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**Mestrado em Gestão e Valorização do Património Histórico e Cultural -
Master Erasmus Mundus TPTI**
(Techniques, Patrimoine, Territoires de l'Industrie : Histoire, Valorisation,
Didactique)

*Trajectory of collections and Museography of the Brazilian Industrial
Exhibitions: from National to International Exhibitions in the XIX
century*

Anna Sofia Meyer França

Orientador / Sous la direction de : **Ana Cardoso de Matos**

Évora, agosto de 2021 | Évora, août 2021

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Trajatória das coleções e Museografia das Exposições Industriais Brasileiras: das Exposições Nacionais às Internacionais no século XIX

Resumo

Esta investigação visa analisar e detalhar informações sobre a apresentação de coleções industriais nas Exposições Nacionais Brasileiras e Universais do século XIX. A primeira participação oficial brasileira numa Exposição Universal foi em 1862 em Londres. Com esta participação, o país começou a preparar exposições nacionais para organizar e selecionar coleções de produtos a serem apresentados nas Exposições Internacionais. De 1861 a 1889, o Brasil organizou cinco Exposições Nacionais. Explorando estes eventos, e através da análise das descrições, documentos iconográficos, a análise do enquadramento histórico, e a circulação do conhecimento trocado, é possível investigar as coleções industriais que foram apresentadas nas Exposições Nacionais e Internacionais e a museografia utilizada nestas apresentações. O nosso objetivo é também identificar a existência de objetos apresentados nas Exposições que hoje se encontram nos museus brasileiros.

Palavras-chave: Exposições Industriais; Exposições Internacionais; Museografia Industrial; Coleções Industriais

Trajectory of collections and Museography of the Brazilian Industrial Exhibitions: from National to International Exhibitions in the XIX century

Abstract

This research aims to analyse and detail information about the presentation of industrial collections in the Universal and Brazilian National Expositions in the 19th century. The first Brazilian official participation in a Universal Exhibition was in 1862 in London. With this participation, the country began to prepare national exhibitions to organise and select collections of products to be presented in the International Exhibitions. From 1861 to 1889, Brazil organised five National Exhibitions. Exploring these events, and through analysing the descriptions, iconography documents, the analysis of the historical framework, and the circulation of knowledge exchanged, it is possible to investigate the industrial collections that were presented in the National and International Exhibitions and the museography used in these presentations. We also aim to identify the existence of objects presented in the Exhibitions that are now found in Brazilian museums.

Keywords: Industrial Exhibitions; International Exhibitions; Industrial museography; Industrial Collections

Trajectoire des collections et muséographie des expositions industrielles brésiliennes: des expositions nationales aux expositions internationales au XIXe siècle

Résumé

Cette recherche vise à analyser et à détailler les informations relatives à la présentation des collections industrielles dans les Expositions universelles et nationales brésiliennes du XIXe siècle. La première participation officielle du Brésil à une exposition universelle a eu lieu en 1862 à Londres. Avec cette participation, le pays a commencé à préparer des expositions nationales pour organiser et sélectionner des collections de produits à présenter dans les expositions internationales. De 1861 à 1889, le Brésil a organisé cinq expositions nationales. En explorant ces événements, et à travers l'analyse des descriptions, des documents iconographiques, de l'analyse du cadre historique et de la circulation des connaissances échangées, il est possible d'étudier les collections industrielles qui ont été présentées dans les Expositions nationales et internationales et la muséographie utilisée dans ces présentations. Nous cherchons également à identifier l'existence d'objets présentés dans les expositions qui se trouvent aujourd'hui dans les musées brésiliens.

Mots-clés : Expositions industrielles ; Expositions internationales ; Muséographie industrielle ; Collections industrielles.

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ABREVIATIONS

ABCMC	Associação Brasileira de Centros e Museus de Ciência
BIE	The International Bureau of Expositions
BN	Biblioteca Nacional
CNAM	Conservatoire des Arts et Métiers
EDP	S.A. A Energias de Portugal
FIOCRUZ	Fundação Oswaldo Cruz
IHGB	Instituto Histórico e Geográfico Brasileiro
IIFA	Imperial Instituto Fluminense de Agricultura
IPHAN	Instituto do Patrimônio Histórico e Artístico Nacional
MAAT	Museu de Arte, Arquitetura e Tecnologia
MACOP	Ministério da Agricultura, Comércio e Obras Públicas
MAST	Museu de Astronomia e Ciências Afins
MI	Museu Imperial
MN	Museu Nacional
NA	Arquivo Nacional
ON	Observatório Nacional
SAIN	Sociedade Auxiliadora da Indústria Nacional
SHOT	Society Magazine for the History of Science and Technology
SMRJ	Sociedade de Medicina do Rio de Janeiro
TICCIH	International Committee for the Conservation of the Industrial Heritage
UFRJ	Universidade Federal do Rio de Janeiro

