The Santo Ildefonso's frontiers: delineations of value in the Old Regime

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Abstract. The limits demarcation commissions were sent to the colony for the purpose of delimitation of the frontiers between Portuguese and Spanish America, determined by the Santo Ildefonso Treaty (1777). In this historical context of disputes about the possession and exploration of the american territory, the service of engineers, mathematicians and astronomers was essential for the construction of military buildings that were strategic to the occupation and the gathering of informations that were employed in the diplomatic negotiations concerning disputed regions, above all through cartography. From the study about the expedition through Rio Branco performed by the third division unit of the demarcations and the comparative analysis of maps, diaries and letters, I intend to carry on an integrated take on this voyage. I seek to understand how those engineers and astronomers promoted their diligence and honor through their service, the establishment of relationships with local authorities and, mainly, the production of those documents; seeking their insertion in a bureaucratic plot motivated by the acquisition of "merces" and benefits that highlight the metropolitan interest in the colonial space and the exercise of power in this Old Regime society.

Keywords. astronomers, demarcation commissions, engineers, merces, Portuguese America.

1. Introduction

The activities of engineers and astronomers served to the maintenance of Portuguese ultramarine territories through diverse occasions upon its occupation, defense, mapping and exploration. Since the beginning of the colonization, their knowledge was utilized as tools for navigation and military fortification of the American conquests. Nevertheless, throughout the 18th century, under the promotion of D. João V's and D. José's governments, the service of these men of science reached new standards. International tendencies have introduced new ways of accumulating, organizing and sharing information while the demands regarding the maintenance of the Portuguese ultramarine empire revolutionized scientific practices. During João V's reign, this is noticeable by the creation of scientific institutions, the importation of mathematical and astronomical instruments, the promotion to the activities of *Companhia de Jesus*, the hiring of foreign astronomers for the mapping of frontier territories, etc. [1] These are investments that often served the imperial interests of Portugal, as in the negotiations of the Treaty of Madrid (1750), for example. [2]

However, the funding of mathematical, astronomic and cartographic knowledge is intensified, especially, after the negotiations between Portugal and Spain related to the Treaty of Madrid, when the principles of natural frontiers and *Utis possidetis* (which means that the occupation of certain territories would attest its possession) were established. In this context, both the occupation and the mapping of the territory reach another level of importance and become crucial elements to the diplomatic negotiations over American space. Aware of these transformations, Sebastião José de Carvalho e Melo (1699-1782), the future Marquis of Pombal, mobilized a major reform in the Portuguese educational structure, emphasizing the teaching of mathematics, geometry and cartography in institutions such as the University of Coimbra and the military academies. [3] Thus, now there were individuals who were fit for the technical recognition of Portuguese territory, instructed according to the most modern methods and adaptable to the colonial administration; central pieces of a new form of illustrated diplomacy, effectively Portuguese or Portuguese-Brazilian, employed according to the resolutions of the Preliminary Treaty of Santo Ildefonso (1777).

According to what is stipulated in this treaty, the border territories in dispute should be officially defined through the employment of teams specialized in this function. Oriented by commissioners or governors and, responding to the project of the State Secretariat of Overseas, engineers and astronomers hired by the crown traveled the natural borders accompanied by locals, gathering astronomical examinations, cartographic productions, travel logs, etc. This information would be collected for the definition of a definitive treaty of limits that, in practice, would never occur - although in the future they would support negotiations over the Brazilian territory after its independence. In any case, many of the men of science were recognized in life for their services through the appointment to positions in the colonial administration, obtaining military ranks and academic recognition.

