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João Barbosa Rodrigues: lore and practices

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)

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Abstract

The article analyzes the narratives of three travels along the Capim River, in the state of Pará, Brazil, between 1849 and 1897: those of Alfred Russel Wallace (1823–1913), João Barbosa Rodrigues (1842–1909) and Emil Goeldi (1859 –1917), who traveled with another scientist, Jacques Huber (1867–1914). These are considered the first scientists to explore the river and publish work on it. We highlight the intertextuality of their reports and also the process of knowledge translation between travelers and their interlocutors, an approach that we consider necessary and unavoidable for the development of this field of investigation. Our main sources are published narratives, sometimes associated with manuscripts and iconography.

Key words: Amazon, indigenous peoples, network of knowledge, travel narrative, traveling naturalist.

Resumo

O artigo analisa as narrativas de três viagens ao longo do rio Capim, no estado do Pará, entre 1849 e 1897: as de Alfred Russel Wallace (1823–1913), de João Barbosa Rodrigues (1842–1909) e de Emílio Goeldi (1859–1917), que viajou na companhia de um outro cientista, Jacques Huber (1867–1914). Esses são considerados os primeiros cientistas a explorarem o rio e a publicarem trabalhos sobre ele. Destacamos a intertextualidade presente nos relatos que escreveram e também o processo de tradução de conhecimentos entre os viajantes e seus interlocutores, uma abordagem que reputamos como necessária e incontornável ao desenvolvimento desse campo de investigações. Nossas principais fontes são as narrativas publicadas, por vezes associadas a manuscritos e à iconografia.

Palavras-chave: Amazônia, povos indígenas, rede de conhecimento, narrativa de viagem, naturalista viajante.

Introduction

Travel and travelers are among the main research topics in several areas of knowledge, from literary studies, which are dedicated to narratives and travel reports as a textual genre, to taxonomy, which seeks information on collection stations necessary for the documentation of specimens. Anthropologists, archaeologists, biologists, ethnobotanists, geographers, historians, tourism specialists, in their various specialties and theoretical trends, are concerned, for various reasons, with the study of travelers. There are, in fact, a myriad of interests directed towards the sources produced before, during and after the trips, such as handwritten or printed texts, iconographies and collections, analyzed as representations, testimonies or evidence. As researchers examine the sources, they capture different views on landscapes, places, plants, animals, artifacts, people, customs, languages, sounds and events recorded by women and men who move in time and space beyond a point of reference, that is familiar to them and that previously frames the way they observe and interpret the different and the other.

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We are precisely interested in this exegesis of travel and travelers. In this article, we analyze three trips that traveled the same river between 1849 and 1897: the Capim. This watercourse, with 764 kilometers in length, forms a sub-basin of the Tocantins-Araguaia Hydrographic Macroregion, consisting of rivers that flow into the mouth of the Tocantins, in the Marajó Bay and south of the Marajó Island (Bacias e Divisões Hidrográficas do Brasil 2021). At 83 kilometers from the mouth, the Capim joins the Guamá, a river that forms another sub-basin in an east-southeast direction. Although it is more extensive, the Capim is usually considered a tributary of the Guamá, with the entire region of the mouth being identified by this name.[1] This fact has been the subject of scientific discussions since the 19th century, as we will see in the article, and can be explained by historical reasons: Belém was founded in 1616 at the mouth of these rivers. The Guamá was explored and colonized before Capim due to its connectivity with the sub-basins that made contact between the captaincies of Pará and Maranhão possible (Gurupi, Caeté, Mearim etc.), with several villages and missions founded in the 17th century (Acevedo Marin 2008).

The travelers analyzed here are reputed to be the first scientists to travel the Capim River and publish works on it (Ximenes & Coelho, 2017, 2018). They are Alfred Russel Wallace (1823–1913), English, whose expedition took place between early May and late June 1849; João Barbosa Rodrigues (1842–1909), born in Rio de Janeiro, who traveled between December 1874 and early 1875; and Emil Goeldi (1859–1917), who traveled the river between June 15 and July 20, 1897 in the company of another scientist, Jacques Huber (1867–1914), both Swiss and the only ones to have a university degree, in this case, in natural sciences, in addition to being linked to a scientific institution, the Museu Paraense de História Natural e Etnografia (Natural History and Ethnography Museum of Pará).[2]

The interval between these journeys characterizes our research as diachronic and comparative. We do not make a contextualized study of each one or biographical summaries of the travelers, but we seek to highlight common issues or tropes, that is, ideas, images or recurring structures in the narratives, considering the specificities of this textual genre.[3] We observe, for example, overlaps and dialogues between travelers, explicit or not, and also the influence of one on the other, whether as inspiration, model or starting point for their own trip. We are attentive, therefore, to the connections between the travels. By succeeding in time and in the same river, they update questions and knowledge related to this territory, including its inhabitants, human or not. In this sense, our main sources are published narratives, but associated with other sources, which will eventually be cited to enrich the analysis, such as manuscripts and iconography.[4]

The link between the journeys is the river, but also the people who lived on the banks and with whom all travelers interacted. We are referring to the various social groups that originally lived in those lands, such as the Tenetehara, Turiwara and Amanayé; to Africans and Afro-descendants who worked on the plantations; to peasants and riverside dwellers, who orbited large properties or owned small farms; to the inhabitants of the villages and to a landowner elite, who lived between Belém and their *engenhos*.[5] The inhabitants of the Capim

[1] It is not our intention to discuss this geomorphological and political-administrative issue. Suffice it to say that there is still no consensus on the matter today. For example, depending on the technical criteria, Capim (more extensive) or Guamá (larger basin area) gains relevance. The interpretation of the concept of 'hydrographic region' differs between the Agência Nacional de Águas e Saneamento Básico (National Agency for Water and Basic Sanitation - ANA), the Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics - IBGE) and the Secretaria de Meio Ambiente e Sustentabilidade do Estado do Pará (State Secretariat for the Environment and Sustainability of Pará - SEMAS). While the first two converge on the Capim-Guamá unit, integrated into the Tocantins-Araguaia axis (Bacias e Divisões Hidrográficas do Brasil 2021), SEMAS distinguishes the Capim and Guamá sub-basins and integrates them to the region formed by the rivers that flow into the Marajó Bay and the Atlantic (Política de Recursos Hídricos do Estado do Pará 2012). For a better understanding of the subject, we recommend Lima & Ponte (2012).

[2] We know that Ladislau de Souza Mello Netto (1838–1894) and Domingos Soares Ferreira Penna (1818–1888) were in Capim for 12 days in February 1882 in order to collect indigenous artifacts for the Anthropological Exhibition held in Rio de Janeiro in the same year. This trip, however, did not result in a report or scientific work. It is mentioned in a publicity report by the National Museum of Rio de Janeiro (Mello Netto 1889: 55-59). See Sanjad (2010) to learn more about this trip.

[3] Although the literature on travel and travelers is vast, works with this focus are less numerous in Brazil. In our research, we took as references the articles by Lima (1998), Vergara (2010), Sá & Casazza (2012), Lima & Botelho (2013), Pereira & Denipoti (2016), Costa (2017), Sanjad (2019) and España-Paredes (2021).

[4] There is an instigating discussion about the status of travel narrative as a textual genre. We will not enter this field, but we are indebted to the works of Beer (1990, 1996) and Doloughan (2006).

[5] The socioeconomic history and sociocultural diversity of the residents of the Capim River are intertwined themes that are well developed in many studies, especially those related to Indigenous peoples, Afro-descendants, large landowners and their plantations. See, for example, Monteiro *et al.* (2008), Moraes (2012), Nunes (2012), Acevedo Marin *et al.* (2014), Borges (2014), Marques & Anderson (2021) and Farias (2021). The journals of Wallace (1853a) and Barbosa Rodrigues (1875) are frequently quoted in many historical and anthropological studies on the Capim River, but not the reports of Goeldi (1898, 1903) and Tschümperli (1898), still unexplored by researchers.

