



History, Science and Nature: boundless frontiers...

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The interface between History, Science and Nature is dynamic and vital for deepening knowledge about the uses of the planet and nature (Earth / Oceans / Seas), understanding it as an agent of modernization of economic, social, scientific and cultural of states and nations (Horden et al. 2006; Rozwadowski 2014; García 2014). Nature can also be seen as an agent of new scientific and cultural practices of sociabilities, representative of new political, philosophical and social ideals, in which the production, circulation and appropriation of knowledge and its techniques is a reality (Wigen 2006; Brito 2010; Salgueiro et al. 2014). There is a brave new world waiting for new relations that unite different spatialities and mentalities, enhancing intercultural encounters, manifested in official reports, explorers' reports, and the constitution of libraries, museums, collections and scientific objects (Lopes 2009; Felismino 2014; Granato & Lourenço 2014; Albuquerque 2015; Nunes 2016; Pereira 2017).

Following a transnational and comparative perspective of the History of Sciences and Techniques, characterized by the intersection of culture and scientific practices, by the reconstruction of invisible territories that pass into the domain of visibilities, it is therefore pertinent to explore new paths involving territories (metropolises and colonies) and scientific spaces, always taking into account the profound interdependence between Science, Politics and Society (Salgueiro 2015; Ninhos 2016; Lopes 2017; Nunes & Carolino 2017).

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Recently, several researchers have focused their agendas on themes related to the History of the Seas and Oceans, allowing innovative approaches, through the presence of new transnational spatiality (Bentley 1999; Wigen 2006; Games 2006; Lambert et al. 2006) or trans-local scope (Matsuda 2012; Armitage et al. 2017). Deepening historical knowledge, with methodologies from scientific fields such as Environmental History and the History of Mentalities (Heizer et al. 2014; Melo et al. 2017), allows us to understand maritime and oceanic spaces as agents of intense intercultural activity, favouring the permeability of mentalities and energising the *Historical Crossroads*.

Thus, Paulo Catarino Lopes reflects on the representation of the Ocean in the southwest of the Iberian Peninsula in the late-Medieval period, taking into account the tension between two conceptions: one more negative, predominantly continental and rural; and another positive, influenced by the classical and Muslim heritage. From the point of view of the History of Mentalities, Lopes crosses different perspectives, namely the influence of politics, religion, science and culture on the social perception of the Ocean – in which Al-Andalus and the Mozarabs played a central role – with the progressive process of *Christianization* of the Ocean.

Taking into account the question of human intervention in the nature and evolution of the planet, through actions of an urban, socio-economic and techno-scientific nature, as instruments of domination of the territories, the texts of Sara Albuquerque and Tiago Rego Ramalho stand out.

Reflecting and deepening the issues in the agenda of the Anthropocene (Stromberg 2013; Artaxo 2014; Rodrigues 2017; Ferrão 2018; Projecto *Anthropolands – Construir o Antropoceno* (PTDC/IVC-HFC/6789/2014)) from the perspective of the Social Sciences, aspects related to the use of new raw materials are addressed in a technological context, taking into consideration the evolution of the History of Ecology, the growing concerns by the scientific and intellectual elites and the problems and idiosyncrasies of sustainable development.

Following a transnational perspective, Sara Albuquerque crosses objects and collections from the Royal Botanic Gardens, Kew, with reports and journeys of European naturalists to British Guiana – George Jenman (1845-1902) and Everard im Thurn (1852-1932) – taking as a starting point, the study of an Amerindian raw material, the balata, a rubber-like material. Particularizing the issues related to memory, the preservation of scientific objects, intercultural encounters and the circulation of knowledge, the author stresses the importance of analysing balata, historically. This History intertwines with the political, economic and social History of British Guiana in the late nineteenth century.

On the other hand, Tiago Rego Ramalho presents a reflection on Portuguese intellectuals exiled in France during the *Estado Novo*. These intellectuals perceive the world from different and

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innovative perspectives, influenced by cultural Marxism, where issues associated with nature's technological erosion begin to gain relevance. Taking as a case study the one of António José Saraiva (1917-1993), the author deepens the relations between modern technique and nature, the concept of culture and technology and the connection between Man/ nature/technology.

