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BRAZILIAN ILLNESSES: SPIX AND MARTIUS'S OBSERVATIONS ON THE SANITARY CONDITIONS OF NINETEENTH-CENTURY RIO DE JANEIRO

DOENÇAS BRASILEIRAS: OBSERVAÇÕES DE SPIX E MARTIUS SOBRE AS CONDIÇÕES SANITÁRIAS DO RIO DE JANEIRO DO SÉCULO XIX

ENFERMEDADES BRASILEÑAS: LAS OBSERVACIONES DE SPIX Y MARTIUS SOBRE LAS CONDICIONES SANITARIAS DE RÍO DE JANEIRO DEL SIGLO XIX

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ABSTRACT

The objective of this article is to analyze the city of Rio de Janeiro in the 19th century through the reports produced by the Bavarian naturalists Johann Baptiste von Spix and Carl Friedrich Philipp von Martius, establishing an overview of the sanitary conditions of Rio de Janeiro in 1817, focusing the object of research on the diseases that most affected the inhabitants. To meet the above proposition, we chose sources centered on the universe of Natural History and the History of Health Sciences, using bibliographic and documentary methodology. For this purpose, we approached the descriptions of diseases conceived by the two naturalists, as well as medical sources produced in the 19th century in Brazil

Keywords: Spix and Martius. Rio de Janeiro. History of Science of Health. 19th Century.

RESUMO

O presente artigo tem como objetivo analisar a cidade do Rio de Janeiro no século XIX por meio dos relatos produzidos pelos naturalistas bávaros Johann Baptiste von Spix e Carl Friedrich Philipp von Martius, estabelecendo um panorama sobre as condições sanitárias do Rio de Janeiro no ano de 1817, centralizando o objeto de pesquisa nas enfermidades que mais acometiam os habitantes. Objetivando atender a proposição acima, optamos pela escolha de fontes centralizadas no universo da História Natural e da História das Ciências da Saúde, por meio de uma metodologia de caráter bibliográfico e documental. Para isso, abordamos as descrições concebidas pelos dois naturalistas sobre as doenças bem como fontes médicas produzidas no século XIX no Brasil.

Palavras-chave: Spix e Martius. Rio de Janeiro. História das Ciências da Saúde. Século XIX.

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RESUMEN
El objetivo de este artículo es analizar la ciudad de Río de Janeiro en el siglo XIX a través de los informes producidos por los naturalistas bávaros Johann Baptiste von Spix y Carl Friedrich Philipp von Martius, estableciendo una visión general de las condiciones sanitarias de Río de Janeiro en 1817, enfocando el objeto de la investigación sobre las desacuerdos que más afectaron los habitantes. Para cumplir con la proposición anterior, elegimos fuentes centradas en el universo de la historia natural y la historia de las ciencias de la salud, utilizando la metodología bibliográfica y documental. Para este propósito, abordamos las descripciones de las enfermedades concebidas por los dos naturalistas, así como las fuentes médicas producidas en el siglo XIX en Brasil

Palabras clave: Spix y Martius. Río de Janeiro. Historia de la ciencia de la salud. Siglo XIX.

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INTRODUCTION

Human migration to new lands has always been deeply linked to its nature since ancient times. The reasons for these displacements were diverse, such as the search for territorial growth, a new start, access to other food sources, getting away from diseases and epidemics, among others. Whatever the reason, these movements were essential for the development and survival of the human species. When we consider modern history as a chronological period, we observe a significant increase in human displacement driven by the great navigations of the 15th century, which leveraged the flow of human beings from Europe to other continents. Initially, the aim of these expeditions was to increase the political and economic power of the West, but their consequences ended up reaching other layers, influencing cultural and scientific aspects through contact with new fauna, flora and civilizations. As Mary Louise Pratt (1999, p. 27;31) points out, the interactions between Europeans and American peoples created what she calls “contact zones”, resulting in a process of transculturation marked by the forced appropriation of material and immaterial goods by Europeans. Most of the time, these encounters between different cultures took place through brute force, resulting in authoritarian and oppressive practices against the native populations (Pratt, 1999, p. 27).