River were not only the target of the prying eyes of our travelers, but many of them also effectively participated in the excursions. They were among the crew of the steamers; they were pilots, guides, rowers, porters, cooks, herbalists, hunters and fishermen; hosted travelers in villages, farms and *malocas*; they sponsored their stay by providing boats, instruments and food; and provided guidance on weather conditions, timetables, routes, navigation, hunting sites, animal biology and morphology, geographic distribution, plant uses, frequency and formation of the *pororoca*. For these and other reasons, we avoid using the term 'collaborator' because it presupposes a hierarchical relationship that we do not wish to emphasize, even though, in their narratives, travelers use social markers of difference, generally to emphasize the submission or inferiority of the other. From our perspective, it is impossible to think about these travels without the participation of the inhabitants of the Capim River, regardless of their social origin.[6]

The following topics present each of the travels. All of them follow the narrative path of the respective authors, who tried, with greater or lesser success, to structure their texts in a chronological way, introducing, sometimes, subjects on which they took a little longer, such as the history of a certain place, the composition of the local population, the origin of the *pororoca*, geographic and taxonomic issues, etc. Throughout the article, we highlight the intertextuality of the narratives, that is, we selected comparable passages and others that show the process of knowledge translation among travelers and between them and their interlocutors. In other words, we assume that intertextuality occurs not only between published narratives, but also between the oral knowledge of local inhabitants and the knowledge that travelers recorded in their narratives.[7]

Wallace's journey to the Capim River

Before exploring the Guamá and Capim rivers, Alfred Russel Wallace visited the surroundings of Belém, especially the forests close to his home and some farms belonging to foreigners residing in the capital, such as that of the North American Benjamin Upton Junior, located on the Maguari River. There he was helped by an official named Leavens, who, according to Wallace, would be knowledgeable about the trees that served as food for birds and large animals (Wallace 1853a: 40-41). Wallace made with Leavens his first foray into a great Amazonian river, the Tocantins. They left in search of cedar forests in order to commercially exploit this wood and also traveled the Mojú River, in addition to the villages of Igarapé-Mirim, Cametá and Baião (Wallace 1853a: 50-81). Afterwards, Wallace headed to the islands of Marajó and Mexiana, where he also received support from foreign owners of cattle ranches (Wallace 1853a: 82-111). Back in Belém, he tried to increase his collection of animals, capturing butterflies, buying various *bichos* captured by boys who lived close to his house, mainly snakes and insects, and also hiring a former Congolese slave named Luís, who worked as a bird hunter. According to Wallace, he had "much experience" and was an "excellent hunter". He spent the whole day in the forest, knew the habits of most birds and attracted them with the perfect imitation of their chirps (Wallace 1853a: 112-113).[8]

Luís and one of the boys were Wallace's assistants on the expedition to Guamá and Capim, in addition to a Spanish pilot experienced in navigating these rivers. Motivated by the news he received about the *pororoca*, which takes place there at the beginning of each year, when the rivers are high, Wallace bought a canoe, organized his crew, provided letters of recommendation to present to the influential residents of the place and left at the beginning of May 1849 (Wallace 1853a: 115-116). A year after arriving in Brazil and having traveled an itinerary that was already standard in naturalist expeditions (near Belém, mouth of the Tocantins, Marajó archipelago), this was his first

[6] The interaction between travelers and local residents has gained the attention of researchers and seems to be an unavoidable trend in investigations. In the case of Wallace, see Camerini (1996), Moreira (2002), Lima (2014), McCormack (2017), Antunes *et al.* (2019) and Antunes (2021); in the case of Barbosa Rodrigues, see Ximenes (2020); in the case of Goeldi and Huber, see Sanjad (2010, 2016, 2019), Castro (2020) and Coelho (2021). Other studies worth mentioning are Vital & Hochman (2013), Sanjad *et al.* (2021) and Domingues & Alves-Melo (2021).

[7] The circulation and translation of knowledge, embodied in information networks, collections, textual narratives and images, are already old and recurring themes of researchers from different fields and theoretical approaches, such as Latour (1987), Pratt (1992), Bravo (1996), Secord (2004), Roberts (2009) and Raj (2017).

[8] Luís was, in fact, the link between Wallace and Johann Natterer (1787–1843), who spent 18 years in South America collecting animals, plants and Indigenous artifacts. He was bought by Natterer himself in 1817 in Rio de Janeiro. Luís learned from Natterer to hunt and taxidermize animals, specializing in this craft and being recognized as such after being manumitted in Belém in 1835, before his boss returned to Austria. At the time of Wallace's voyage, Luís owned a small farm and a couple of slaves (Wallace 1853a: p. 113).

autonomous expedition, since, until then, Wallace had traveled free of charge on other people's boats. Wallace's expectation was to have more privacy and time to carry out his scientific investigations.

As navigation depended on the tide and the winds, Wallace took advantage of inappropriate moments to moor on the banks, always close to inhabited sites, and from there to go deep into the forest in the company of Luís. Taxidermy and animal identification work was done at the end of the day, before dinner (Wallace 1853a: 115). Already in Guamá, just 48 km from Belém, Wallace did not take long to observe the *pororoca*, a phenomenon that, according to him, happened due to the action of high tides. In May, however, the *pororocas* are no longer strong. So he went to another location, where he had been promised to be able to watch bigger waves. Wallace and his crew waited until they caught a glimpse, upriver, of the wave that broke into foam and invaded the beaches and shallows. The *pororoca* hit the canoe, but did not cause damage to the luggage because the river was deep in that place. It passed quickly, in successive waves, after which the waters calmed down without a great flood (Wallace 1853a: 115-116).

The following day, the group arrived at the village of São Domingos do Capim, located where the Guamá and Capim rivers meet. There, Wallace sought out a local merchant, who, through his letter of recommendation, promptly gave him a house for lodging. According to Wallace, the house was a "little better than a mud hovel"; the main pieces of furniture were a bench and a "rickety table". From this fact, he concluded that Brazilians who lived far from cities "never think of expending any great labor or going to any expense to make a comfortable house"; this would be the pattern of the inhabitants of the *sertões* (Wallace 1853a: 116). Wallace remained there for almost a week, because he was not successful in the incursions he carried out in the vicinity of the village. The dry period had already started and the insects were no longer found in abundance, demanding longer excursions. Even so, he managed to obtain some specimens of birds through Luís.

Wallace and his companions continued their journey to the *engenho* São José, owned by José Calixto Furtado (1806–1882) and located on the lower course of the Capim, about 300 km from Belém. According to Wallace, after two days of travel, the landscape changed, becoming "prettily diversified with cane-fields, rice-grounds, and houses built by the early Portuguese settlers, with elegant little chapels attached, and cottages for the Negroes and Indians around, all much superior in appearance and taste to anything erected now" (Wallace 1853a: 117). Calixto's property was, at the time, the largest in the entire basin, with 50 enslaved Afro-descendants and the same number of Indigenous people, who worked in the cane and rice plantations, in the production of sugar and *cachaça*, on the boats, in addition to several workshops. Calixto had recently installed the machinery for rice production and built warehouses. According to Wallace (1853a: 117), the main house was made of stone and had arches on the front facade, while the other buildings were located on the sides: "one of the best modern buildings I had seen in the country" (Fig. 1).

This scenario pleased Wallace (1853a: 118), who also praised the way Calixto organized work on the *engenho* and treated Blacks and Indigenous people – who "cheerfully" accepted their condition as enslaved: "He [Calixto] told me that by having slaves and Indians working together he was enabled to get more work out of the latter than by any other system. Indians will not submit to strict rules when working by themselves, but when with slaves, who have regular hours to commence and leave off work, and stated tasks to perform, they submit to the same regulations and cheerfully do the same work."

Wallace also presented a letter of recommendation to Calixto, who not only promised

Figure 1 – Engenho São José, Capim River, Pará. Below is the following subtitle: "Rio Capim, 1849 – Sugar + Rice Mill". On the back, there is "Sketch no. 6. S. Jozé on the Capim River by A. R. Wallace". Natural History Museum, Library and Archives, Reference WP3/17. London, England..

him lodging and food for as long as he deemed necessary, but also support to carry out his excursions in the surroundings and up the river. According to Wallace, his host was very helpful, even changing the time for dinner on the farm so that he could participate in explorations around São José (Wallace 1853a: 122). One of these places explored by Wallace and Calixto was the cane field, visited in a "beautiful canoe" made from a single log and without nails, with benches carved from the wood itself. On this excursion, Wallace and Luís collected insects and birds (Wallace 1853a: 124-125).

With Calixto's support, Wallace was also able to gather a collection of fish. Calixto ordered his employees to fish at night and in dammed streams using line, bows, arrows and a trawl net. According to Wallace, the latter was "the best way of catching a variety of fishes." He followed one such fishing trip: "We went out one day in two canoes, and with about twenty Negroes and Indians, who swam with the net in the water, making a circuit, and then drew it out on to a beach." Once gathered, the fish were delivered to Wallace, who separated them by species and placed them in jars filled with alcohol (Wallace 1853a: 125).

After this period in São José, Wallace headed upriver with the intention of collecting more birds. Calixto provided him with a canoe, food and some of the Indigenous people who lived there. The first place visited was an *igarapé*, a day and a half away. According to Wallace, it was narrow and rather crooked, with fast waters and, in some places, obstructed by bushes or trees. The banks were occupied by a "wild, unbroken, and uninhabited virgin forest", but hardly any flowers were seen. The animal kingdom, however, had revealed to be exuberant in that almost mystical place: "large blue butterflies" that flew over the waters or fixed themselves on the leaves of trees, fireflies, deer, apes and many birds – all captured with the help of Indigenous people and added to Wallace's collections (Wallace 1853a:126-127).

Despite the successful of the hunt, access to remote forest areas proved to be quite difficult. In addition, Wallace and his companions were surprised several times by strong storms, day and night, which almost caused them to shipwreck and lose their luggage and collections. These would have been the reasons for Wallace to decide to end the trip, go back to São José and, after a few days, return to Belém. On the way back, he observed the *pororoca* again, but this time he was on dry land, sheltered in a sugar mill. The canoe had been moored there "to wait for the tide", as the group had been doing since the beginning of the journey. Before boarding again, they were told by an employee of the mill that they should wait a little longer because the *pororoca* was on its way. The great wave this time broke quickly and violently. After the waters calmed down, back in the river, Wallace could see the devastation it had caused: uprooted trees, layers of mud, collapsed ravines (Wallace 1853a: 129-130).