From a political project that intensified the paternalism of the prince, a stagg that reinforced the power of the state in the colonies was cultivated. In this sense, the reign of D. José opened doors for individuals who were not part of the nobility to reach certain social ascension from their services, as it happens with these astronomers and engineers who inaugurated the practical use of the illustrated knowledge cultivated in the new Portuguese institutions in the colony. We will approach those who participate in the third division of demarcations, a group selected for the examinations at the western border. Among them, the engineer Ricardo Franco de Almeida Serra (1748-1809) and the astronomer Antonio Pires da Silva Pontes (1750-1805), powerful representatives of this category of polyvalent men of science, product of the post-Treaty of Madrid imperial policy. Thus, the proposal of this article is to reflect on the context of the development of Portuguese science in conjunction with the conflicting scenario within the American continent and its relationship with the political and bureaucratic nuances that involve the relations between men of science and the colonial administration in the Old Regime. In this scope, I will analyze which elements serve the purpose of promoting the honor and merit of these individuals in their speeches from the study of letters and diaries written in the demarcation expedition on Rio Branco (1781).

2. Research Methods

Firstly we analyzed and discussed the bibliography related to the incentives to the development of Portuguese scientific practices in the 18th century, suggested by Dr. Gesteira. Meanwhile, our search for documents began in the Historical Archive of Itamaraty, where we looked for letters and diaries related to the demarcation commissions employed in the 1780's, with the objective of understanding the scientific procedures carried out during the expeditions.

However, as I studied the sources, the effort of these men of science for social ascension caught my attention. At this point, when in contact with documents and academic works, I aimed for the political and bureaucratic aspects of that effort, focusing on the exchanges between astronomers and engineers with the local government of the Mato Grosso captaincy, an original approach.

Thereafter, I did further research in the online databases of the Ultramarine Historical Archive and the Digital Luso-brazilian library - where I found the geographical plan of the Rio Branco region. The material and annotations gathered from the research were systematically revised and organized in order to the further development of an article that would contemplate the exercise of power in the Old Regime through the effort for social ascension present in the diaries, letters and the map produced by astronomers and engineers in the Rio Branco expedition.

3. Power and service in the Old Regime: knowledge and the formation of a colonial elite

The expansion and territorial maintenance projects in Portuguese America have constantly relied on scientific activities, although they have differentiated over time. The activity of the military engineers was essential for the construction of fortifications and settlements, as well as for the knowledge and organization of colonial space. On the other hand, astronomy was important for the guidance of navigators and, eventually, for the precise determination of geographical positions and for the making of useful maps to the diplomatic claims that occurred, especially during the 18th century. While the former inserted themselves as vassals of the king through military service, the latter traditionally participated in privileged religious orders or were hired abroad by diplomatic demand.

However, in the reign of D. José I, these men of science received a different social treatment. Within the Pombaline political project, the affirmation of state power as an entity of absolute powers was based on the pluralization of political responsibilities during this period, carrying out a movement not contemplated in the previous reign. In this sense, Pombal cultivated a staff that worked for the strengthening of this state's power, understanding it as its own social statement. [4] That is, within a project of total absolutization of the royal power, the paternalistic character of the prince, who safeguarded the common good, consolidated the basis of support of his government by conferring to a nobility the defense of monarchic institutions. It is a more open nobility, within which individuals that are not originally noble could be distinguished as such for their services to the State, as occurs with the astronomers and engineers who participate in the

demarcations. This maintenance of the spirits of the representatives of the State was a condition for the political stability of the Portuguese government and extended the privileges granted to those individuals whose positions were earned through their service in opposition to ancient principles of succession.

Thinking about the power logic of the Old Regime, Maria Fernanda Bicalho (2005), interested in the power and administration networks of the Portuguese empire, reflects on the constitution of a political culture in Portuguese America that opens a wide field of possibilities for the provision of services to the monarchy. Thus, the performance of services was accompanied by the expectation of prizes that should be awarded under the principle of justice. It was a system based on reciprocal chains of obligations in which the king's vassals requested *merces* - which conferred status, honor and a higher position in the social hierarchy. Therefore, according to Fernanda Olival (2001) - cited by Bicalho -, an *economy of merces* would be developed, the foundation of a political culture of the Old Regime. The concept of *civil or political nobility* was thus forged, encompassing those individuals who differ from the true nobility derived from blood and inherited from grandparents. [5]