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INTRODUCTION

1. The interest of the thematic

This research aims to analyse and detail information about the presentation of industrial collections in the Universal and Brazilian National Expositions in the 19th century. The first Brazilian official participation in a Universal Exhibition was in 1862 in London. With this participation, the country began to prepare national exhibitions to organise and select collections of products to be presented in the International Exhibitions. From 1861 to 1889, Brazil organised five National Exhibitions. Exploring these events, and through analysing the descriptions, iconography documents, the analysis of the historical framework, and the circulation of knowledge exchanged, it is possible to investigate the industrial collections that were presented in the National and International Exhibitions and the museography used in these presentations. We also aim to identify the existence of objects presented in the Exhibitions that are now found in Brazilian museums.

This project was based on the author's graduation thesis in museology: “Palácio Monroe of the Saint Louis Exhibition (1904) to Rio de Janeiro (1906-1976): its project, construction, travel, uses and the dispersion and transfer of its collection to Brasília (1960-1976)”. The history of the Monroe Palace began in 1904 at the Saint Louis International Exhibition in the United States. Brazilian participation in the fair took place through a pavilion built by engineer F. M. de Souza Aguiar, who received the gold medal at the event. In 1906, the building was rebuilt in Rio de Janeiro, based on the structure of the 1904 exhibition. The thesis recovers the history of the Monroe Palace collection, which is now found in the Museum of the Senate in Brasília.

Universal Exhibitions emerged in the second half of the 19th century, a period of greatest industrialization in Brazil. This new impulse sought new technologies and technical knowledge, seeking ways to compare and exchange information with other countries. The Exhibitions brought together productions and discoveries in the same place, facilitating their comparison and adoption. They were important for industrial

development and, in some cases, industrial development was stimulated by the rivalry between countries and by the search for improvement, mainly in terms of technique and architecture.

The Universal Exhibitions began in 1851 at the London exhibition, which had the theme: “Works of Industry of All Nations.” This was the first time that countries had the opportunity to showcase their industrial and technological development internationally. Brazil did not have an official participation in this exhibition but was responsible for sending observers who registered their impressions of the event. However, there is still a record of a slight participation with four exhibitors of Brazilian products in the 1851 exhibition¹. Brazil also did not officially participate in the next Universal Exhibition of Paris in 1855.

The Brazilian presence in the Exhibitions of London in 1851 and Paris in 1855 took place through representatives specially sent to these events². Guest countries could participate in the exhibitions with their own exhibitors, representing their nations in different ways. In these first Universal Exhibitions, Imperial Brazil had the habit of exhibiting wood, machines used in coffee farms, paintings, ceramics, minerals, indigenous artifacts, among others³. Brazil officially began to participate in the Universal Exhibitions in 1862 in London.

The first Universal Exhibitions of the 19th century were organised in one or more large buildings, often built specifically for these events, where the invited countries displayed their national collections. For example, the Crystal Palace in the London Exhibition in 1851, or the construction of the elliptical building for the Paris exhibition in 1867⁴. This configuration began to change at the 1873 exhibition in Vienna, where 200 thematic pavilions were distributed around the central building.

¹ Data taken from the work of Schroeder-Gudehus & Rasmussen « les fastes du progres: le guide des Expositions universelles 1851-1992 », which contains a guide to twenty-nine Universal Exhibitions exhibited between 1851 and 1992. Mollier Jean-Yves, Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), *Les fastes du progres: le guide des expositions universelles 1851-1992*, Paris, Flammarion, 1992, p.60.

² At the second Universal Exhibition held in 1855 in Paris, the imperial government sent three commissioners to observe and analyse the commercial possibilities for the country and prepare reports in accordance with their observations. They were: Giacomo Raja Gabaglia (1836-1872) who analysed the industry as a whole; Gustavo Schüch Capanema (1824-1908) who observed the means of agricultural production, and Antonio Gonçalves Dias (1823-1864) who prepared the report on agricultural and extractive products.