According to Wallace, the most common explanation for the phenomenon was the meeting of fresh water from the upper course of the river with the salt water existing in the lower course. Others believed that the *pororoca* occurred due to excess water in a river considered narrow by Amazonian standards. Wallace claimed that both beliefs were wrong: when analyzing the depth of the river and the shallows along the voyage, he concluded that the waters of the high tides, pushed by the ocean, reached the Guamá River at high speed. When they reached the narrowest points, they increased in size and, when they rushed into the shoals existing in the bed, they generated a fast wave. Wallace illustrated this process with a drawing (Fig. 2). Each time the wave crashed into a shoal, it became higher and stronger as the river narrowed further and further upstream (Wallace 1853a: 130-131).

When he arrived in Belém, in June 1849, Wallace stayed for some time at his residence. In early July, Herbert Edward Wallace, Alfred's younger brother, arrived in town to help him in his scientific investigations. By the same ship, back to England, Wallace sent his collections of fishes and insects made in Capim, but he does not inform about the destiny of the birds collected by

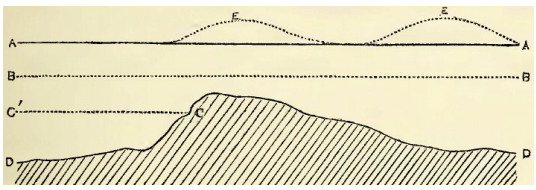


Figure 2 – Drawing by Wallace (1853a: 131) representing the development of the *pororoca* in the Capim River, where A is the water level at high tide; B, the water level at low tide; C, a shoal; D, the river bed; and E, the waves formed at the moment when the great waters meet the shoal and are projected upwards.

Luis (Wallace 1853a: 132-133).[9] Alfred already had plans to go to the Amazon River, particularly to Santarém, at the confluence with the Tapajos. He considered the city appropriate to continue his studies because it was "the seat of a considerable trade". The Wallace brothers left Belém at the beginning of August 1849, starting a new phase of exploration of the Amazon territory (Wallace 1853a: 134).

Barbosa Rodrigues follows Wallace

João Barbosa Rodrigues' journey to the Guamá and Capim rivers was the last in the Amazon under the auspices of the Brazilian government, which had sponsored him since 1872. Before starting it, he had already explored the Tapajos River (1872), the Urubu and Jatapu (1873), the Trombetas River (1873) and the Nhamunda (1874). He therefore already had extensive experience in this type of travel and in collecting geographic and natural history information. The result of these excursions appears in a set of five reports published by the Typographia Nacional in 1875, relating to each of the rivers traveled. The volume on the Capim River, written in Belém, contains 52 pages, drawings and a map ("Planta do Rio Capim"). It is dated February 7, 1875 (Rodrigues 1875).

The reason why Barbosa Rodrigues chose the Guamá and Capim rivers, among several other possibilities existing in the region, is directly connected to Alfred Russel Wallace, whose travel report appeared in 1853. According to Barbosa Rodrigues, Wallace had been the only naturalist to describe the river – and even so in a very succinct way: he gathered only data on the occurrence of a few animal species and a few paragraphs about the *pororoca* (Rodrigues 1875: 5). Wallace, in fact, wrote nothing about the vegetation, said little about the Indigenous peoples and the large number of enslaved people who lived there, and did not go beyond the lower course of the Capim, advancing to where José Calixto Furtado assured him of support. It was, therefore, the desire to review and complement Wallace's report and data, including knowing the phenomenon that attracted him to Capim, the *pororoca*, that motivated Barbosa Rodrigues to continue in this endeavor. The period chosen for the excursion was much more favorable for this purpose than the months of May and June, when Wallace traveled along the river, since in January the floods are at their peak and the *pororoca* is stronger.

Barbosa Rodrigues planned to carry out an extensive investigation of the Capim River, from its mouth to its source, from geography to ethnology. For that, he knew he could count on the owners of the various farms on the lower and middle course of the river, including Calixto, who had already deserved praise from Wallace. Calixto emerged, in the 1870s, as one of the richest in the region, leader of the Conservative Party of the village of Santana do Capim (currently, a district of the municipality of Aurora do Pará). Barbosa Rodrigues also had the support of the provincial government, which gave him a boat, unlike Wallace, who was forced to buy a canoe. The support staff was hired with some difficulty due to the intentions of the naturalist, who aimed to reach the sources of the river during the Amazonian rainy season. Barbosa Rodrigues does not provide information on who accompanied him on the voyage or on the size of his crew (Rodrigues 1875: 5).

The journey began on December 7, 1874, aboard a Navy boat with the express guidance of taking the naturalist only to the *engenho* São José. From then on, the responsibility for navigating the river would belong to Barbosa Rodrigues himself. It would not be an exaggeration to suppose that he might have expected the same solicitude that Calixto had shown to Wallace, including providing a canoe, oarsmen, hunters, and provisions.

Since the beginning of his report, Barbosa Rodrigues has tried to be as detailed and precise as possible, providing information on the watercourses that flow into Guamá and Capim, their width, depth and navigability, on the farms and villages that follow one another from the mouth, about the history of colonization and the population statistics of each place and even the meanings of toponymy in the *Lingua Geral*. The landscape is described when it becomes relevant for navigation (it indicates the occurrence of rocks, for example), when he considers it aesthetically interesting or when it is related to the *pororoca*, such as the existence of shallows, eroded banks and appropriate locations to appreciate the phenomenon. In this sense, unlike Wallace's account, which is closer to a diary written for foreign readers interested in European adventures in tropical lands, Barbosa Rodrigues' report is part of another tradition, linked to the chorographies that, since the 18th century, had become important instruments for

[9] We know, however, that this collection of birds was acquired by the British Museum and inventoried by Sclater & Salvin (1867). Years later, it was revisited by Goeldi (1903), as we will see below.

the government and control of territories. At the time of Barbosa Rodrigues' journey, the works of Antônio Ladislau Monteiro Baena (1782–1850) and Domingos Soares Ferreira Penna (1818–1888) were already references for the Amazon. Barbosa Rodrigues' report follows a similar structure given by these authors to their texts – and with whom he also establishes a clear dialogue, for example, on historical or geographical information.

According to Barbosa Rodrigues, despite being the "most beautiful" spot on the river, the village of São Domingos da Boa Vista (currently São Domingos do Capim), located at the confluence of the Guamá and the Capim, was extremely decadent – an aspect not mentioned by Wallace. Even so, it was a major producer of rice, manioc flour and tobacco, making us believe that the center of social life in that region was not the villages, but the farms, sometimes quite extensive and populous, as Wallace had already mentioned in the end of the 1840s. São Domingos was also the point where the *pororoca* presented itself "majestically" and the last one where it "exercises its dominion, because from now on it is no longer what it has been" (Rodrigues 1875: 8-11).

Barbosa Rodrigues begins his analysis of *pororoca* with linguistic data because it was "a word so common, but not yet interpreted" (Rodrigues 1875: 11). He defends a Tupi and onomatopoeic origin to the word ("what breaks the house" or "what breaks next"). He then opens a dialogue with authors who had already written about *pororoca*, including Wallace. Barbosa Rodrigues initially criticizes the use of the term "phenomenon" to refer to the wave – something Wallace did twice (Wallace 1853a: 130-131): "The *pororoca* is not a phenomenon, as has been said; it has constant causes that motivate it, days and times set to perform. If we were to ignore things, and if something new were presented, then we could give this qualification" (Rodrigues 1875: 12).

Barbosa Rodrigues also criticizes the interpretation according to which the cause of the *pororoca* would be "a poetic and giant struggle" or an "arm-to-arm combat" between the Amazon and the Atlantic (Rodrigues 1875: 12) – a version defended by several authors such as the Peruvian geographer Mateo Paz Soldán (1812–1857) and the Brazilian diplomat and historian Francisco Adolfo de Varnhagen (1816–1878), and corroborated in part by Wallace (he does not mention the Amazon River) in identifying the great tides of the river, influenced by the ocean, as the driving force of the *pororoca* in Guamá-Capim. Local scholars, such as the doctor Francisco da Silva Castro (1815–1899), had already contested this idea, stating that the *pororoca* occurs in rivers as different as the Guamá, the Arari, on the island of Marajó, and the Araguari, in Brazilian Guiana (current Amapá). The explanation, therefore, should be sought in elements common to all these rivers (Rodrigues 1875: 13-14). For Barbosa Rodrigues, the explanation was not the "fight" between the great oceanic tides and the river waters, because, if it were, the *pororoca* would occur in all the rivers at the mouth of the Amazon – and that did not happen. The causes, therefore, should be looked for in the force of gravity exerted by the Sun and the Moon on oceanic tides and in the morphological constitution of the river beds. According to Barbosa Rodrigues, "On the high seas, the effects of these tides are not as great as on the coast, because in the face of this obstacle [the coast] they [the tides] take such an impulse that they rise to great heights and, finding river mouths, rush through them. Its effects are sometimes felt up to 200 leagues away from the ocean, as in the Amazon River it is noticed as far as the coast [mouth] of Paru [River] [...]" (Rodrigues 1875: 17).