This category is studied by Ronald Raminelli in *Viagens Ultramarinas: Monarcas, vassalos e governo a distância*. In this book, the author points out the formation of an intellectually modern elite, fit for the colonial administration and exploration, which would constitute a central part of an *information network* within the king's centrality dynamic. These were individuals who served in the colony for the advancement of the state, especially after the reign of D. José, when conditions were created for crown officials to traverse the promising and disputed areas according to the need for quality data. A trained bureaucracy was formed, often composed by former students of the University of Coimbra who operated according to detailed instructions on the gathering of indispensable information to the government on overseas possessions. [6]

Pombal's project aimed to protect the borders, crops and mining, so its policy sought to support the American economy and ensure national control over trade. One of the instruments for this was to make the State a patron of knowledge. This knowledge, produced in form of letters, travel logs and maps became essential both for the rule of the realm, and for its expansion and maintenance. Therefore, the men of science - especially mathematicians, astronomers, engineers and natural scientists - who worked in the colony inserted themselves in a bureaucratic plot within the logic of the *merces economy*. In other words, they accommodated themselves to a sequence of procedures ranging from the enumeration of services provided and the requests of merces to the monarchic recognition and granting of privileges. Thus, the fair award impelled subjects and vassals to explore lands, taking notes to demonstrate to the sovereign how much they fought in favor of the expansion of imperial domains. [6]

In this period, there was no peaceful solution to the conflicts with the Spanish in America. During this period, there was a Portuguese policy of consolidating the acquired positions, through which constant examinations were carried out on this space within an extensive effort. Also, fortifications were erected, promoting a more intensive settlement of stretches of the border, as well as the astronomical and geographical knowledge that would serve in future border negotiations. [7]

In this context, conflicts between settlers in America remained in strategically and economically relevant regions, such as the western and southern borders in the continent, rich in minerals, pastures, indigenous people and river routes. Nevertheless, when D. José died, D. Maria I, niece of the Spanish monarch D. Carlos III, took the Portuguese throne, contributing to the reconciliation of the Iberian royal houses. So, in June of this year, Carlos III established the cessation of hostilities in a time of relative Portuguese political weakness. [8] Thus, the demand of Grimaldi (1710-1789) - a Spanish diplomat - for the definition of borders would take shape in 1777 and, in October of this year, the Preliminary Treaty of Santo Ildefonso. The conventions of the Treaty of Madrid were generally maintained, but Portugal ceded territories to the south, including the *Sete Povos das Missões* and the Colony of Sacramento.

In accordance with the treaty, four demarcation commissions were set up so that the limits implied in its articles were determined with the greatest accuracy and all of the points through which the dividing line should pass were specified for the purpose of a definitive treaty. These expeditions, like those of the Treaty of Madrid, were prevented by the disagreements between Portuguese and Spanish settlers, but left an extensive legacy in their productions, whose repercussions influenced the following centuries. Through their examinations, the main cities and waterways of Paraguay and Amazonas gained maps that would become the basis of the current cartography of the region. [9]

However, unlike the commissions of the 1750s, when foreigner astronomers were hired, Portugal now had its own team. In the case of the third commission, which carried out the demarcations in Mato Grosso, Silva Pontes and Ricardo Franco, for example, carried out fundamental inquiries. The astronomer - Pontes - Phd at the University of Coimbra and Franco, graduated form the Military Academy of Lisbon, were men outside the traditional nobility but formed according to the scientific enlightened parameters promoted in the Pombaline government; professionals better prepared to design a territorial and urban infrastructure, as well as map the territory and its regional circumscriptions more accurately, taking notes about its economic potentialities in parallel. Their technical skills were essential for the exploration of more than 50 rivers of the basins of the Amazon River and de Prata River, acting in the making of maps and, in the case of Franco, also in the construction and defense of fortifications, throughout the 1780s.