³ Heizer, Alda Lúcia, « Observa o Céu e Medir a Terra. Instrumentos científicos e a participação do Império do Brasil na Exposição de Paris de 1889 », Doctoral thesis, Universidade Estadual de Campinas, Instituto de Geociencias, 2005, p.106.

⁴ Pereira, Campos da Silva M., « Participação do Brasil nas Exposições Universais: Uma arqueologia da modernidade brasileira », *Revista Projeto*, São paulo, n° 139, 1992, p. 83-90.

However, it is at the Philadelphia exhibition in 1876 that the configuration and organisation of these events definitively changed, where the invited countries began to build individual pavilions to represent their country, the so-called 'national pavilions'. These national pavilions also showcased the representative architecture of each country.

To prepare for the International Exhibitions, Brazil organised National ones with the objective of valuing its natural and industrial wealth. These exhibitions served as the basis for what would be taken to the international exhibitions. The Brazilian states were responsible for sending objects and collections that represented their productions and industrial innovations. The National Exhibitions were fundamental to encourage Brazilian industrial development, although they were not large and could not represent collections from all over the country.

The Universal Exhibitions left an inexhaustible material for research in several areas. There is an unlimited universe of textual and iconographic documentation, but also a wide dispersion of this documentation across various institutions and countries. It is possible to find several documents and reports of Brazilian participation in online libraries and archives in different countries. However, we did not find a more in-depth study on the collections transferred, nor on the museography of national and international Brazilian industrial exhibitions, which is a subject that is rarely discussed in the analysed literature.

2. Problematic

As mentioned above, there is a gap in these studies and a great dispersion of documentation on Brazilian industrial exhibitions and the representation of Brazilian industrial collections in the 19th century. Thus, this work seeks to answer the following questions: How, and in what way, are Brazilians' industrial exhibitions linked with Brazil's participation in the universal exhibitions of the 19th century? Is there a specific museography to present Brazilian industrial products and how has it evolved? What happened to the industrial products that were featured at these exhibitions?

More specifically, we seek to analyse how it is possible to talk about a specific museography for these Brazilian industrial exhibitions. We aim to investigate in what form these collections were displayed and how the products evolved over time. Within this analysis, we will look for records and documentation that testify the trajectory of

these industrial collections and what their fates were, their dispersion, and if they are currently in Brazilian museums, among other possibilities.

3. Objectives

Our main objective is to analyse the museography and trajectory of the collections of industrial exhibitions in the 19th century and reflect on how this circulation and exchange of knowledge influenced the configuration and organisation of Brazilian museums and industrial collections today. To reach this goal, we have as secondary goals:

- 1- Identify the Brazilian participation in the various Universal Exhibitions of the 19th century, focusing on the presentation of industrial products.
- 2- Relate the organisation of the National Exhibitions with the industrial collections that were presented at the Universal Exhibitions.
- 3- Identify the exhibition discourse and museography of industrial collections presented at National and Universal Exhibitions.
- 4- Know the trajectory of Brazilian industrial collections present in National and Universal Exhibitions.
- 5- Relate how this circulation and exchange of knowledge influenced the configuration and organisation of Brazilian museums and industrial collections today.

4. Literature review

The Universal Exhibitions had different terminology in different places and times. The term “World Fair” was used more frequently in the United States, while the term “International” or “Universal Exhibitions” was adopted in continental Europe and Asia. The translation of the French term *Exposition Universelle* is used in other Romance languages, such as Portuguese, Spanish, Italian, and Romanian. In the non-Romanesque languages of Europe and the Middle East, the terms “World Expo” or “Specialized Expo” were also commonly used⁵. In this work, we specifically adopted the terminology of “Universal Exhibitions”.

⁵ Findling John, « World's fair », *Encyclopedia Britannica*. Mis en ligne le 15 octobre 2018, Accessed on 9 April 2021. URL: <https://www.britannica.com/topic/worlds-fair>.

To start a study of Industrial Exhibitions and Brazilian representation in 19th century context, it is necessary to investigate what already exists in the field of historiography of the first initiatives of industrial exhibitions. Europe already counted on the holding of industrial exhibitions and local fairs before the 1st year of the Universal Exhibition in London, 1851. Walter G. Endrei in the article, *The First Technical Exhibition*⁶, assumes the model of the collection of the French Academy of Sciences as the first to publish on an industrial exhibition in the late 17th century, being the oldest record in this genre, dated 1683. In this article Walter G. Endrei also analyses the catalogue of this exhibition and records the development of the technology and machines that were displayed.