In rivers with uneven beds, that is, with the presence of rocks, banks and, above all, shoals, and with a relatively weak current in relation to oceanic tides, such as the Guamá and Capim (compared to the Amazon and Tocantins, for example), the mass of oceanic water was propelled upwards and gained in speed, forming the wave that runs in the opposite direction to the river waters. As Wallace had done, and in dialogue with him, Barbosa Rodrigues inserted two illustrative drawings in his report showing how the river bed (bottom line) determined the wave height (top line) (Figs. 3, 4). The river bed and the syzygy tides, therefore, were decisive for the occurrence of the *pororoca*, which, "if it were the result of two clashing forces, it would occur in all rivers influenced by the oceanic tides, what is not noticed, nor could it [the *pororoca*] happen as a result of the difference in river currents" (Rodrigues 1875: 19). At the end of his detailed explanation, Barbosa Rodrigues provides a fact that we can consider as something remarkable: unlike Wallace, who disqualified local explanations for the occurrence of *pororoca*, Barbosa Rodrigues draws attention to the term *mergulhar* (dive), which the population used to identify the moment when the oceanic water meets a shoal, effecting a movement of ascension and submersion that gives

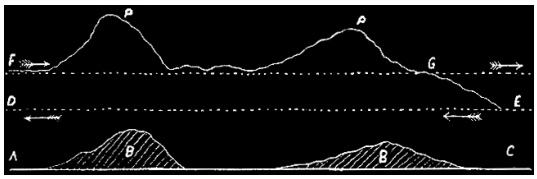


Figure 3 – Drawing by Rodrigues (1875: 18) representing the development of the *pororoca* on the Capim River, with AC being the river bed; B, the shoals; D-E, the low tide line; F-G, the high tide; and P, the wave formed by the meeting of the F-G tide with the shoals B.

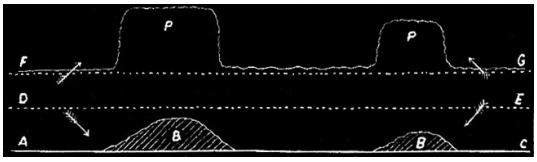


Figure 4 – Drawing by Rodrigues (1875: 19) representing the development of the *pororoca* on the Capim River in a transverse vertical plane, in which it is possible to observe that the P wave rises only over the B shoals.

it volume and speed – that is, for the inhabitants of the Capim River, there was not much mystery in this phenomenon (Rodrigues 1875: 19).

From the *pororoca*, Barbosa Rodrigues passes to the vegetation, a subject entirely omitted by Wallace. He begins by enumerating the botanical families found in the "low clay banks", that is, in the *várzea* (floodplain) (Rodrigues 1875: 20). Among them, he gives prominence to orchids, having even mentioned a new genus not yet described. Barbosa Rodrigues also emphasizes some species that "take over certain localities and become true *social plants* in Humboldt's phrase" (Rodrigues 1875: 21, author's italics). This is an important detail, because through it we can see the attention that the author devoted to geobotany, the branch of natural history that would give rise to plant ecology at the end of the century. Barbosa Rodrigues, in the report, shows himself not only as a taxonomist, able to identify families, genera and botanical species collected during his journey, but also a scientist of a new strain, who considers relationships between environment and flora. He is also very attentive to the use that the local population gave to plants, which qualifies him as an ethnobotanist *avant la lettre*, like many others of his time, although he did not have this pretension nor did he use the word.

Once the plants that occur on the flooded bank of the Guamá River were identified, Barbosa Rodrigues states that the vegetation in the interior was of a "new appearance", that is, different in physiognomy in relation to the floodplain (Rodrigues 1875: 22). According to him, these were high *capoeiras*, which, in the language of the local population, constituted secondary forests that originated many years ago. If we take into account that the river was occupied by colonial enterprises since the 17th century, it is possible to assume that Barbosa Rodrigues' report documents a second or third generation *terra firme* forest, after successive anthropic interventions. Perhaps because he didn't have the time or opportunity, the botanical inventory he carries out in these areas is summary, limited to the main woods and orchids.

After entering the Capim River, Barbosa Rodrigues continues to identify the main properties and villages, their production, history and inhabitants, as well as the succession of tributaries of the river and islands. In the lower course of the river, the *engenhos* of Vicente Chermont de Miranda (1849–1907), called Tapiyruçú and Aproaga, both producers of sugar and rice stood out. Then came the "showy" *engenho* São José, by José Calixto Furtado. Barbosa Rodrigues almost literally repeats the same praise made by Wallace: it was "the best mill in the area, the only one that has steam engines (...)"; he owned fewer slaves than the other *engenhos*; moreover, his slaves were happy to be treated in a "fatherly manner". Calixto, in the eyes of Barbosa Rodrigues (and Wallace's as well), was a "perfect gentleman" and benefactor of the local community (Rodrigues 1875: 25-26). Both Barbosa Rodrigues and Wallace attributed to him the "facilities" they obtained during their travels, such as the donation of provisions and a canoe.

One of the most important observations made by Barbosa Rodrigues, which would motivate the expedition made by Emil Goeldi and Jacques Huber in 1897, was the demarcation of distinct geological areas in the Capim River basin, with a clear difference in geomorphological constitution between the low and middle course of the river. According to Barbosa Rodrigues, the border would be just above the *engenho* São José, in a place called Barreiras. Until then, the margins were low. Afterwards, the terrain became "more rugged and Devonian alluvial" (Rodrigues 1875: 26). Although Barbosa Rodrigues did not

demonstrate the geological evidence to support his claim, he described the landscape and flora in a way that contrasts with the lower course of the river. According to him, the Capim River, from the confluence with the Guamá to the mouth of the Candiru-açu River, a tributary from which he could not continue his journey upstream due to the rains, showed "varied landscapes" and had a "different nature": "The vegetation that grows on its banks denotes that fire and farming once spread over it, but that, abandoned, new forests invaded the land. The virginity of the woods far to the center [inland] is found. The flora presents itself differently, whose clothing [physiognomy] is more imposing" (Rodrigues 1875: 34-35).

The diversity of palm trees would be one of the characteristics of this region. Barbosa Rodrigues identifies the species that come to dominate the landscape, different from those found in the lower course of the river (he informs that he found three new species). He goes on to characterize other botanical families in detail, as well as indicating the use that the local population made of them. For the first time in his report, he also inventoried animal species, especially birds (sometimes also identified with the Tupi name) and chelonians, including a new species of *jaboti* (terrestrial turtle). These two groups were of direct interest to another naturalist who would enter the river prompted by the news of his predecessors, Emil Goeldi: "Finally, the fauna, if not rich in the abundance of individuals, is rich in species, not only among birds but also mammals" (Rodrigues 1875: 38).

In Candiru-açu, Barbosa Rodrigues came into contact with the Tembé (Tenetehara), who lived in a village called Santa Leopoldina. This village would have been created in 1861 by the provincial government, after conflicts between the Indigenous people and the *regatões* (traders) on the Gurupi River. Several groups were settled in Santa Leopoldina, originating from different tributaries of the Gurupi and Capim. When Barbosa Rodrigues visited the village, it was "almost deserted" and had neither an administrator nor a missionary. Most people had moved to the Ipixuna River, a tributary of the Candiru-açu, or had returned to the Gurupi (Rodrigues 1875: 41). Even so, he did a brief ethnography of the inhabitants, about 80 individuals, describing their habits, way of life and material culture. Although "semi-civilized" and in progressive abandonment of their customs, the group still kept contact with the so-called "savages", that is, the refugees in the forests located between the Gurupi and Capim basins. According to Barbosa Rodrigues, most of the people who lived in Santa Leopoldina were children, women, and old men, because the younger men were co-opted to collect rubber.

At the end of his report, Barbosa Rodrigues touches on an issue he deemed relevant: "The Guamá River has been considered until today as the main branch and the Capim River as a tributary, which is not exact" (Rodrigues 1875: 51). According to him, the Capim should be considered the main course, since it would be larger and deeper and have a stronger current (observations that, in fact, were later corroborated). Another distinction he makes between the two rivers, albeit very briefly, concerns the geophysical and ecological characteristics perceptible in their respective courses. While the Guamá went eastward, connecting the lowlands of the coastal region with several old trading posts, such as São Domingos, São Miguel, Ourém, Irituia and Bragança, the Capim, after its confluence with the Guamá, headed south, where it took entirely different features, with higher banks. These lands would be "excellent", where "clove oil, rosin oil, andiroba oil, and the most excellent woods for construction" abounded. There were, however, no relevant urban centers and all these riches were "unfortunately today far away to be taken to the market" (Rodrigues 1875: 52).

Barbosa Rodrigues' representation of the river on a relatively simple map, without scale, but georeferenced, corroborates his ideas on toponymy and on the need to understand the Capim as a hydric system from its mouth, at the Guajará bay, close to Belém (Fig. 5). In other words, the importance of the Guamá in this system is diminished, since this river appears only as a small dotted course at the height of São Domingos, no bigger than some of the *igarapés* recorded in the chart, while the main course – the Capim – is highlighted in all its grandeur, from the capital to the Tembé (Tenetehara) *malocas* visited by Barbosa Rodrigues. The route highlights the tributaries, the place where the *pororoca* starts, the main farms, the mills, ranches and settlements, as well as the location of cliffs, elevations, rapids, shallows, islands and lakes. As a visual document, the map synthesises much of the geographical data and ecological ideas gathered by Barbosa Rodrigues, opening up the possibility for new explorers to (re)visit it.