4. The expedition in Rio Branco: delineations of value

Having the context of the administrative reorganization of the captaincy in mind, as well as the notion that the demarcators had about the usefulness of their services to the metropolitan project, we are interested in understanding the insertion of these individuals in said bureaucratic plot for merces. Ricardo Franco, for example, leaves the comfort of Lisbon to act as an engineer on tiresome expeditions in a marshy area of the interior of the American colony. Naturally, he had expectations about his social rise within the administrativa apparatus in the colony. The radical characteristics of his diligence, as well as the exclusivity and applicability of his knowledge would serve to the creation of his own image within the administrative documentation. These portrayals mobilized through their speech, would ensure the recognition of the engineer's honor and the achievement of benefits and privileges within a merces economy.

On January 8th, 1780, the group of astronomers and engineers hired by the crown for the demarcations of the captaincy of Mato Grosso embarked on the Coração de Jesus and Águia Real carriage, bound for Belém do Pará. Among them, the engineer graduated from the Military Academy, Ricardo Franco de Almeida Serra, his colleague in uniform, Joaquim José Ferreira and the famous pair of astronomers from the University of Coimbra, Antônio Pires da Silva Pontes and Francisco José de Lacerda e Almeida. The team arrived in Pará on February 26th, lengthening their stay for 5 months before their trip to Mato Grosso, where they performed extensive examinations throughout the 1780s. Following the guidelines of the Secretary of Overseas Affairs, Martinho de Melo e Castro (1716-1795), they divided themselves into 2 groups and carried out the examinations of the Rio Negro and Rio Branco, remaining busy while not heading for the neighboring captaincy.

They followed the instructions of the former governor of Pará and the demarcations commissioner João Pereira Caldas (1724-1794), who had charged them to configure the navigated rivers, forming a precise map based on astronomical examinations and observing the natural qualities, potentialities and any "things worth knowing". Everything should be done with the greatest precision so that they could "serve to advance the sciences, and progress they make in history and physical and astronomical observations." [10].

Thus, accompanied by local staff and indigenous people who knew the region, they followed orders to go up the Rio Branco and, then, enter the Mahu, Tacutu, and Pirará rivers, examining their respective headwaters and the communications they could have with the Dutch colony of Suriname. They should pay attention to the mountains or other natural marks which could serve as a strip between the Portuguese domains and those of that colony. Castro ordered them to look for the sources of the Trombetas River and the Urubu River, which flows over to the Amazon River, to establish the dividing line that the nature of the country offers on the top of their slopes. The same orders should direct their diligence on other sources of the Rio Branco, from west to north, always paying attention to the definition of natural borders, measuring the latitude and longitude of limits such as the mountains that would function as the north border near the slopes of the Orinoco, and to the south in Rio Negro [12]. It was a long expedition that would currently mean crossing the state of Roraima from south to north,

The Rio Branco expedition represents the initial moment of the demarcations and the beginning of the career of this team within the dynamics of correspondence with the metropolitan government and the local administration of the captaincy of Mato Grosso. Through the diaries and letters produced throughout this expedition and in the demarcations, it is possible to observe how the discourses mobilized by the local authorities, as well as by the engineers and astronomers are constituted, in view of the insertion of these characters in a hierarchical chain of reciprocity, in which all sought to portray themselves in a positive way and based on the logic of the "merces economy". In this sense, they operated as arms of the government, risking their health and well-being for the maintenance of the royal territory, although interested in benefiting from the justice of the prince. In the diaries produced by Almeida Serra and Silva Pontes on the Rio Branco expedition and in the dialogue exchanged between the local government body and Martinho de Melo e Castro, this dynamic can be perceived through the strategic valuation of certain elements in their discourse.

For example, in a letter written in 1781 as a response to the diligence of examination and demarcation of the bordering territory with the Dutch and Spanish colonies in the region of Rio Branco, one can notice a report in which, in addition to the description of the trajectory, some elements stand out, such as: the strategic observations of the demarcators on the geopolitics and economic activities of the region, the strict respect to the instructions of their superiors and, above all, the reports of the difficulties generated by the environment, of the dangers experienced, the processes involving astronomical examinations, etc. That is, elements that confer value through the recognition of their usefulness and dedication to diligence. These reports appear, even, inscribed in the geographical plan produced based on the results of this expedition.