Travel accounts are a rich source for understanding the exploratory dynamics of the 19th century, especially because of the way they are structured. In the words of Pratt (1999, p. 59), as early as the 16th century it was possible to find descriptions of animals, vegetation and native populations, which were scientifically refined over time. Due to its vast animal and plant wealth, it didn't take long for these men of letters to become interested in Brazilian biodiversity, resulting in the execution of multiple exploratory trips to this region. Despite this great interest, there were difficulties in the way of these scientists, such as a dense forest, full of dangerous animals and plants, political reasons, cultural and linguistic barriers, etc. The context for these travelers only became more favorable with the transfer of the Portuguese crown, modifying old restrictive immigration policies and promoting the opening of Brazilian ports to populations from different territories (Lisboa, 1997; Fausto, 2003). As shown by Knight (2001, p. 814;820), other external political factors provided better possibilities for natural history studies in Latin America. The battle between Emperor Napoleon Bonaparte and the Duke of Wellington in 1815, known as the Battle of Waterloo, can be listed as an example. Its outcome reaffirmed England's position as a naval and commercial power. It is after all these geopolitical changes that we find the scientific

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journey of the naturalists Spix and Martius, between 1817 and 1820, through Brazilian lands.

TWO BAVARIANS AND ONE BRAZIL

Originally from the German town of Hochstadt, Johann Baptiste von Spix was born on February 9, 1781 (Schönitzer, 2022, p. 15). According to Gillispie (1970, p. 578), during the early part of his life, Spix devoted himself to theological instruction until around 1804, where, in the years that followed, he dedicated himself to medical training, which he had studied at the University of Würzburg. In Schönitzer's view (2022, p. 16;19), a medical vocation came naturally to Spix, as the young man came from a line of medical professionals, such as his father, Johann Lorenz Spix (1749-1792) and his grandfather, Joseph Spix (1690-1775). During his studies, Spix stood out for his eagerness to learn, attracting the esteem of prominent figures who worked at the university where he studied, such as the philosopher Friedrich Wilhelm Joseph Scheilling who, years later, would promote opportunities for the naturalist (Lisboa, 1997, p. 52). As noted by Lisboa (1997, p. 52), at the beginning of the 19th century, King Maximilian Joseph I of Bavaria promoted renovations in scientific institutes, summoning Scheilling, in 1806, to join the Royal Academy of Sciences in Munich with the task of leading the direction of the new Academy of Arts, achieving greater status among the social and intellectual organization of the time, expanding his friendships and influences.

Through his new position, Scheilling established ties with the Minister of State, Maximilian von Montgelas, introducing him to the young Spix. This fact would later lead to sponsorship for the naturalist's studies in other European countries, where he interacted with important figures in the scientific world, such as Georges Cuvier and Jean-Baptiste de Lamarck, as well as a whole institutional apparatus such as museums and botanical gardens (Lisboa, 1997; Schönitzer, 2022). In the 1810s, Spix worked as a teacher's assistant, especially in the zoology section at the Munich Academy, and in 1811 he was appointed member and curator of the zoological collections (Schönitzer, 2022, p. 28-29). It was the following year, in 1812, while working in the Erlangen region, that Spix and Martius met (Lisboa, 1997, p. 53). As stated by Schönitzer (2022, p. 177), Spix was more severely affected by the harsh conditions of the Brazilian territory, especially as his health had been weakened. He eventually passed away on March 13, 1826, due to yaws, an infectious disease common in tropical regions.