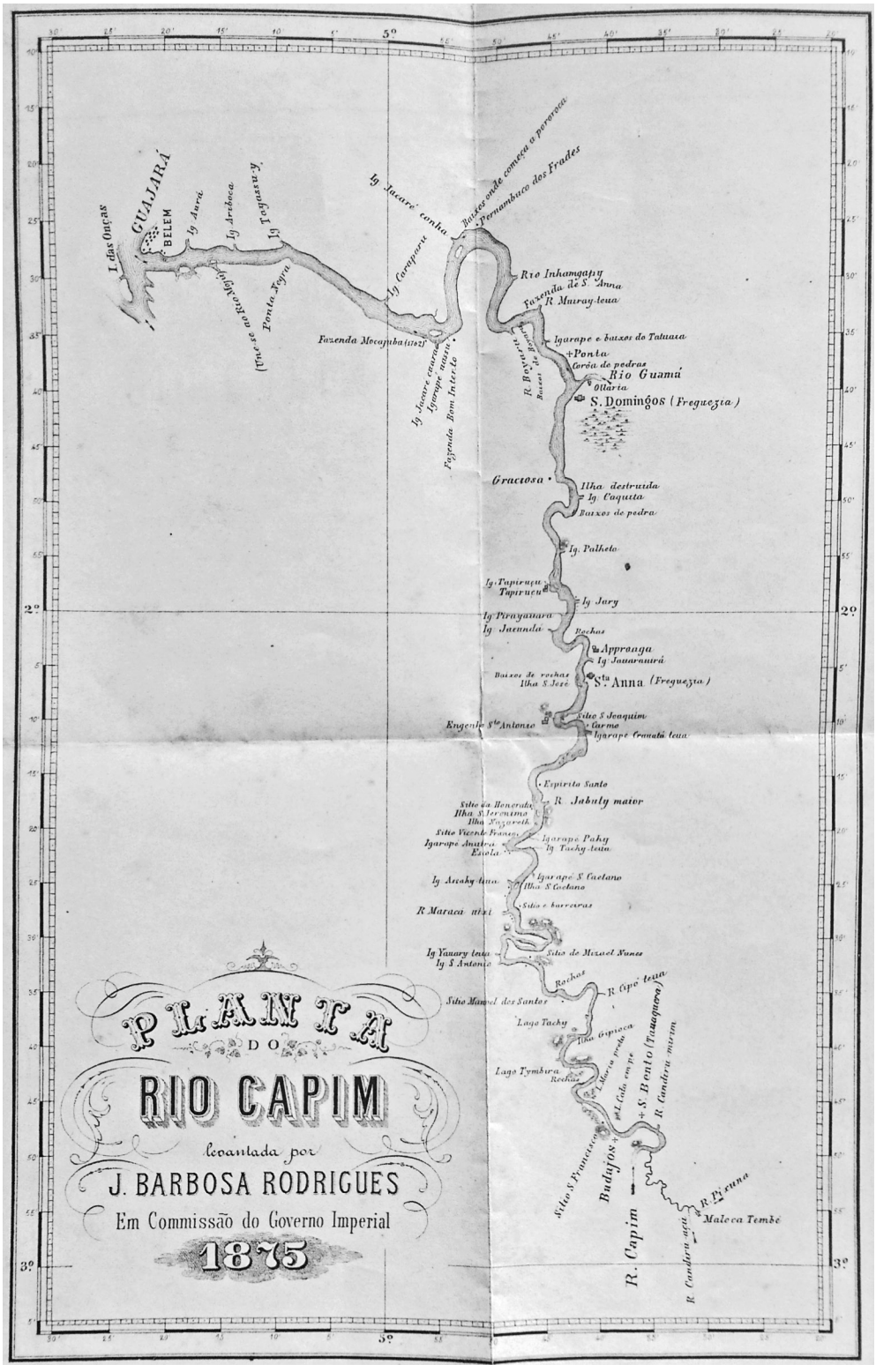


Figure 5 – "Planta do Rio Capim levantada por J. Barbosa Rodrigues em Commissão do Governo Imperial, 1875" (Plan of Capim River raised by J. Barbosa Rodrigues in Commission of the Imperial Government, 1875). Published in Rodrigues (1875). Reproduced by Cláudio Ximenes.

Goeldi and Huber retrace the journeys of Wallace and Barbosa Rodrigues

The expedition of the Natural History and Ethnography Museum of Pará included Emil Goeldi, director of the institution and head of the zoological section; Jacques Huber, head of the botanical section; Ludwig Tschümperli (1870–1928), zoological taxidermist; and João Batista de Sá (?–1909), taxidermist assistant. According to Goeldi, the support of Vicente Chermont de Miranda, the aforementioned owner of the *engenhos* Tapiyruçú and Aproaga, was fundamental for the accomplishment of the trip. In his annual report to the state government, Goeldi expresses his "sincere gratitude" to Chermont "for the extraordinary services he rendered us on the journey to the upper Capim River and the gentlemanly hospitality with which he always receives emissaries from the Museum" (Goeldi 1900: 45).

It should be noted that, unlike the expeditions of Wallace and Barbosa Rodrigues, the journey of the Museum researchers took place in a republican context. José Calixto, the conservative monarchist who had welcomed the first two travelers, had already passed away. The famous *engenho* São José, described by both as a remarkable estate for its beauty, organization, quality of production and number of slaves, was, in Goeldi's words (1903: 474), "totally ruined". Calixto's sons and grandsons were in a "very poor" situation, working as boatmen on the steamer line that travelled along the Guamá and Capim rivers. In turn, the Chermont family remained one of the most important in Pará.[10] Vicente's cousin, Senator Justo Leite Chermont, was one of the founders of the Republican Party in Pará and president of the provisional government in the state after the Proclamation of the Republic in 1889 (Farias 2016). During his government, he reinstalled the Museum of Pará in 1891, under the aegis of the new political regime (Sanjad 2010). Another Vicente's cousin, Deputy Pedro Leite Chermont, was the son-in-law of Bento José da Silva Santos, the owner of the property where the Museum was installed in 1895 (Leal & Sanjad 2022). The family, therefore, not only had properties in Belém and large estates on the island of Marajó and in the basin of the Guamá and Capim rivers, but also acted as patrons of the museum, giving it political backing in the legislative houses and donating specimens and objects, lending boats and hosting researchers on their various farms throughout the state.

The expedition of the Museum of Pará resulted in several publications (Goeldi 1898, 1901, 1903; Huber 1900, 1902; Tschümperli 1898), a map, photographs, zoological, botanical, geological and ethnographic collections. It is not our intention to analyse this set of sources in their entirety, but to register their diversity in comparison with the other two journeys studied here. These sources are preserved in various institutions. For example, there are zoological specimens in the Goeldi Museum and the Natural History Museum in London (Goeldi 1902; Hagmann 1902), while botanical material can also be found in the Goeldi Museum and the Muséum national d'Histoire naturelle in Paris.[11] Diaries and manuscripts are in the Guilherme de La Penha Archive at the Goeldi Museum,[12] but a photographic album of the expedition is in the Huber Family's private fund, guarded by the Staatsarchiv des Kantons Basel-Stadt (State Archive of the Canton of the City of Basel).[13] Finally, the ethnographic collection is preserved in the Museum der Kulturen (Museum of Cultures), also in Basel, Switzerland (Damy 1986: 213). Although it is not the object of the present study, it is worth mentioning that this collection, with 68 artifacts, is the only one that Goeldi has proven to gather among the Amerindians during the 23 years he lived in Brazil.[14]

In the present article, for the purpose of an intertextual analysis, we used three publications: a brief account of the journey, published in German