In addition to that, the documentation highlights the project of strengthening the border , precisely via the strategic protection of a location considered by mathematicians to be remarkable and ideal for the establishment of a lookout in the waters of [Rupunori] in response to the possibility of Dutch claims by Suriname settlers in the vicinity of the Igarapé. Otherwise, they conclude that they could

also launch patrols from the fortress of S. Joaquim with great utility of the Royal service for the protection of those fertile pastures "...for shelter and sustenance of these animals (horses), and of all kinds of cattle, which in a few years will serve as great resources for the capital of Pará, and as a subsistence source in Rio Negro, where the lack of meat is so notorious". They also coveted the fertile meadows of the Spanish territory of Caya-Caya, supposedly belonging to Portugal. [12]

Therefore, the application of their knowledge about military strategies, occupation dynamics, fortification, geographical/cartographic knowledge, planning of economic activities in an interconnected way and directly related to local administration is noticeable. Therefore, they became agents in power disputes beyond the diplomatic sphere over metropolitan interests. In this sense, they didn't only portray themselves to Melo e Castro, but also to the commissioner/governor Pereira Caldas and the governor Luiz de Albuquerque Pereira e Cáceres, who could also recommend the granting of benefits to them.

It's also important to highlight the value of the sacrifices made by these men of science who risked themselves among foreign enemies and indigenous warriors, dealing with the weather and the troubled flow of rivers, restricted supplies and risk of diseases. In the travel log, the reference to areas of difficult navigation due to rains, droughts and a great amount of waterfalls were constant, which constantly forced the canoes to be carried or repaired. At the mouth of the Tacutu, for example, they had to deal with the failed navigation in a river that was in puddles, while the flood in the region of Santa Rosa made it impossible to pass through the waterfalls of that river, causing them to have to continue their quest for land. Afterwards in the expedition a boat was destroyed in a waterfall and one month of provisions were lost, remaining only enough for twelve days. Those unfortunate events were constant throughout the expeditions in the region, in general. Among the items that could perish, special attention was paid to the astronomical instruments that should be guarded at all times and were in fact, having been rescued on an upcoming expedition to the Madeira River by an Indigenous who nearly died transporting them over a flooded area.

Likewise, the element of diseases was present in this and other reports. When it comes to the conditions of the men of science themselves, illnesses are inserted into the discourse according to the logic of valuing their service by their sacrifice. An example of this can be seen after the Rio Branco expedition, when the demarcators gathered to carry out a new expedition along the Madeira River. There are 4 different letters produced by Ricardo Franco, Lacerda and Almeida, and Silva Pontes to João Pereira Caldas about it. In these, we highlight the diseases suffered by the demarcators through the winter rains, which are portrayed as a real catastrophe, whereas, according to Ricardo Franco, since they passed the first Madeira repiquet, only 15 good men remained, having the astronomer Francisco José de Lacerda and Almeida suffered so much that they doubted his life. [13]

In their travels they dealt with both the alliance with the natives and hostile attacks from them. Alliances that sometimes manifest themselves with enemies of the Spanish, such as the indigenous who reported the murder of Franciscan missionaries of the Catalan order in the river [Mahu] when they were parishing in the Orinoco - having been guided by this indigenous, involved in said murder. Due to the imprudence of the missionaries and the reaction of the natives, Spanish reinforcements were summoned, making it impractical to descend to the other parts of the mountain. When the explorers write about the possibility of an indigenous offensive, I suspect the dramatization of the events and their objectives. For example, in the expedition that takes place next towards the captaincy of Mato Grosso. According to Franco's story, they suffered an attack when leaving Borba, the indigenous people shot arrows at the demarcators, hitting the astronomer Francisco José de Lacerda and Almeida's canoe. The explorers allegedly answered with seven shots to drive them away. The scene is probably heroicized by the narrator (Ricardo Franco), as we can perceive in the scene in which the sergeant's canoe was hit by arrows: while "he (the sergeant) shouted to everyone, to flee, finally I turned back, we made the necessary fire to drive them away; the rowers were taken and we continued traveling without any wounded men". [13]