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Carl Friedrich Philipp von Martius was born on April 17, 1794, in the city of Erlangen (Horch, 1969, p. 187). From an early age, mainly due to encouragement from his family, Martius showed curiosity in studying nature and its relationship with human beings, which greatly influenced him to study medicine at the age of 16 at the university in his hometown (Horch, 1969, p. 187). Martius graduated as a physician in 1814 and continued his academic journey by dedicating himself to botanical studies. In 1816, he secured a position as a collaborator at the Munich Botanical Garden (Silva, 2013, p. 11). Martius served as the chief curator of the Botanical Garden for over two decades, from 1832 to 1854. He later gained recognition for his research on Brazil, being honored with the title of honorary member of the Brazilian Historical and Geographical Institute (IHGB) and securing a place in the Royal Bavarian Academy of Sciences (Silva, 2013; Lisboa, 1997; Horch, 1969). In 1868, after returning from a visit to friends and his son, the naturalist encountered a severe storm that adversely affected his health, particularly his lungs. He passed away in Munich on December 13, 1868 (Rau, 1871, p. 178). Martius spent a significant portion of his time in Brazil cataloging and collecting various specimens from the natural environment. By around 1820, the year he returned to his homeland, the naturalist had gathered approximately 10,000 distinct specimens from the regions he visited (Henriques, 2008, p. 29). The result of his expedition to Brazil was very fruitful for the naturalist. Martius combined not only the studies conducted on the specimens he collected, but also the extensive personal experience he gained during his time in foreign territory. This culminated in the work "*Flora Brasiliensis*", originally published in 1840, which features numerous detailed representations of Brazilian flora, along with their taxonomic classifications (Henriques, 2008, p. 29). Martius extended his scholarly pursuits well beyond the field of botany—despite the fact that much of his acclaim stemmed from his botanical work—by incorporating other scientific disciplines into his research interests, such as zoology and anthropology (Horch, 1969, p. 189).

During the reign of Maximilian Joseph I of Bavaria, a scientific expedition to South America was planned in 1815 in collaboration with the Royal Academy of Sciences of Munich. The primary objective of this journey was to study the diverse biomes found in the region, with the route passing through various localities (Lisboa, 1997, p. 21). Alongside a delegation of naturalists, the principal representatives of the group—known as the Natterer Expedition—were Spix and Martius. On January 28, 1817, King Maximilian Joseph I issued a directive for the expedition to depart for Brazil as soon as possible (Spix e Martius, 2017,

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v. I, p. 20). After completing the preparations for the journey, the team departed on February 6, 1817, bound for Brazilian territory, arriving in the city of Rio de Janeiro on July 15, 1817 (Spix; Martius, 2017, v. I, p. 22; 47). The two naturalists remained on Brazilian soil from 1817 to 1820, traveling through the Southeast, Northeast, and Northern regions of the country. The return journey commenced at the port of Belém do Pará on July 14, 1820, and concluded with their arrival in their homeland on December 10, 1820 (Lisboa, 1997; Spix & Martius, 2017). The results of this expedition were remarkable for the field of natural history, offering significant contributions to scientific advancement through detailed notes and collections of specimens gathered from various regions of Brazil. Both Spix and Martius had their efforts formally recognized and rewarded, receiving lifetime stipends, appointments to scientific institutions, and the honorific title “von,” signifying noble status (Lisboa, 1997, p. 54).

The entirety of the experience acquired and documented by the two naturalists culminated in the work “*Reise in Brasilien*”, published in three volumes. This work contains the observations made by the young scholars during their time in Brazil, as well as a scientific account featuring descriptions of Brazil’s political and economic conditions throughout the 19th century. Additionally, it includes writings on the country’s fauna, flora, and the anthropology of its diverse populations (Lisboa, 1997, p. 55). The three volumes were published between 1823 and 1831, with both authors contributing to the writing up to a portion of the second volume. Following Spix’s death, Martius was entrusted with the responsibility of completing the work on his own (Horch, 1969, p. 188).

THE HIPPOCRATIC IDEAL AND THE BAVARIAN PRESCRIPTIONS

One of the first activities undertaken by the naturalists was the analysis of the various spheres of the city of Rio de Janeiro. As noted by Spix and Martius (2017, v. I, p. 54–55), in the 1810s, Rio de Janeiro had an estimated population of approximately 110,000 inhabitants, composed primarily of Portuguese, Black, and mulatto individuals, with only a small number of Indigenous people. According to the two naturalists, this conglomeration of individuals, combined with the tropical climate and diet, constituted harmful factors for the quality of life in the region, resulting in various diseases. The most common among them were: scabies, chronic diarrhea, croup, syphilis, smallpox, and hydrocele (Spix; Martius, 2017, v. I, p. 66–67).