The author Daryl Hafter in his article *The Business of Invention in the Paris Industrial Exposition of 1806*⁷ makes a study focusing on the 1806 Industrial Exhibition in Paris which was one of the precursor events of these movements and also speaks of the exhibitions that took place previously (1798, 1801, and 1802) which were all focused in Paris.

Kenneth Carpenter brings together several publications on this topic in the journal *Technology and Culture*⁸ in the Society for the Society Magazine for the History of Science and Technology (SHOT), published by Johns Hopkins University Press. The author analyses industrial exhibitions in Europe before 1851 with a table of publications on the subject divided by countries. He highlights the importance of these publications and catalogues and explains how we can find them, placing an emphasis on the American libraries, such as the Kress Library of the Harvard Business School, which contains a large collection on this subject.

In the context of the first industrial exhibitions in Europe, we have as reference the author Horacio Capel Sáez, who explores national and local exhibitions in Spain in the 19th century, analysing social networks and the diffusion of innovations from that

⁶ Walter, G. Endrei, « The First Technical Exhibition », *Technology and Culture*, t. 9, n° 2, 1968, p. 181-83. The catalogue of the 1683 industrial exhibition is also analysed by the author Birembaut, Arthur, « L'exposition de modèles de machines à Paris, en 1683 », *Revue d'histoire des sciences et de leurs applications*, t. 20, n°2, 1967, p. 141-158. Accessed on 9 April 2021. URL: <https://doi.org/10.3406/rhs.1967.2523>

⁷ Hafter, Daryl M, « The Business of Invention in the Paris Industrial Exposition of 1806 », *The Business History Review*, t. 58, n° 3, 1984, p. 317-335.

⁸ Carpenter, Kenneth, « European Industrial Exhibition before 1851 and their Publications », *Technology and Culture*, t. 13, n° 3, 1972, p. 465-486.

period⁹. The author analyses the traditions that contributed to the creation of agricultural and industrial exhibitions in the early 19th century, with an emphasis on the creation of economic societies, technical-scientific espionage, and the tradition of fairs and markets. Horacio Capel explores public exhibitions of products from the Spanish industry in the early 19th century until they reach what he calls “specialized exhibitions” in the middle of the century. These exhibitions followed the tradition of previous industrial exhibitions but changed their direction to prepare for the Universal Exhibitions.

In the context of the first industrial exhibitions in Portugal, we analyse the production of the author Ana Cardoso de Matos. In her article *Sociedades e associações industriais oitocentistas: projectos e acções de divulgação técnica e incentivos à actividade empresarial*¹⁰, the author deals with the objectives of the creation of Portuguese industrial societies and associations in the early 19th century and the dissemination of science and technology that led to the first industrial exhibitions in the country. In another article together with the author Maria da Luz Sampaio *Património Industrial e Museologia em Portugal*¹¹, they give an overview of technical and industrial museums in Portugal, also addressing the historical context of the 19th century, the reforms of technical education, and the industrialization process following the universal exhibitions, which would give rise to future museums.

We also highlight the book published by the authors Ana Cardoso de Matos, Irina Gouzévitch, and Marta Lourenço, *Expositions Universelles, Musées Techniques et Société Industrielle*¹², which brings together publications that address themes related to the phenomena that consolidated the development of industrial society in the 19th and 20th centuries, more specifically the museums of technology, Universal Exhibitions, and international congresses. In the chapter published in this book, Ana Cardoso de Matos analyses the history of Portuguese technical museums and universal

⁹ Capel Sáez, Horacio, « Las Exosiciones Nacionales y locales em la España del siglo XIX: médio local, redes sociales y difusión de innovaciones », In Silva Suárez, Manuel (ed.), *Técnica e Engenharia em Espanha IV: El Ochocientos, Pensamiento, profesiones y sociedade*, Aragón, Real Academia de Ingeniería Institución “Fernando el Catílico” Prensas Universitarias de Zaragoza, 2009. p. 151-213

¹⁰ Matos, Ana Cardoso de, « Sociedades e associações industriais oitocentistas: projectos e acções de divulgação técnica e incentivos à actividade empresarial », *Análise Social*, t. xxxi, nº 2, 1996, p. 397-412.

¹¹ Matos Ana Cardoso de, Sampaio Maria da Luz, « Património Industrial e Museologia em Portugal », *Museologia&Interdisciplinaridade*, t. III, nº 5, 2014, 95-112.