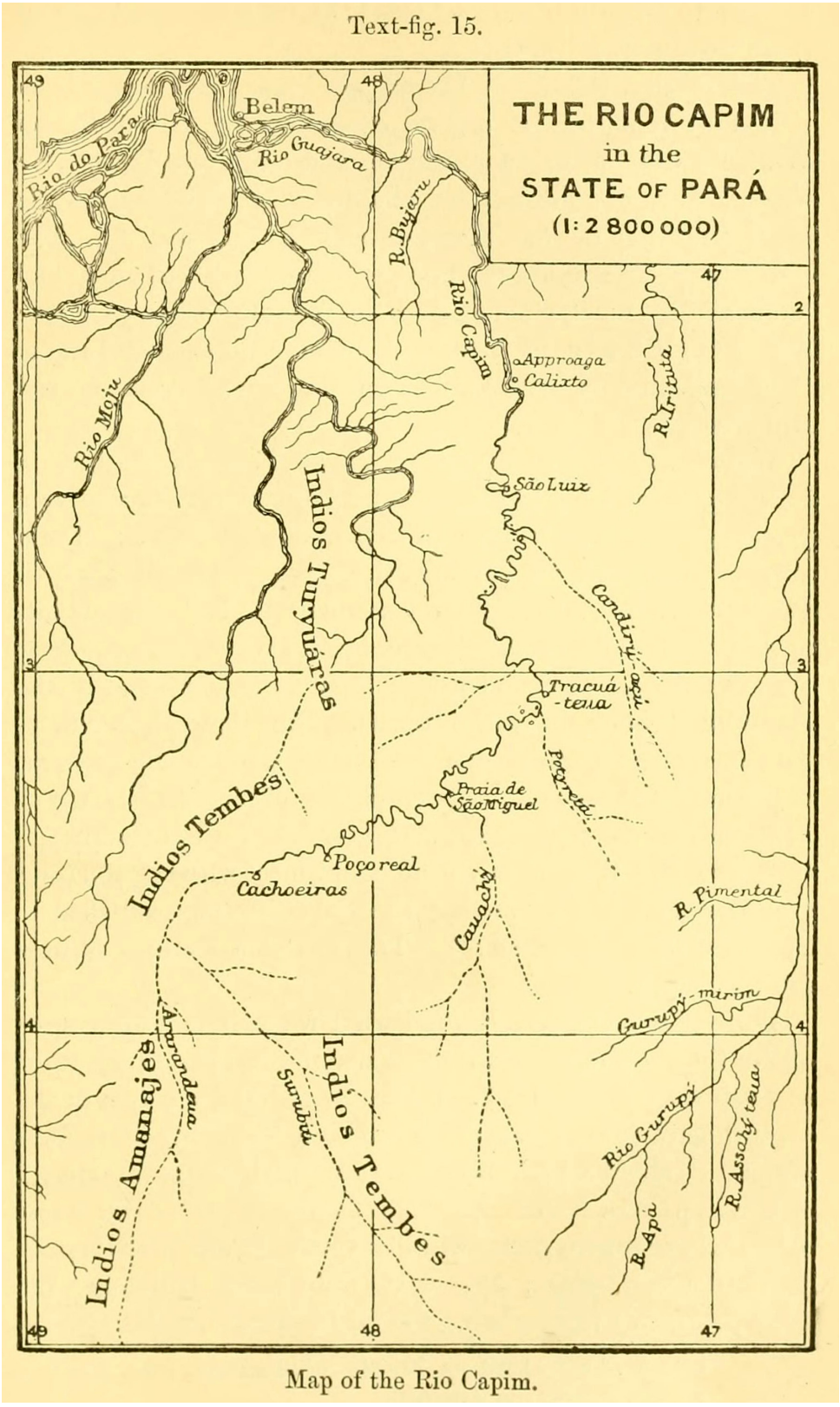
[10] Farias (2021) analyzes the conflicts that occurred in the 1870s between the Furtado and Chermont families for the political control of the Guamá and Capim rivers, with some unusual episodes. This conflict certainly contributed to the downfall of Furtado and his descendants.

[11] This is the case of the collection of ferns collected in the Capim River by Huber and sent to the Swiss botanist Hermann Christ (1833–1933) for identification (Christ 1898; Huber 1900). After Christ's death, his private herbarium was acquired by the Parisian Museum.

[12] In 2014, the Huber Family, residing in Switzerland, donated part of Jacques Huber's personal papers to the Goeldi Museum. This archive consists mainly of letters exchanged with scientists, diaries and travel notebooks. It currently constitutes the Jacques Huber Fund (Sanjad 2018).

[13] This is the other part of Jacques Huber's personal archive, consisting mainly of letters exchanged with family members and photographs (Staatsarchiv des Kantons Basel-Stadt, PA 694c). Among them are paper copies of the photos taken on the Capim River, organized in an album and in separate lots. According to Goeldi (1898), more than 100 photographs were taken during the expedition. The authors of this article have had the Huber Family's permission to reproduce and publish some of these photographs for the first time.

[14] We thank Dr. Leandro Matthews Cascon and Dr. Mariana Françoso, from the University of Leiden, Netherlands, for information related to the ethnographic collection of Emil Goeldi preserved at the Museum der Kulturen Basel, Switzerland. A specific research project on this collection is being developed by a multi-institutional team.



Map of the Rio Capim.

Figure 6 – "The Rio Capim in the State of Pará", map published in Goeldi (1903: 473).

by Goeldi (1898) in the journal Petermann's Mitteilungen; a second report, in English, more detailed and with a map (Fig. 6) where the rivers and places mentioned in the text are identified, published by Goeldi (1903) in the English journal The Ibis; and Tschümperli's travel diary (1898), also in German, published in a Swiss yearbook entitled Bericht über die Thätigkeit der St. Gallischen Naturwissenschaftlichen Gesellschaft (Report on the Activities of the Society for Natural Sciences of Sankt Gallen). For reasons unknown to us, Huber did not publish a travel report or an inventory of the flora of the Capim River, as he usually did after his excursions. He did, however, use the data and plants he gathered in comparative works and compilatory texts, which will be quoted below.

Goeldi (1903: 472) begins one of his reports with a forceful sentence, which clearly echoes, although without mentioning it, the question posed by Barbosa Rodrigues at the end of his report: "The Capim River, the mouth of which is near the city of Pará [Belém], [...] is the last considerable affluent on the right side of the Amazon." Goeldi assumes, therefore, from the beginning, that the main course of the river was the Capim and not the Guamá, without questioning the matter. This argument valued, in a way, the expedition of the Museum of Pará, as Goeldi used the same justification used by Barbosa Rodrigues to explain the reasons for the journey: although near Belém and although it was the oldest basin colonised by the Portuguese in Amazonia, the Capim was one of the least known rivers from the point of view of natural history. Goeldi (1898: 37) lists the main excursions made on the river and the documents resulting from these journeys, from the colonial period, through Wallace (1849), Barbosa Rodrigues (1874–1875), Ladislau Mello Netto (1882) and the Vicente Chermont de Miranda himself (1890s), to emphasize that none of them, whether motivated by military, religious, commercial or scientific reasons, had reached as far as the expedition of the Museum of Pará.

The team was transported to the *engenho* Aproaga in a steamer provided by the state government, which was sponsoring the journey. The farm building, the chimney and the palm trees planted on the façade gave, according to Tschümperli (1898: 192), "an impression of grandeur", but "the buildings seemed deteriorated, the surroundings entirely abandoned, the mill stopped: since the abolition of slavery the fate of many farms that were once prosperous" – this aspect was recorded in a series of photographs in the aforementioned album (Figs. 7 and 8). Goeldi (1903: 476), in turn, did not describe the *engenho* in detail, limiting himself to stating that, in the past, it was a "very important agricultural domain", a "feudum", literally. In the other report (Goeldi 1898: 39), he informs that the main house "was an imposing building, designed on a large scale, but half of it has remained unfinished until today due to the agricultural crisis that hit Brazil [after the abolition of slavery]." Goeldi made it clear that Aproaga was his "headquarters", but that he was just passing through, that is, his expedition began where Wallace's had ended, as he intended to continue the faunal survey initiated by the English naturalist (Goeldi 1903: 474, 477-478).

Figure 7 – Engenho Aproaga, Capim River, Pará. Photographer not identified, 1897. Staatsarchiv des Kantons Basel-Stadt, PA 694c, A 4-3 (1). Basel, Switzerland.

Figure 8 – Water wheel in Engenho Aproaga, Capim River, Pará. Photographer not identified, 1897. Staatsarchiv des Kantons Basel-Stadt, PA 694c, A 4-3 (1). Basel, Switzerland.

Once at Aproaga, the group waited for a few days for the arrival of a small steamer, rented by the Museum of Pará in Belém, which would take them to the headwaters of the river. Vicente Chermont de Miranda, who was already at the *engenho* when the researchers arrived, assumed the remainder of the journey's sponsorship: he provided canoes, provisions, support personnel, including experienced hunters, and even the farm's administrator, Major Raimundo Ayres Pereira, who, in the words of Tschümperli (1898: 196), "with solicitude offered to accompany us, which pleased us very much, for many things in traveling through Brazil depend on the company of a well-known person." For Goeldi (1898: 37), Major Ayres' "local knowledge" and "military energy" were very useful for the expedition.

The group slowly ascended the river, making several stops to explore the banks and make zoological and botanical collections. Goeldi (1903) and Tschümperli (1898) identify in detail the material collected, with the scientific name, the common name, the time of collection, and sometimes the name of the collector or hunter – including "Black Tito, [...] a helpful hunter, whose knowledge of the place, added to a shotgun we borrowed, managed to get some birds for our collection" (Tschümperli 1898: 192). It was difficult to travel some stretches and enter some *igarapés* because the group travelled during the dry season, when water levels were lower than those recorded by Wallace and Barbosa Rodrigues. This was also the reason why the researchers did not deal with the *pororoca*, as their predecessors did, limiting themselves to recording some places degraded by the impact of the waters, the moments when they had to stop the boat to wait for a small wave to pass, and the point from which the ebb and flow of the tides are no longer perceptible.

Goeldi (1903: 482) mentions that the old Tembé (Tenetehara) and Turyuára (Turiwara) settlements, known as "tapera", were all abandoned in the middle course of the river.[15] He does not mention the Santa Leopoldina village, visited by Barbosa Rodrigues on the Candiru-açu river, while Tschümperli (1898) comments that the residents there had moved to a place upriver called Fortaleza, where Ladislau Neto visited them in 1882; then they moved to the *igarapé* Potyretá and then to where they lived in 1897, above the Cauachý river, far beyond the limit hitherto known by the Capim explorers. There was, therefore, in the middle course of the river, an uninhabited zone, excellent for zoological collection, between the lower course, with a "white and colored population", in addition to "half-civilized Indians", and the upper Capim, "the true Indian district". According to Goeldi (1898: 40): "For the ethnographer, the headwaters of Capim are an important and rewarding region. Guaranteed by its central location and considerable distance, it is a safe haven for the Tembés [Tenetehara], Turyuaras [Turiwara] and Amanages [Amanayé], who today, as in former times, undertake frequent displacements and changes of residence under the spell of the Indian's characteristic love of nomadism - the first two mainly between Gurupy, Capim and Acará, the last between Ararandeua and Tocantins. Even today, the upper Capim is still a real military road [*Heerstrasse*] for these Indigenous people, who try to avoid so-called civilisation as much as possible and show a marked tendency towards independent freedom [*unabhängigen Freiheit*]."