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When examining diseases and modes of contagion during the period in which these two naturalists lived, the most widely accepted framework for understanding such phenomena was the humoral paradigm. This theory is attributed to the Greek physician Hippocrates (ca. 4th century BCE) and is documented in a collection of writings known as the "*Corpus Hippocraticum*". Moreover, humoral theory sought to explain the conditions of human health as being closely linked to the balance among four distinct humors: yellow bile, black bile, phlegm, and blood (Neufeld, 2018, p. 102; 104). Each of these humors was associated with one of the fundamental elements (water, earth, fire, air), and the emergence of diseases was explained as a consequence of an imbalance among these humors (Martins et al., 2008, p. 12). From this perspective, the external environment played a central role in determining either the recovery or deterioration of an individual's health. Thus, when the two naturalists attributed the health conditions of the population in Rio de Janeiro to climate and diet, Spix and Martius reflected the principles of humoral theory.

The conception of humoral theory was not limited to the centers of knowledge dissemination in Europe. In Brazil, physicians also adhered to this Hippocratic understanding and operated within the framework of external factors influencing health. The physician Saturnino de Souza e Oliveira Junior asserted that interaction with the external environment was a determining factor in human health, and that atmospheric air, when combined with toxic particles, could become a source of great harm to the individual (Oliveira Junior, 1847, p. 8). According to Ribeiro and Souza (1841, p. 7–8), before determining the most appropriate method of bloodletting to be performed on a patient, the physician should first investigate the individual's temperament, the climate, the patient's habits, atmospheric conditions, and other related factors. Alexandre José do Rosario understood that food had a significant impact on the constitution of human beings, and that a balance between animal and plant-based products was essential. If a diet was rich in animal products and poor in plant-based foods, the physical and emotional aspects would become dominant while the mental faculties would atrophy; conversely, the opposite would produce individuals who were lethargic and indolent (Rosario, 1839, p. 6; 8).

When the two naturalists set out to discuss the most common diseases affecting the population of Rio de Janeiro, they aimed, whenever possible, to address topics such as the causes of the diseases, the methods of treatment, the symptoms, and so forth. As demonstrated by Spix and Martius (2017, v. I, p. 68), hydrocele primarily affected European whites who had recently arrived in Rio de Janeiro, as well as North Americans. According to

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the authors (Spix e Martius, 2017, v. I, p. 68), one of the main symptoms of this condition was flaccidity of the male genital organs and an increase in the volume of the testicles, caused by the accumulation of fluid in the area. The naturalists noted that Brazilian physicians attributed the cause of hydrocele to the improper ingestion of water from certain areas of the city; however, the naturalists disagreed with this explanation, arguing that the cause was related to climatic conditions, thermal shocks, the type of clothing worn by these individuals, and their sexual lifestyle (Spix e Martius, 2017, v. I, p. 67–68). According to them, treating hydrocele required washing the affected area with rum and cold water, in addition to recommending the use of a suspensory bandage (Spix; Martius, 2017, v. I, p. 68).

As discussed by the physician João Rodrigues de Araujo França (1836, p. 1–2), encysted hydrocele affected different regions of the male genital organ and could be located in the membrane surrounding the testicles, known as the tunica vaginalis—classified as either simple or congenital hydrocele—or within structures inside the testicles called the spermatic cord. Although it was a condition exclusive to the male sex, Araujo França noted that serous cysts resembling hydrocele could appear on the female labia majora as a result of a pathology in the canal of Nuck (Araujo França, 1836, p. 2–3). In general, hydrocele was not considered a dangerous condition and was painless in most cases; however, depending on the volume of fluid accumulated in the scrotal area, the constant pressure exerted on the testicular nerves could cause intense pain (Araujo França, 1836, p. 6; 8). Although this condition could occur at any age and at any time, a notable observation made by Araujo França was that individuals who frequently rode horses appeared to be more prone to developing the disease (Araujo França, 1836, p. 3). For the physician, although the causes of hydrocele in the population of Rio de Janeiro remained mysterious, he disagreed with the hypothesis attributing it to environmental factors, stating that nearby locations within the same climatic zones as Rio de Janeiro did not exhibit the same number of cases (Araujo França, 1836, p. 4). The type of treatment employed varied according to the severity of the disease, ranging from simple removal of the fluid to the excision of the cystic portion causing the condition (Araujo França, 1836, p. 16).