¹² Matos Ana Cardoso de, Gouzévitch Irina, Lourenço Marta C. (dir.), *Expositions Universelles, Musées Techniques et Société Industrielle*, Lisboa, Colibri, 2011.

exhibitions in the 19th century, also dealing with previous industrial exhibitions in Portugal at the beginning of the century¹³.

The author Carlos Loureiro, in his publication *O museu Industria e Comercial do Porto (1883-1899)*¹⁴, explores the development of museology in Portugal in the 19th century and the antecedents of the Industrial and Commercial Museum of Porto, mentioning agricultural and industrial exhibitions from the beginning of the century. The author concludes this work, stating that the Industrial and Commercial Museum of Porto arose from a process of the national European conjuncture of the time, linked to the teaching and economic promotion coming from national and international exhibitions.

We will then analyse what already exists in the field of Brazil's participation in the Universal Exhibitions in the 19th and early 20th centuries. Brazil's first official participation in Universal Exhibitions was at the London Exhibition in 1862. From this international participation, Brazil, as well as several other countries, began to hold national exhibitions to select objects and organise themselves for exhibitions abroad. Thus, we also analysed the available bibliography on Brazilian National Exhibitions in the 19th century.

To begin a literary review of the Universal Exhibitions, we start with the analysis of Schroeder-Gudehus & Rasmussen's work *les fastes du progres: le guide des Expositions universelles 1851-1992*¹⁵, a rich source of information with a guide to 29 Universal Exhibitions exhibited between 1851 and 1992. The authors developed this work as researchers at the Research Centre for the History of Science and Techniques of the City of Science and Industry in Paris. They mention in their work that their initial goal was to research the formation and diffusion of scientific and technical representations in the Universal exhibitions, but they had much difficulty in locating the necessary documentation. They then decided to systematize the data and

¹³ Matos, Ana Cardoso de, « Les musées techniques portugais et les expositions universelles au XIXe siècle » In Matos Ana Cardoso de, Gouzevitch Irina, Lourenço Marta C., *Expositions universelles, musées techniques et société industrielle/World Exhibitions, Technical Museums and Industrial Society*, Lisboa, Colibri, 2010, p. 49-74.

¹⁴ Loureiro, Carlos, « O museu Industria e Comercial do Porto (1883-1899) », In Semedo Alice, Silva Ferreira da. Armando (dir.), *Coleções de Ciências Físicas e Tecnológicas em Museus Universitários: Homenagem a Fernando Bragança gil*, Porto, Faculdade de Letras da Universidade de Porto, 2005, p. 185-201.

¹⁵ Mollier Jean-Yves, Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), *Les fastes du progres: le guide des expositions universelles 1851-1992*, Paris, Flammarion, 1992.

documentary references of the exhibitions from 1851 to 1992, where the documentary forms make up most of the publication.

The authors also contribute to the approach of new subjects where Schroeder-Gudehus studies the “external order” of exhibitions, the history of international regulation, and Anne Rasmussen addresses the “internal order”, the history of exhibition classifications. Schroeder-Gudehus, on matters of foreign order, deals with exhibitions as economic and financial undertakings, based on a history of international relations of universal exhibitions. According to the author, these organisations (state and private initiative) make large ventures and financial investments in search of return on capital and good image.

The internal order written by Rasmussen is dedicated to the problem of classifications of universal exhibitions. This order followed a division by classes and groups provided for in-regulations, and which should be followed by the exhibitors. The author indicates that the classification of Universal Exhibitions has its origins in 18th century naturalism, showing the significant changes that occur from one exhibition to another. Rasmussen presents these changes in classification systems according to the historical context of each period and the philosophical lines adopted by the organizing groups.

From a museological point of view, the author distinguishes that the Universal Exhibition of 1867 in Paris, organised by the project of Frédéric Le Play¹⁶, implied a break in the sequence of the organisation of the 19th century exhibitions. From this exposition, the organisation begins to follow the philosophical principle of the encyclopaedic vision, framing the whole set of human production in a single space, following the principle of didacticism¹⁷. According to the same author, the 1867 exhibition had for the first time a project that could be called museographic.

In the case of France, we can highlight the various studies on the Universal Exhibition of 1889, commemorating the French Revolution, which caused the intensification of studies on universal exhibitions and on the organisation of exhibitions

¹⁶ Pierre-Guillaume-Frédéric Le Play (1806 - 1882) was a French mining engineer and professor of metallurgy, who later became an independent researcher. He was also an organiser of the Universal Exhibitions of Paris (1855 and 1867) and the Universal Exhibition of London (1862).