The problems of internationalization of science and scientific internationalism are well evident in the exchanges – of specimens, objects, books and scientific publications – in scientific journeys, expeditions and missions to study abroad, especially of an intercontinental character, carried out by men of science, whether professionals or amateurs (Salgueiro et al. 2014; Carolino 2017; Kury 2017). These phenomena allow the identification of European personalities, institutions, scientific practices and cultural practices that intersect with South American reality, developing new sociabilities in the relationship between fieldwork and laboratory work (Kohler 2002), promoting the construction of critical international networks, visible and invisible (Bravo 2006; Lopes et al 2014), and questioning the notions of border – physical, symbolic and mental (Herzog 2015; Cairo 2018).

In this context, Simone Elias, Décio Ruivo Martins and Ildeu de Castro Moreira analyse Portuguese cartographic explorations in Brazil in the 18th century as an instrument of imperial policy, with scientific and economic objectives. The delimitation and the knowledge of the frontiers were presented as a structuring element, through the accomplishment of natural inventories and the territorial and hydrographic mapping. Simultaneously, a new elite of specialists, trained in the metropolis, would be an innovation with a significant impact on the constitution of a Portuguese-Brazilian intelligence.

Wesley Oliveira Kettle privileges the demarcation works carried out in the Amazon region by Spain and Portugal between 1750 and 1799. His analysis focuses on the descriptions of the Hungarian astronomer Ignacio Szentmartonyi and the Italian astronomer João Ângelo Brunelli, members of the Comissão de Demarcações. Their reports highlight the informal networks established throughout the demarcation process, the relations between Europeans and indigenous peoples, and the profound interdependence between politics, science and nature on issues related to the management of colonial empires.

João Curado also reflected on these questions, analysing the reports produced by the Austrian physician, botanist and geologist Johann Emanuel Pohl (1782-1834) and the French botanist Auguste de Saint-Hilaire (1779-1853), elaborated as a result of their exploration trips to the Brazilian backwoods. Curado explores the centre/periphery tensions described by the two explorers, intercultural encounters and traveller-nature interactions.

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In addition to these ethnological, anthropological and sociological testimonies, the explorers who travelled to the Brazilian backlands also contributed to the deepening of the geological and botanical knowledge of the territory. This was the case of the aforementioned Auguste de Saint-Hilaire, who in 1824 published *Plantas Usuais dos Brasileiros*. Valdir Lamim-Guedes focuses his analysis on this work, highlighting the uses of local plants in food and medicine and the impact of various measures determined by colonial powers in the transformation of Brazilian ecosystems.

Another fundamental element in the strategy of internationalising the scientific activity of a nation is found in the exchange of bibliography and the publication of scientific journals. The authors, Ana Margarida Dias da Silva and António Carmo Gouveia, approach the case of the *Boletim da Sociedade Broteriana*, created with the aim of publicising the works carried out at the Botanical Garden and Institute of the University of Coimbra, Portugal. Their study allows us to understand the role of natural history libraries, their importance in the construction of scientific networks – formal and informal – and their influence on the production and dissemination of scientific knowledge.

Analysing the writings of Ladislao de Bellina in the periodicals *Gaceta Médica de México* and *Boletín de la Sociedad Mexicana de Geografía y Estadística*, Rodrigo Vega y Ortega Baez reflects on this physician's environmental and hygienic concerns about the settlements located in the Valley of Mexico. With an interdisciplinary and multidisciplinary study base, the author crosses Geography, Botany and Medicine, enabling new approaches in the analysis of Mexican public health awareness.

Finally, Robert Wilcox approaches the frontier issue from a different point of view, taking as a case study the cattle trade on the Brazilian border with Paraguay. In the article Wilcox analyses the evolution of farms and legal and illegal trade in Mato Grosso, taking into account the specificities of supply and demand and the needs of the market, which ends up giving rise to tensions between official authorities and local actors, when the state itself seems to have insufficient control over the territory.

A thematic tripod of History, Science and Nature allowed an innovative foray into interdisciplinary agendas. The contributions of this thematic number launch epistemological seeds that will flourish in future years in the form of new academic challenges, assuming themselves as the construction of networks of knowledge or even designing research networks, transforming the practice of science into a scientific culture of citizenship as a form to propose new relations between Science and Nature. New agendas, new generations of researchers, new territories will be, in the future, committed to transforming the idea of the world in which we will live.

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