As discussed by the authors (Spix; Martius, 2017, v. I, p. 68), scabies was a common affliction in the city, primarily caused by the suppression of perspiration, issues with the gastric system and lymphatic vessels, as well as the excessive bites of mosquitoes. This

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disease inflamed the sebaceous glands, leading to the formation of pus on the skin and resulting in intense itching and burning sensations that, if not properly treated, could progress to severe conditions resembling leprosy. The treatment for scabies involved the use of lemonades, small doses of calomel (mercurous chloride), washes with warm, well-diluted rum, baths to cleanse the wounds and soothe the skin, as well as the ingestion of purgatives. As noted by Silva (1841, p. 5), scabies could manifest on any part of the body but was most likely to occur on the hands, skin folds, and joints. Several factors predisposing individuals to the development of scabies were highlighted by the physician, including age, sex, occupation, lack of hygienic care, and it could also be caused by mites of the *Sarcoptes* family (Silva, 1841, p. 5–6). In the words of the physician (Silva, 1841, p. 8), in most cases, scabies was not a concerning disease; however, if it were a long-standing condition or affected a vital organ, it could become a serious danger. If the diagnosis indicated a non-severe form of scabies, the recommendation was to completely eliminate the source of mites, maintain proper personal and environmental hygiene, and use sulfur-based compounds as treatment. However, unlike many other diseases, mercury was not recommended for scabies (Silva, 1841, p. 8-9).

Episodes of chronic diarrhea were concerning, as there was a risk of these conditions progressing to more cholera-like stages, such as dysentery, lientery, and dropsy, which deteriorated the intestinal walls (Spix; Martius, 2017, v. I, p. 68). When observed in their early stages, the authors reported that chronic diarrhea resulted from colds and was treated by ingesting hot lemonade with vinegar (Spix; Martius, 2017, v. I, p. 68). Diarrhea is a defense mechanism of the body, attempting to eliminate irritants from the gastrointestinal system, and can be triggered by dietary factors or as a symptom of an infection. According to the physician Joaquim José da Silva (1831, p. 5–6), the severity of the illness was determined by the manner in which it manifested: if the individual had no predisposition to the condition and it appeared suddenly, it was typically milder and easier to treat; the opposite scenario, however, made the situation more complicated. In the physician's view (Silva, 1831, p. 4), these illnesses had no limitations regarding age or sex, as they could arise at any time and affect anyone.

The ingestion of contaminated food or liquids, thermal shocks, excessive sexual activity, overexertion, poisons, viruses, and a wide range of other causes were listed by the physician (Silva, 1831, p. 4). Regarding the type of treatment used for gastroenteritis, the physician recommended the application of leeches to the abdominal area, bloodletting, the

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ingestion of both acidic and non-acidic liquids, dietary regulation, enemas, and the application of herbal and medicinal plant preparations to the affected area (Silva, 1831, p. 7–8). In some cases, purgatives and pharmacological agents that induced vomiting were also employed; however, caution was advised, as such measures could potentially worsen the condition (Silva, 1831, p. 8).

Another disease described by Spix and Martius was croup, a respiratory pathology that primarily affected white children. This condition triggered inflammation in the larynx and other regions of the airways, obstructing the passage of air, liquids, and solid foods. Its treatment involved the administration of calomel (Spix; Martius, 2017, v. I, p. 69). According to physician Manoel Victor Rabello (1850, p. 5-6), croup was characterized by inflammation of the laryngeal mucosa, impairing glottal function and predominantly afflicting children. It caused respiratory distress, sometimes leading to suffocation. Additional symptoms included facial skin discoloration, neck swelling, convulsions, and pulmonary irritation (Rabello, 1850, p. 5-6).