¹⁷ Mollier Jean-Yves, Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), *Les fastes du progres: le guide des expositions universelles 1851-1992*, Paris, Flammarion, 1992, p.24.

by large museums on the subject¹⁸. Different perspectives of universal exhibitions can be found in the publications gathered in the exhibition catalogues of the Museum of Decorative Arts and the Museum of Orsay (Paris)¹⁹. These publications stand out for a large amount of iconographic documentation. The production of Pascal Ory is an example that makes a comparative historical analysis of six universal exhibitions of Paris to understand their meanings and influences in French society²⁰.

The book *Les expositions universelles à Paris au XIXe siècle. Techniques. Publics. Patrimoines*²¹ is also an important source on this subject, making a broad study on the theme of universal exhibitions in France in its various aspects. The author's essays propose a periodization of the five universal exhibitions that took place during the second half of the 19th century in France, focusing on their specificities, bringing issues such as their contradictions and complexity and the lines of tension in the field of technologies. The volume is divided into five parts dealing with representations, innovations and techniques of knowledge, new products and innovative strategies, the exhibition audience, and heritage.

The author Werner Plum in his book *Exposições Mundiais no Século XIX: espetáculos da transformação sócio-cultural*²², perceives Universal Exhibitions as interdisciplinary social phenomena or complex sociocultural phenomena that interconnect issues such as industrial and technical information, congresses, plastic arts, international manifestations, colonialism, among others. The author believes that to understand these phenomena that involved the industrial exhibitions of the 19th century, it is necessary to take an interdisciplinary look within the theoretical-methodological parameters of social history.

Werner Plum also claims that the exhibitions brought about a cooperation between science, technique, and industry that led to an organisation of the modern industrial system that reflected the concerns of its organisers and the institutions

¹⁸ Barbuy, Heloisa, « Resenha de Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), Les fastes du progres: le guide des expositions universelles 1851-1992, Paris, Flammarion, 1992 », *Anais do Museu Paulista Nova Série*, n° 1, 1993, p. 297-304.

¹⁹ Mathieu, Caroline, *Les Expositions universelles à Paris : architectures réelles ou utopiques* [catalogue d'exposition], Paris-Milan, Cinq continents éditions, Musée d'Orsay, 2007.

²⁰ Ory, Pascal, *Les expositions universelles de Paris: Panorama raisonné, avec des aperçus nouveaux et des illustrations par les meilleurs auteurs* (Collection "Les Nostalgies"), Paris, Editions Ramsay, 1982.

²¹ Anne-Laure Carré, Marie-Sophie Corcy, Christiane Demeulenaere-Douyère et Liliane Pérez (dir.), *Les expositions universelles à Paris au XIXe siècle. Techniques. Publics. Patrimoines*, Paris, CNRS, 2012.

²² Plum, Werner, *Exposições Mundiais no Século XIX: espetáculos da transformação sócio-cultural*, Bonn, Friedrich Ebert Stiftung, 1979.

involved. It is important to mention the importance of the influence of the *Conservatoire des Arts e Métiers* (CNAM) of Paris in the conception and definition of the objectives and organisations of industrial institutions in the 19th century, which also had an influence on Brazilian institutions such as SAIN and the Brazilian National Museum²³.

It is possible to find different types of approaches and possibilities for thematic cuts in studies on industrial exhibitions of the late 19th century and the participation of Brazil in Universal Exhibitions of the 19th century.

The first studies carried out in Brazil on Universal Exhibitions date from the 1980s and are authored by Margarida de Souza Neves, who in the work *As Vitrines do Progresso*²⁴, analyses and gives an overview of the economic, social, and cultural transformations in Rio de Janeiro in the last decades of the 19th century. The author emphasises the issues of political change in the country that goes from an empire to a republic. In this context, Brazil sought a new economy linked to the progress of modernisation, breaking with the Portuguese colonial past that was seen as backward.

According to this author, the representation of Brazil in the National Exhibition of 1861 and its respective representation in the Universal Exhibition of London in 1862 was seen as insufficient and backward compared to other countries. Neves highlights the analysis of the ideology of progress and its use of symbols, one of these symbols being the Universal Exhibitions. In this work, the author brings basic information about the participation of Brazil and the organisation of the Exhibitions that until then were not widespread in Brazilian historiography, starting a series of works on this theme.

