v. 22, n. 2, 2018, p. 202–224.
- Lindner, J. "He came, He saw, and He observed – An Analysis of Reis door Noord Amerika by Pehr Kalm". *Encountering the Other – Travel Books on North America, Japan and China from the Maastricht Jesuit Library, 1500–1900*, n. 6, 2014.
- Lopes, G. "O *Aedes aegypti* e os mosquitos na historiografia: reflexões e controvérsias". *Revista Tempo e Argumento*, v. 11, n. 26, 2019, p. 67–113.
- Merriam, D. F. "Pehr Kalm: A Swedish Naturalist's Geological Observations in North America, 1748–1751". *Earth Sciences History*, v. 25, n. 1, 2006, p. 141–154.
- Nance, S. (ed.). *The Historical Animal*. Syracuse University Press, 2015.

Oliveira, V. M. "Nascidas do Sol e da Chuva: Minas Gerais e o combate às saúvas". *Dissertação de Mestrado, Universidade Federal de Minas Gerais*, 2007.

Oliveira, V. M. "O Brasil contra a saúva: considerações sobre a Campanha Nacional de 1935". *Cadernos de Pesquisa do CDHIS-UFU*, v. 23, 2010, p. 563–580.

Ostos, N. "União Internacional Protetora dos Animais de São Paulo: práticas, discursos e representações de uma entidade nas primeiras décadas do século XX". *Revista Brasileira de História*, v. 37, n. 75, 2017, p. 297–318.

Pádua, J. A. "As bases teóricas da história ambiental". *Estudos Avançados*, v. 24, n. 68, 2010, p. 81–101.

Pearson, C. "Beyond 'resistance': rethinking nonhuman agency for a 'more-than-human' world". *Environmental Humanities*, v. 7, n. 1, 2015, p. 121–142.

Pickering, A. *The Mangle of Practice: Time, Agency, and Science*. Chicago: University of Chicago Press, 1995.

Rader, K. A. *Macking Mice: Standardizing Animals for American Biomedical Research, 1900–1955*. Princeton University Press, 2004.

Ritvo, H. *The Animal Estate: The English and Other Creatures in the Victorian Age*. Cambridge: Harvard University Press, 1987.

Safier, N. "Global knowledge on the move: itineraries, Amerindian narratives, and deep histories of science". In: Raj, K.; Scharf, S.; Seth, S. (orgs.). *Historicizing the Circulation of Knowledge*. Oxford: Oxford University Press, 2010.

Sanjad, N. "Intertextuality and knowledge translation in travel reports: the Capim River and its inhabitants in the narratives of Alfred Russel Wallace (1849), João Barbosa Rodrigues (1874–1875) and Emil Goeldi (1897)". *Tapuya: Latin American Science, Technology and Society*, v. 5, n. 1,

Thomas, K. *O Homem e o mundo natural: mudanças de atitude em relação às plantas e animais (1500–1800)*. (São Paulo: Companhia das Letras, 2010 [1982]).

Velden, F. Ferreira Vanderelipe. "O cheiro doentio do contato: doença, história e degradação ambiental entre os Karitiana na Amazônia ocidental". *Mediações - Revista de Ciências Sociais*, Londrina, 17,1, (2012): p. 85–120,

Animales Americanos en la Publicación de Viajes de Pehr Kalm: Experiencia, Comportamiento Animal e Interactividad (1749-1755)

RESUMEN

Este artículo analiza las observaciones de Pehr Kalm (1716-1779) sobre la fauna americana, tal y como las registró durante sus viajes por Norteamérica entre 1748 y 1751. Junto con el naturalista John Reinhold Forster (1729-1798), Kalm publicó sus observaciones sobre la flora y la fauna americanas en una obra titulada *Viajes por Norteamérica*, que contiene su historia natural y un relato circunstancial de sus plantaciones y agricultura en general, con el estado civil, eclesiástico y comercial del país, y las costumbres de sus habitantes. Esta obra se publicó en dos volúmenes en Londres en 1772. Mediante el análisis cualitativo de los textos, descripciones y correspondencia de Kalm con Linneo, así como de algunos manuscritos de Forster, este artículo pretende comprender la importancia de las interacciones con los animales en el desarrollo de nuevas áreas de estudio para los naturalistas interesados en promover la agricultura y estudiar las economías naturales en América. Para ello, me baso en el concepto de «objetos desobedientes» de Ewa Domanska (2010) y en el análisis de Chris Pearson (2015) sobre la resistencia animal a lo largo de la historia. A través de este artículo, demuestro cómo la experiencia de primera mano dio lugar a una comprensión más detallada de la relación entre los animales y sus hábitats.

Palabras clave: Pehr Kalm; viajes; animales americanos.

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