According to Rabello (1850, p. 6), there were various explanations for the development of croup: climate and location played a significant role in favoring the onset of the disease, especially cold and humid areas near rivers, seas, or swamps. Physical activity performed by children without adequate protection from environmental exposure also posed a risk factor, as did a poor diet lacking essential nutrients, which contributed to the development of croup. Treatment for this illness consisted of various methods and dosages. Rabello (1850, p. 7) noted that administering refreshing drinks and laxatives provided relief for the child, as did soaking the feet, performing steam inhalations with water vapor mixed with certain chemical substances several times a day, using clysters for internal cleansing, giving warm baths, and keeping the child's room well-ventilated and heated. In more severe cases, the use of anti-inflammatory drugs and analgesics was also recommended.

According to Spix and Martius (2017, v. I, p. 70), because it was located in a region with higher temperatures, syphilis in Rio de Janeiro was less aggressive than in areas with lower temperatures. The spread of the disease was influenced by both the city's climatic conditions and the sexual behaviors of its inhabitants. Additionally, the use of Ethiopian slaves as laborers contributed to its dissemination. Syphilis was not limited to the coastal regions—it was also found in the more inland areas of the Brazilian continent. For the physician João José de Carvalho (1831, p. 3; 5), sexual libertinism and carnal indulgence were the primary causes of syphilis transmission. However, he also acknowledged that it

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could be spread through the exchange of bodily fluids—via displays of affection, touch, or shared utensils—and, according to him, could also be passed down hereditarily.

The causative agent of this disease did not follow a uniform symptomatic pattern across all individuals; rather, symptoms could vary significantly from person to person. However, among the most common signs were syphilitic lesions appearing on different parts of the body (Carvalho, 1831, p. 4–5). Treatment for syphilis infection was carried out through the administration of mercury, either by ingestion, local application, or vapor inhalation (Carvalho, 1831; Pereira, 1835). According to Pereira (1835, p. 10), for external application, mercury had to be prepared in the form of an ointment or as sublimated mercury diluted in water, alcohol, or sulfuric ether. Inhalation involved vapors released from the combustion of cinnabar over hot coals. More important than the method of treatment, however, was its consistency: if interrupted, the disease would typically reemerge within approximately fifteen days (Prates, 1843, p. 12).

Regarding smallpox, the authors noted that Caucasian whites were more susceptible to the disease than other ethnic groups (Spix; Martius, 2017, v. I, p. 70). Although smallpox vaccination was mandatory in Rio de Janeiro, this did not prevent the disease from exhibiting increased severity, which was attributed to the climate and the “laxity of the body” (Spix; Martius, 2017, v. I, p. 70). According to physician João José de Macedo Coimbra, the smallpox vaccine—developed in 1798 by the English physician Edward Jenner—involved the inoculation of a less aggressive variant derived from cowpox lesions on cows’ udders (Coimbra, 1839, p. 1). Coimbra (1839, p. 12) explained that the reactions caused by the vaccine mirrored the patterns of the original infection, though the intensity of symptoms varied; nonetheless, eruptions and scarring still occurred.

Physician Antonio Zacharias Alvares da Silva (1874, p. 20–21) argued that immunity to disease varied from individual to individual, with some people being more resistant than others. However, in the case of smallpox—unlike many other illnesses at the time—he claimed that infection typically occurred only once, besides, in that period, smallpox had a vaccine that helped prevent its spread and reduce mortality risk. The recommended vaccination schedule called for renewal every eight to ten years or whenever signs of an epidemic began to emerge (Silva, 1874, p. 38).

Regarding other diseases that afflicted the health of the population, the authors did not provide extensive detail but did offer brief mentions. According to them, although diabetes was not widely reported, it affected the white population in greater proportions than

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the Black population. In contrast, elephantiasis was more frequently observed among Black individuals than whites (Spix; Martius, 2017, v. I, p. 68). The naturalists also noted that catarrh and rheumatism were common in the city, primarily caused by regular fluctuations in temperature (Spix; Martius, 2017, v. I, p. 69–70).