The author Foot Hardman in his work *O trem fantasma*²⁵ also analyses the phenomenon of exhibitions from a context of capitalist expansion and of "scientific imagination" that happened in the second half of the 19th century. The author highlights the didactic character of these exhibitions and their disputes for technologies and market. His work also explores the participation of Brazil in the exhibitions, and together with Neves, the two authors highlight the need for affirmation and recognition of the Brazilian empire by so-called civilized countries.

²³ Lopes, Maria Margaret « Cooperação científica na américalatina no final do Século XIX: os intercâmbios dos museus de ciências naturais », *Interciencia*, t. 25, n° 5, 2000, p. 228-233. Accessed on 11 April 2021. URL: <https://www.redalyc.org/articulo.oa?id=33904702>

²⁴ Neves, Margarida de Souza, *As Vitrines do Progresso*, Rio de Janeiro, Relatório de pesquisa, PUC-RJ, Departamento de História, FINEP, 1986.

²⁵ Hardmann, Francisco Foot, *O trem fantasma*, São Paulo, Companhia das Letras, 1988.

The author Heloisa Barbuy began her studies on Universal exhibitions with the publication of the article *O Brasil vai a Paris em 1889: um lugar na Exposição Universal*²⁶ in the Annals of the Paulista Museum, having later published a more complete research in the form of a book on Brazil's participation in the Universal Exhibition of Paris in 1889²⁷. In this book, the author analyses more specifically the museography and architecture of the Brazilian pavilion in the 1889 exhibition. Barbuy emphasises that she aimed to recognize the visual dimension in the construction of the story without using it only as an illustration. In this sense, she analyses the field of the visual history, understanding 19th century exhibitions as visual representations.

Still from the perspective of Brazilian studies, we highlight the work of Alda Heizer, *Observar o Céu e Medir a Terra. Instrumentos científicos e a participação do Império do Brasil na Exposição de Paris de 1889*²⁸, dedicated to the Universal Exhibitions of the second half of the 19th century, more specifically to the scientific instruments and Brazilian machines that were exhibited at these events. In this work, the author analysed the Paris Exhibition in 1889 under different aspects, such as the museography of this event and the participation of Latin American countries. The author reflects on the Imperial Museum and its permanent exhibition and then seeks to understand museum projects and the constitution of their collections and exhibitions.

The author Sandra Jatahy Pesavento in her study *Imagens da nação, do progresso e da tecnologia: a Exposição Universal de Filadélfia de 1876*²⁹, like Werner Plum, also perceives exhibitions in their interdisciplinary nature. Her analysis considers 19th century exhibitions as part of enlightenment thinking and generators of positivist discourses of the time. Pesavento was concerned with understanding the contradictions present in the organisation of these exhibitions and the meaning of these events, analyzing what she calls the “mystique of progress” present in each of the exhibitions.

The author Maria Margareth Lopes has published several studies on the subject that also address the origin of Brazilian museums. She draws attention to the importance

²⁶ Barbuy, Heloisa, « O Brasil vai a Paris em 1889: um lugar na Exposição Universal », *Anais do Museu Paulista*, t. 4, nº 1, 1996, p. 211-261

²⁷ Barbuy, Heloisa, *A Exposição Universal de Paris: visão e representação na sociedade industrial*, São Paulo, Série Teses/ Edições Loyola, 1999.

²⁸ Heizer, Alda Lúcia, « Observar o Céu e Medir a Terra. Instrumentos científicos e a participação do Império do Brasil na Exposição de Paris de 1889 », Doctoral thesis, Universidade Estadual de Campinas, Instituto de Geociências, 2005.

²⁹ Pesavento, Sandra Jatahy, « Imagens da nação, do progresso e da tecnologia: a Exposição Universal de Filadélfia de 1876 », *Anais do Museu Paulista: História e Cultura Material*, São Paulo, t. 2, 1994, p.67-151.

of the provinces of the Empire in 19th century exhibitions and highlights the exchanges between museums and institutions, such as the study *Latin American Museums: comparative studies and links*³⁰. In the author's book, *O Brasil descobre a pesquisa científica. Os museus e as ciências naturais no século XIX*³¹ about Brazilian museums, Margaret Lopes mentions the Industrial Exhibition that took place in September 1861, made up of materials from the Scientific Commission on exploration brought by Ferreira Lagos. According to the author, the success of this industrial exhibition was important and influenced the holding of the first Brazilian National Exhibition in 1861.