After the return of the expedition, when the diaries are effectively written and the geographical plan drawn up, the team would meet again with the fourth demarcation division which was in charge of examining the Rio Negro to continue its efforts in Mato Grosso. From this diary, Pontes and Franco developed the Rio Branco Geographic Plan, which covers the entire trajectory of the demarcators, as well as specific strategic observations in its design. The set of these works accounted for all the effort made by the team on behalf of the prince so that, from his perspective, they gave legitimacy to future requests for blessings.

In such a way, even before going to his next job, Pontes asked the Secretary of State and Overseas to continue his work in Minas Gerais, as well as the honor of a military rank for his services. This document reveals what are the factors to which the astronomer attributes his merit for these concessions, as well as the formal treatment, traditional in the drafting of these requests. The diligence of the examinations in Rio Branco that was concluded with good success "trough a number of waterfalls and risks'' would therefore serve as collateral for the request for his transference to Minas Gerais and the application for a military patent of the Royal Navy or Army; combined with the vassalic discourse that appeals to the patriotic heart and the sense of justice on the prince's patronage. As a consequence of the same diligence, days later, when the demarcators left for the Madeira River, João Pereira Caldas would recommend rewards to the two engineers for a job well done, a sign of the impression

they left to the Commissioner and the relevance of their relationships with the local authorities.

After the conclusion of the expedition over the Madeira River, marked by numerous obstacles, Luiz Albuquerque Pereira Cáceres, like João Pereira Caldas, made the recommendation to increase the pay of engineers in response to their requests, as well as offering military ranks to the astronomers as a response to their request, even though he described them with harsh words. Again, the relevance of the mobilization of elements that draw the value of these mathematicians/astronomers/engineers become clear. The hostile nature, their wearisome occupations, the accomplishment of a good service; all these characteristics served as collateral to the demands conveyed in the speeches of the demarcators themselves but also in that of their superiors in the administration, who could defend their interests for the prince's voluntary jurisdiction. In this sense, even if Albuquerque didn't have the legal authority to increase their pay, the governor could recommend it to Secretary Melo e Castro. There is also another justification for granting the increase of pay in this document: the unpaid work of teaching about geometric knowledge for "primitive practitioners" of the captaincy. It is known that Luiz Albuquerque, concerned with the frontiers issues, coordinated the mapping of doubtful points and the occupation of bordering regions. Would the students of the engineers be important parts of your project? Would only this favor suffice for the governor to recommend increasing the salaries of engineers? To what extent did the performance of these men of science on previous expeditions really influence the governor's support? What would be more relevant, their utility to the individual (Luiz Albuquerque) or their service to the kingdom? These are pertinent questions but still unanswered, since, either way, appearances should be maintained in the letters for the Secretariat of State and Overseas.

It also becomes explicit the ambition of the demarcators, who did not delay in bringing their requests to the commissioner of the demarcations and the governor of Mato Grosso, counting on their support for the convincing of the Secretary of State and Overseas, Martinho de Melo e Castro, to grant them merces. Even though, in the case of astronomers, their requests became inconvenient and pretentious, affecting their image. Although they received the desired "salary", both astronomers were judged before the authority of Melo and Castro as not especially intelligent and inopportune, especially Pontes, "whose genius, according to what they say, is much more vain and, his character, less docile than his colleagues...". In the case of the engineers, well-spoken by Cáceres, the participation in local projects seems essential to the request for an increase to their pay. In any case, both astronomers and engineers share something in common. After the first services, they were already seeking the rewards and, since the beginning of the demarcations, they were concerned to portray themselves according to the metropolitan interests.