Spix and Martius also offered their reflections on the measures the city of Rio de Janeiro should adopt to hinder humoral imbalance and, consequently, reduce the incidence of disease. For the naturalists (Spix; Martius, 2017, v. I, p. 72), it was essential to promote the creation of laws and public infrastructure responsible for maintaining the city's hygiene, as the deficient sanitation of streets and thoroughfares was left to scavenging vultures dispersed throughout the area. Another issue raised by Spix and Martius was the need for oversight and inspection of pharmacies to curb the sale of counterfeit or expired medications, as well as to strengthen the regulation of medical practice to prevent unqualified individuals from providing healthcare services. The problem of forged medical credentials was strongly condemned by the medical community of the time. According to Francisco de Paula Costa (1841, p. 23), individuals who pretended to be medical professionals driven by monetary gain dishonored the healing arts. Echoing Hippocratic ideals, João Monteiro Peixoto firmly asserted that the practice of medicine should be regulated and reserved solely for those who had dedicated themselves to the study of the sciences from an early age (Peixoto, 1852, p. 3–4). In addition to these points, the naturalists noted that although smallpox vaccination was mandatory, immunization and oversight were inadequate and could be easily circumvented through false claims of full vaccination (Spix; Martius, 2017, v. I, p. 72).

CONCLUSION

Spix and Martius were remarkable figures whose contributions were highly significant to the study and development of Natural History. Both men demonstrated a deep passion for nature throughout their lives, dedicating themselves to studying, writing about, and cataloguing the various natural environments they encountered. Their expedition to Brazil played a crucial role in their personal and professional development, providing not only financial support through the collection of specimens, publication of scholarly works, and funding from the government and scientific institutions, but also enhancing their expertise as naturalists. As a result, they became prominent authorities in their field, both in their time and for future generations.

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When working with a source such as a travel account, multiple layers of content are presented to us. The very structure of the travel narrative—characterized by a first-person methodology—conveys a wide range of details and observations that enrich our understanding of the subject at hand. Given their medical knowledge, both authors shared their insights into the most common illnesses affecting the inhabitants of Rio de Janeiro, discussing their possible causes, symptoms, and treatments. When this information is complemented by an analysis of medical sources produced in Brazil during the same period, it reinforces our understanding of the sanitary conditions in nineteenth-century Rio de Janeiro. This approach offers a broader view of how medical studies at the time addressed such issues, thereby contributing, even if briefly, to the development of the History of Health Sciences in Brazil.

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REFERENCES

1. ARAUJO FRANÇA, João Rodrigues de. **Dissertação sobre a hydrocele.** Rio de Janeiro: Typ. Commercial Fluminense de S. F. Surigue, 1836.

2. CARVALHO, João José de. **Dissertação sobre a syphilis.** Rio de Janeiro: Typographia de R. Ogier, 1831.

3. COIMBRA, João José de Macedo. **Considerações Geraes sobre a vaccina, ou varíola vaccinal.** Rio de Janeiro: Typographia de J. E. S. Cabral, 1839.

4. COSTA, Francisco de Paula. **Algumas reflexões sobre o charlatanismo em medicina.** Rio de Janeiro: Typographia Universal de Laemmert, 1841.

5. FAUSTO, Boris. **História do Brasil.** 11. Ed. – São Paulo: Editora da Universidade de São Paulo, 2003.

6. GILLISPIE, Charles Coulston. **Dictionary of Scientific Biography.** Volume XII. New York: Charles Scribner's Sons, 1970.

7. HENRIQUES, Raimundo Paulo Barros. A viagem que revelou a biodiversidade. **Ciência Hoje,** Rio de Janeiro, v. 42, nº 252, p. 24-29, 2008.

8. HORCH, Rosemarie E. Karl Friedrich Philipp von Martius (1794-1868). **Revista do Instituto de Estudos Brasileiros,** São Paulo, Brasil, n. 6, p. 187-194, 1969.