According to Goeldi (1903: 484-485), the main settlement of the Tembé (Tenetehara) in Capim and in the entire region of Acará, a river that runs parallel to the west, was located on the *igarapé* Acarý-uçáua. The chief, named Theodósio, was on a mission upriver to extract cedar wood and copaiba oil, which would later be taken to Belém (Goeldi 1898: 38). The group from the Museum of Pará spent the night there and carried out an important collection of birds, a success attributed to the "love" and "respect" of the residents for these animals – an explanation, according to Goeldi (1903: 484-485), for the abundance of species existing around the village. From there the group intended to enter the two rivers that form the Capim, the Surubijú and the Ararandeua, but was prevented by a rapid and the low water level. This, therefore, was the final point of the expedition, where the group spent a few more days collecting in the company of half a dozen "experienced" Indigenous hunters.

[15] Huber's observation (1901: 57) about the supposedly abandoned plantations in the middle course of the Capim is worth mentioning. According to him, the forest "again took possession of the many fields previously cleared by the Indians who inhabited these parts. This forest that settles in the place of ancient cultures has, at first, a different composition from the virgin forest and received a special name (*Caapueira*) in the language of the country."

Together they returned and settled in Poço Real,[16] a large field below Acarý-uçáua, which had recently been opened by the Tembé (Tenetehara) and was in the middle of a manioc flour production process, with several families camped there. According to the report by Goeldi (1903: 484), the company of Amerindians in this place made possible extraordinary results: "Employing on an average ten or twelve experienced Indian hunters every day, and hunting and collecting ourselves, the daily result was a mountain of mammals and birds and of all kinds of objects of natural history". For their services, the Indigenous hunters received gunpowder, lead, fuse, salt, soap, sugar, kerosene and "things for women's clothing" (Tschümperli 1898: 209).

It was most probably in Poço Real that Goeldi collected artifacts and made most of the photographs preserved in Switzerland, as he himself commented on the effort made to document the village environment, its *roça* and the surrounding forest, as well as the language spoken by the Tembé (Tenetehara) (Goeldi 1903: 487). Figures 9 to 11 show the large *roça* in the foreground, with the forest in the background; a group of five men in front of their *malocas*, perhaps Goeldi's main companions; and the family of one of these men, perhaps the village *tuxaua*, since it is the only one recorded in a photograph.

On the return trip to Aproaga, the group still made some longer stops at an *igarapé* and a lake for exploration and collection. Another issue raised by Barbosa Rodrigues now resonates strongly in the travel reports: the change in landscape between the lower and upper reaches of the river, observed for the second time by the researchers. This included the geomorphological aspects of the watercourse, such as width, depth, current and sandbanks, as well as the characteristics of the banks. Goeldi (1898) compares the soil, rocks and relief, calling attention to the sinuous course

Figure 9 – *Roça* Tembé (Tenetehara) in Poço Real, Capim River, Pará. Photographer not identified, 1897. Staatsarchiv des Kantons Basel-Stadt, PA 694c, A 4-3 (1). Basel, Switzerland.

Figure 10 – Tembé (Tenetehara) men in Poço Real, Capim River, Pará. Photographer not identified, 1897. Staatsarchiv des Kantons Basel-Stadt, PA 694c, A 4-3 (1). Basel, Switzerland.

Figure 11 – Tembé (Tenetehara) Family in Poço Real, Capim River, Pará. Photographer not identified, 1897. Staatsarchiv des Kantons Basel-Stadt, PA 694c, A 4-3 (1). Basel, Switzerland.

[16] This is the name recorded by Goeldi in his 1903 text, which appears on the map (Figure 6). However, in the 1898 text, Goeldi recorded the name Ressaca, which allows us to think that the name of the village changed between 1897 and the date of the second publication. Tschümperli (1898) also uses the name Ressaca and reports that the village produced manioc, tobacco, sugar cane, corn, beans and sweet potatoes, but not *pacova* (local variety of bananas). Unlike Goeldi (1898, 1903), who praises the skills of the residents who accompanied him and their knowledge of the natural world, Tschümperli (1898) describes, in a prejudiced and sarcastic way, the architecture of the *malocas*, the clothing and the Indigenous adornments, their physique, language and a party that the museum group witnessed.

of the middle Capim onwards and to the abrupt narrowing of the river in some points, forming canyons, some 30 meters high. The vegetation followed the alternation of the relief, sometimes presenting tall forests on the slopes, sometimes floodplains. For Tschümperli (1898: 197), the sudden change of landscape formed "fabulous scenarios": "This difference in relation to the vegetation further down is truly stupendous."

In this landscape, the presence of the jauari palm (*Astrocaryum jauari* Mart.) surprised everyone, just as it had surprised Barbosa Rodrigues 23 years earlier, because there was no record of the species occurring in the eastern Amazon.[17] Goeldi (1898: 39) highlights, precisely, the differentiated structure of the floodplains of the upper course of the Capim, with "more or less extensive groves of Javary palms" – an aspect recorded in several photographs by Huber (Fig. 12). Tschümperli (1898: 197) also highlights the "important role" of the jauari in the rich vegetation, alongside the açai palm (*Euterpe oleracea* Mart.), which, however, also occurred in the lower course of the river. The higher they went up the river, the more extensive the "forests of jauari", which completely disappeared in the lower Capim. Huber, in turn, compared the distribution of this palm tree along the Guamá and Capim basins in a book on the ecological characteristics of the coast of Pará: while, in the first, the jauari appeared in the flooded areas, still in the low course, in the second, the species had not yet migrated to the region where the floods were large and frequent, perhaps because the colonization process of the palm tree in this river was still incomplete (Kraatz-Koschlau & Huber 1900). Another important difference between the flora of the two rivers, which pointed towards a different geological origin between them, resided in the distribution of another palm tree with unique habits, the jupati (*Raphia taedigera* (Mart.) Mart.). In the book by Kraatz-Koschlau & Huber (1900), it is described as an almost exclusive species of the southern Amazon estuary, but that reappeared frequently in the lower Guamá, without occurrences in Capim. According to Kraatz-Koschlau & Huber (1900), this would be evidence of a disjunction between the two previously connected populations of the species.

Figure 12 – Double page of the Capim River album showing the physiognomy of the floodplain of the upper course of the river, with the predominance of the jauari palm. Photo by Jacques Huber, 1897. Staatsarchiv des Kantons Basel-Stadt, PA 694c, A 4-3 (1). Basel, Switzerland.

This scientific problem - related to the geological origin of the mouth of the Amazon, to the dynamism of this hydric system and to the transformations it caused in the coastal region and in the basins that flow into the Pará River, an issue that occupied Huber so much during the years he lived in Brazil - was not outlined by Barbosa Rodrigues, but he did register important evidence of the geomorphological conformation of Capim and Guamá, which led Huber, more than twenty years later, to investigate the two basins. He traveled the first river with Goeldi in 1897 and with Kraatz-Koschlau the Guamá and Caeté in 1900, with the purpose of geologically and ecologically characterizing the entire region known as Salgado Paraense (Atlantic Coast of Pará), bounded by the Guamá to the coast. The Capim, despite its confluence with the Guamá, served as a counterpoint, due to its entirely different characteristics and course, to reinforce the existence of a biogeographic unit that Huber delimited further north (Kraatz-Koschlau & Huber 1900; Huber & Kraatz-Koschlau 1901; Huber 1901).[18]

The connection between Huber's two voyages and the Barbosa Rodrigues expedition is noticeable not only in the development that the first gave to the field observations

[17] Both the book by Martius (1823–1850, v. 2: 76-77) and the one by Wallace (1853b: 109-110) on palm trees, the two works of reference at the time, state that the jauari occurs only from the Middle Amazon onwards, especially on the Rio Negro.

[18] Geological studies corroborate the observations of Barbosa Rodrigues and Huber, such as Lima & Ponte (2012) and Kubota *et al.* (2020).

made by the second, but also in other sources. Huber had the report published by Barbosa Rodrigues on the Capim River and it was from this copy, currently preserved in the Domingos Soares Ferreira Penna Library, of the Goeldi Museum,[19] that he transcribed, in the first of his field notebooks used during the journey to the same river, all the passages in which Barbosa Rodrigues describes the vegetation. The notebook is identified with the name "Capim", followed by "Barbosa Rodriguez", as if its text served as an introduction or preparation for the experience that Huber himself would have in the field. After the reproduction of Barbosa Rodrigues' report, at the beginning of the notebook, there are notes made by Huber along the way (banks, vegetation, agriculture, villages, farms, tributaries, lakes and photographs), drawings of plants, landscapes and maps. In the pocket inside the back cover, there is still a folded photographic copy of the "Planta do Rio Capim levantada por J. Barbosa Rodrigues em Commissão do Governo Imperial, 1875" ("Plan of Capim River raised by J. Barbosa Rodrigues in Commission of the Imperial Government, 1875").[20]

Something similar can be said regarding Goeldi and Wallace. The latter's publications were also part of the Museum of Pará library, not only "A narrative of travels...", but also the book on Amazonian palms (Wallace 1853b), his observations on primates (Wallace 1854) and the compilation that Sclater & Salvin (1867) made of the bird species he collected in the Amazon. Goeldi (1903: 497-500) extracted from this compilation the list of the Capim River, with a total of 28 species, and published it at the end of his report, alongside the list of bird collection from the Museum of Pará in the same river, which totaled 116 species. In this way, he emphasized the advance of knowledge related to the avifauna in that basin and reinforced the connection between the two travels in his narrative - as if Wallace and the Museum of Pará team had traveled the same route and shared the same purposes in the field.