5. Conclusions

In summary, throughout the process of colonial interiorization in Portuguese America, Portugal was concerned with its territorial protection, especially taking the foreign threats over raw materials and trade routes in the New World into account. Within the strategies of this space's defense, often the work of engineers and astronomers was essential as they were articulated with the occupation, delimitation and knowledge, defense and negotiations over Portuguese possessions. However, in the eighteenth century, in view of the context of international disputes, the framework of scientific activities takes on new configurations during the reigns of D. João V and D. José I, reaching the level of the lights as they began to be fostered according to a rationalist and utilitarian paradigm, especially after the Pombaline reforms. In this same context, possibilities came up for men of science who did not belong to the traditional nobility to insert themselves into the body of government within a so-called merces economy at the service of the metropolitan power's centrality through the prince's justice.n other words, the demarcators employed in those expeditions on disputed areas in the context of the Treaty of Santo Ildefonso, took part on a bureaucratic scheme in which they should articulate the representations of their diligence in accordance with the orientations and interests of the local administration and of the Secretary of State for the Affairs of the Navy and Overseas Domains (1736), having as motor of its activities, the pursuit of honor and positions through merces, which operated as the paternalistic link that guaranteed, to a certain extent, cohesion and centrality to the royal power. In this sense, they sought to mobilize all the elements that, within this political culture, represented the good service and diligence of these individuals. The diaries of the expedition on the Rio Branco are a clear example, since they inaugurate the entrance of these men of science into their service overseas. In them, we perceive how the dedication to the instructions despite the difficulties of the trip and the strategic importance of their activities is portrayed in the speeches with different layers of the administration, both in the maps, as in diaries and crafts, painting the delineation of their value.

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2. 7. References

[1] Carvalho R, A Astronomia em Portugal no Século

XVIII. Instituto de Cultura e Língua Portuguesa - Ministério da Educação: Lisboa, 1985.
[2] Ferreira M, O Mapa das Cortes e o Tratado de Madrid, Varia Historia: Belo Horizonte, 2007.
[3] Figueiredo F. José Monteiro da Rocha e a actividade científica da 'Faculdade de Mathematica' e do 'Real Observatório da Universidade de Coimbra': 1772-1820. Faculdade de Ciências e Tecnologia da Universidade de Coimbra: Coimbra, 2011.
[4] Serrão JV, Sistema político e funcionamento institucional no Pombalismo In: Bicalho MF, Ferlini VL. Alameda: São Paulo, 2005.
[5] Bicalho MF. Conquista, Mercês e Poder Local: a nobreza da terra na América portuguesa e a cultura política do Antigo Regime, almanack braziliense n 2: 2005.
[6] Raminelli R. Viagens Ultramarinas: Monarcas, vassalos e governo a distância, Alameda: São Paulo, 2008.
[7] Magnoli D. O Estado em busca do seu Território, Laboratório de Geografia Política - Universidade de São Paulo: São Paulo, 2003.
[8] Reis A. Os Tratados de Limites In: Buarque de Holanda S. Bertrand Brasil: Rio de Janeiro, 2007.
[9] Sanjad N, Pataca E. As fronteiras do ultramar: engenheiros, matemáticos, naturalistas e artistas na Amazônia (1750-1820), Colóquio luso-brasileiro de história da arte: 2007.
[10]Caldas J. Instrução enviada para os astrônomos encarregados da demarcação do Rio Negro, Arquivo Histórico do Itamaraty (shelf 340, rack 1, pack 14): Mato Grosso, 1780.
[11]Cáceres L. Carta a Martinho de Melo e Castro sobre o importante negócio das demarcações, Arquivo Histórico do Itamaraty (shelf 340, rack 1, pack 15): Mato Grosso, 1780.
[12] Pontes A, Serra R, Ofício escrito por Serra e Pontes em resposta à diligência de exame e demarcação do território limítrofe com as colônias, Arquivo Histórico do Itamaraty (shelf 340, rack 4, pack 5): Mato Grosso, 1781.
[13] Franco R. Ofício sobre a expedição do Rio Madeira enviado para João Pereira Caldas, Arquivo Histórico Ultramarino (AHU_ACL_CU_010, Cx. 22\Doc. 1343 (1)): Mato Grosso, 1781.