9. KNIGHT, D. M. Travels and Science in Brazil. **História, Ciências, Saúde,** Manguinhos, vol. VIII (supplement), 809-22, 2001.

10. LISBOA, Karen Macknow. **A Nova Atlântida de Spix e Martius:** natureza e civilização na *Viagem pelo Brasil* (1817-1820). São Paulo: Editora Hucitec Ltda, 1997.

11. MARTINS, Lilian Al-Chueyr Pereira; SILVA, Paulo José Carvalho da; MUTARELLI, Sandra Regina Kuka. A teoria dos temperamentos: do *corpus hippocraticum* ao século XIX. **Memorandum,** Belo Horizonte, v. 14, p. 9-24, 2008.

12. NEUFELD, Paulo Murillo. Personalidades da História da Saúde II: Hipócrates. **RBAC,** Rio de Janeiro, 50 (2), p. 102-4, 2018.

13. OLIVEIRA JUNIOR, Saturnino de Souza. **Algumas reflexões sobre a séde das molestias.** Rio de Janeiro: Typ. Do Diario, 1847.

14. PEREIRA, Joze Rodrigues. **Preposições sobre a syphilis.** Rio de Janeiro: Typographia de R. Ogier, 1835.

15. PEIXOTO, Antonio José. **Sciencias Accesorias:** Deve haver leis repressivas do charlatanismo medico, ou convém que o exercicio da medicina seja inteiramente livre?. Nictheroy: Typ. Fluminense de C. Martins Lopes, 1852.

Revista ARACÊ
ISSN: 2358-2472

16. PRATES, Fidencio Nepomuceno. **Algumas proposições sobre a medicina e cirugia.** Rio de Janeiro: Typographia Universal de Laemmert, 1843.

17. PRATT, Mary Louise. **Os olhos do império:** relatos de viagem e transculturação. Tradução: Jézio Hernani Bonfim Gutierra. Bauru: EDUSC, 1999.

18. RABELLO, Manoel Victor. **Algumas propozições sobre crupe.** Rio de Janeiro: Typographia Fluminense de M. G. S. Regio, 1850.

19. RAU, Charles. **Memoir of C. F. P. Von Martius.** Washington: Government Printing Office, 1871.

20. ROSARIO, Alexandre José do. **Dissertação sobre a influência dos alimentos e bebidas sobre a moral do homem.** Ryo de Janeiro: Typographia de Laemmert, 1839.

21. RIBEIRO e SOUZA, Francisco Cyrillo. **Algumas proposições sobre emissões sanguineas.** Rio de Janeiro: Typographia Americana de J. P. da Costa, 1841.

22. SCHÖNITZER, Klaus. **Johann Baptist von Spix e sua contribuição para a pesquisa da fauna brasileira.** Organização: Eckhard E. Kupfer. Tradução: Dr. Hermann Kux. São Leopoldo: Oikos, 2022.

23. SILVA, Antonio Zacharias Alvares da Silva. **Do contagio e da infecção.** Qual o regimen sanitario que se deve observar durante as grandes epidemias pestilenciaes?. Rio de Janeiro: Typ. Cinco de Março, 1874.

24. SILVA, Francisco Ferreira Martins da. **Algumas proposições sobre a sarna.** Typographia de J. E. S. Cabral, 1841.

25. SILVA, Joaquim José da. **Da gastro-enterites.** Rio de Janeiro: Typ. Imperial e Constitucional de Emile Seignot-Plancher, 1831.

26. SILVA, Seles pereira da. **Os índios do Brasil no pensamento de Carl Friedrich Philipp von Martius (1823-1844).** Dissertação (Mestrado em História) – Programa de Pós-Graduação em História, do Instituto de Ciências Humanas e Sociais da Universidade Federal de Mato Grosso, Cuiabá, 2013.

27. SPIX, Johann Baptist von; MARTIUS, Carl Friedrich Philipp von. **Viagem pelo Brasil (1817 - 1820).** Tradução de Alfredo do Valle Cabral. Brasília: Senado Federal, Conselho Editorial, 2017.