Concluding Remarks

The end of the expedition organized by the Museum of Pará was dramatic. All the team came back with malaria and had to leave Belém for medical treatment: Goeldi spent a period in Serra dos Órgãos, in Rio de Janeiro; Huber sought refuge in the Serra de Baturité, in Ceará; and Tschümperli became so ill that he terminated his employment and returned to Switzerland (Goeldi 1898, 1900). As already mentioned, the group spent years processing the information and collections obtained on the journey to the Capim River, some of which, such as Huber's herbarium, were never made public.[21] All this material was shared with other institutions and generated subsequent investigations that can be reconstructed by the historian. A similar process can also be done retrospectively, that is, reading these sources in search of information generated by travelers who preceded the staff of the Museum of Pará. This is what we did throughout our research and what led us to Alfred Russel Wallace and João Barbosa Rodrigues. Both are almost ubiquitous in what Goeldi, Huber, Tschümperli, Hagmann and Kraatz-Koschlau have published – even when not cited. The data recorded and the way in which they were recorded by Wallace and Barbosa Rodrigues decisively influenced the way researchers at the Museum of Pará looked at the Capim River and its inhabitants, human or not, including the formulation of the research agenda they took to the field. Goeldi structured his travel reports based on Wallace's legacy, while Huber took the writings of Barbosa Rodrigues as a starting point for the development of new scientific inquiries.

The same can be said about Barbosa Rodrigues. Wallace's short expedition to Capim not only encouraged him, but also helped him to structure his own travel account. Rodrigues openly dialogued with Wallace about the origin of the *pororoca*, having traveled in a period much more suitable for the observation of the phenomenon and its consequent elucidation. He also engages

[19] Book of Registration (Livro de Tombo) from Domingos Soares Ferreira Penna Library, volume 1, 1896-1901. Museu Paraense Emílio Goeldi, Domingos Soares Ferreira Penna Library, Special Collection. Belém, Brazil.

[20] Huber's notebooks demand specific work, based on the literature that analyzes field experience and the circulation of knowledge, such as Safier (2007), Bourguet (2010) and Kury (2018). For now, we emphasize the existence of several references to Barbosa Rodrigues in this source. See Huber, Jacques. Field notebook from the travel to the Capim River, 1, 1897. Museu Paraense Emílio Goeldi, Guilherme de La Penha Archive, Jacques Huber Fund, Series 5 (Notebooks, diaries and field notebooks), Notebook 22.

[21] Exception for the ferns, sent by Huber to Hermann Christ, as already mentioned. Christ described a new species from Huber's collections in the Capim River (Christ 1898; Huber 1900).

in dialogue with Wallace on matters that the English traveller omits or ignores - such as the history of the colonial occupation of the river, the composition of the population, popular knowledge of the natural world and the characteristics of the vegetation – aiming to elaborate a more refined and complete narrative than the one that preceded him. Wallace's influence is also noticeable in Rodrigues' decision to seek support from José Calixto Furtado, the most powerful man in Capim until the 1880s, without whom no traveler would ever enter that domain or "feudum" - a term Goeldi used when referring to Vicente Chermont de Miranda, Calixto's successor in control of the lands and people of the place.

Another common element in the texts analyzed here is a certain dichotomy between nature and culture, something common in travel reports of the time.[22] In the case of the Capim River, the alternation between the wild and the civilized is very evident by the narrators. As this river is a region of ancient colonization, dating back to the 17th century, the contrast between still forested places and the succession of farms or villages was striking to our travelers. This allowed them to travel with relative comfort, always having a safe landing at someone's residence and a place to return to after investing in the forest – creating, in the texts, an opposition, a coming and going, between the virgin forest, a place of suffering, dangers and privations, and civilization, often represented by simple objects attributed to European culture, such as Wallace's "rickety table" (1853a: 116) or the table that Tschümperli (1898: 205) found in a Tembé (Tenetehara) *maloca*: "All that reminds us of civilization are a rough wooden table [*roh gezimmerter Tisch*] and a bench on the veranda, the comfort of which must be evident to the Indians themselves." The Amerindians, evidently, appear as lacking in intelligence and aesthetic taste in Tschümperli's mocking narrative.

A more empathetic look appears in Wallace, who identified some of his companions and praised their hunting or fishing work; and also in Barbosa Rodrigues, who did not identify his crew and his assistants, nor did he give them any credit, but who was concerned with recording customs and local knowledge about plants and the environment, as was the case of the popular explanation, corroborated by the traveler, about the origin of the *pororoca* – a clear provocation to Wallace's stance, who disdained what he had heard on the field.[23] Goeldi and Huber seem to stand out for another field research ethic, at least with regard to Indigenous people.[24] Both traveled at the end of the century and had a Germanic university education, strongly influenced by *Völkerkunde*, which established methods and protocols for ethnographic research, in addition to considering the native population as an 'informant' (Kraus 2007; Sanjad 2009, 2016). Goeldi (1903), as mentioned, not only recorded when and how many assistants he had, but also credited them with the success of the zoological collections made during the expedition and the elucidation of important taxonomic issues, such as the sexual and age dimorphism of some bird species. He publicly confessed himself to be an "apprentice" in the face of the ancestral knowledge manifested by the Tenetehara. Huber (1901), in turn, did not draw any conclusions about the residents of Capim, but – still echoing the pioneering observations of Barbosa Rodrigues (1875) on the differentiated plant composition of the *capoeiras* along the river – formulated a question that would only be fully developed in the 1980s based on research conducted among the Mebêngôkre: the ability of the Indigenous people (Huber mentions the Tenetehara) to manage the forest by planting (and later abandoning) swiddens at strategic points in their territory, forming 'islands' of plant resources. This is currently a key issue for anthropologists, ecologists and ethnobotanists, which has transformed Amazonian

[22] See, for example, the seminal work of Sussekind (1990). For Wallace, see Alves (2011), Lima (2014), and Silva (2015).

[23] Some authors call attention to a characteristic nativism of Barbosa Rodrigues, who advocated not only the autonomy of Brazilian science, but also the valorization of native knowledge. For example, Ferreira (2010) analyzes the ethno-classification system developed by Barbosa Rodrigues to order Amazonian archaeological artifacts, while Peixoto *et al.* (2012) study the ethno-taxonomic system he advocated for classifying plants. These ideas are not paralleled by the other travelers analyzed here, all foreigners, and place Barbosa Rodrigues in a unique position even among Brazilian scientists of the 19th century. In this case, there is an evident intersection between a desire for self-affirmation as a science professional and a political activism focused on Brazil's intellectual independence and on building a memory of national science, as Sá (1998, 2001) and Heizer (2012) have already demonstrated.

[24] Unlike Indigenous people, a common indisposition towards Afro-descendants can be observed in all the travel reports analyzed here. Blacks and mestizos, the few times they are mentioned, are almost always referred to as indolent and morally reprehensible. Goeldi (1903), who traveled just nine years after the abolition of slavery, suggests that the majority of the Afro-descendant population of the Capim River had emigrated and those who remained were unable to reorganize agricultural production and suffered from alcoholism.

agrobiodiversity into an important scientific topic. Nowadays, some researchers use the term 'cultural forest' to (re)equate the concept of 'agriculture' and definitively abolish an alleged opposition between nature and culture (Posey 2002[1985]; Balée 1992; Robert *et al*. 2012; Zent & Zent 2012; López-Garcés 2016).

Finally, it is worth emphasizing the potential of comparative studies for a more complete and complex understanding of travel. This comparison, however, should not be limited to the contributions of this or that traveler, nor to the representations of this or that, but – and above all – to prioritize the connections that are established in the text of the travelers who succeed each other in a certain period and in a certain territory. We believe that this intertextuality, with its multiple and mobile interpretations of the territory and its inhabitants, human or otherwise, makes this theme more current and still relevant in historiographical and scientific terms. To know how the successive waves of travelers influence each other; the explicit or not dialogue they build around a subject; the network of interlocutors they agency and that is often reused, such as the hunter Luís, who helped Natterer and later Wallace, or the farmer José Calixto Furtado, who sponsored Wallace's journey and later Barbosa Rodrigues'; the local knowledge appropriated and continuously translated into scientific information or materialized in museum collections; all this has already proven to be a possible and quite fertile unfolding for the study of travel narratives, articulated, of course, with sources of another nature, such as manuscripts, iconography and collections. Ultimately, this keeps on the horizon the desirable and necessary meeting of a cultural history with a sociology of travelers.

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