Another important article by this author together with the author Ana Cardoso de Matos is *O que visitar em Paris durante a Exposição Universal de 1878: um guia turístico para geólogos*³², which works with the tradition of tour guides, commenting on the guides created for Universal Exhibitions. The article shows the importance of these documents as historical sources through a specific example of the First International Congress of Geology held during the Universal Exposition in Paris in 1878 and which became a model for other events in the area.

Turazzi analysed the Universal Exhibitions by studying the photographic sources of these events in the book *Poses e Trejeitos: a fotografia e as exposições na era do espetáculo*³³. In her work she also analyses the pedagogical project of the exhibitions and the role of the Emperor Pedro II in the organisation of the exhibitions. The London Exhibition in 1851 contributed to the popularization and mass consumption of photography. Photography has contributed to the industry and commercialization of photographic images from these events. According to the author, Brazil also brings several contributions on photography and its relations with National and International Exhibitions, such as the activity of some photographers who sent their work to these exhibitions.

Still from the perspective of research in the field of photographic memory in the Universal exhibitions of the 19th century, we highlight the work of Maria Helena Souto and Ana Cardoso de Matos, *The 19th century World Exhibitions and their*

³⁰ Lopes, Maria Margaret « Latin American Museums: comparative studies and links », *Scientific Instruments and Museums*, t. XVI, n°59, 2002, p. 221-236.

³¹ Lopes, Maria Margaret, *O Brasil descobre a pesquisa científica. Os museus e as ciências naturais no século XIX*, São Paulo, Hucitec, 1997.

³² Lopes Maria Margaret, Matos Ana Cardoso de, « O que visitar em Paris durante a Exposição Universal de 1878: um guia turístico para geólogos », *Revista Iberoamericana de Turismo – RITUR*, t. 5, Número Especial, 2015, p. 48-62.

³³ Turazzi, Maria Inez, *Poses e Trejeitos: a fotografia e as exposições na era do espetáculo*, Rio de Janeiro, Rocco/ Funarte - Ministério da Cultura, 1995.

*Photographic Memories: Between Historicism, Exoticism and Innovation in Architecture*³⁴. The authors highlight the importance of photography for the dissemination and popularization of technical advances through an analysis of the Portuguese exhibitions in the Universal Exhibitions. According to this work, the Portuguese pavilions gave an image of richness and exoticism of the former Portuguese Empire that took place through this evocative imagery. They also affirm that the advances in photography allowed new presentations of the images of countries, introducing new landscapes and artistic cultures.

In the bibliographical review on the National Preparatory Exhibitions, we can find the author Marcos Olender whose master's thesis, *No Livro do Futuro. Das Primeiras Tentativas de Exposições Industriais no Império do Brasil no Século XX e a sua Primeira Participação em uma Exposição Universal e Internacional: Londres, 1862*³⁵, analyses the first National Exhibitions that took place during the Second Empire (1840-1889) and Brazil's participation in the Universal Exhibition of 1862 in London.

Another author of reference is the historian Almir Pita Freitas Filho who published articles on the National Exhibitions in Rio de Janeiro. In his article *Tecnologia e Escravidão no Brasil: Aspectos da Modernização Agrícola nas Exposições Nacionais da Segunda Metade do Século XIX (1861-1881)*³⁶ emphasises the importance of Universal Exhibitions as an important space for advancements in science and technology and product advertising for this period. The author Moreira de Azevedo in his book *O Rio de Janeiro. Sua história, monumentos, homens notáveis, usos e curiosidades*, written at the end of the 19th century, dedicates a chapter on national exhibitions³⁷.

³⁴ Souto Maria Helena, Matos Ana Cardoso de, « The 19th century World Exhibitions and their Photographic Memories. Between Historicism, Exoticism, and Innovation in Architecture », *Quaderns d'Història de l'Enginyeria*, t. 12, 2012, p.57-80.

³⁵ Olender, Marcos, « No Livro do Futuro. Das Primeiras Tentativas de Exposições Industriais no Império do Brasil no Século XX e a sua Primeira Participação em uma Exposição Universal e Internacional: Londres, 1862 », Master's thesis, Universidade Federal do Rio de Janeiro, 1992.

³⁶ Freitas Filho, Almir Pita, « Tecnologia e Escravidão no Brasil: Aspectos da Modernização Agrícola nas Exposições Nacionais da Segunda Metade do Século XIX (1861-1881) », *Revista Brasileira de História*, São Paulo, t. 11, n° 22, 1991, p. 71-92.

³⁷ Azevedo, Moreira de, *O Rio de Janeiro. Sua história, monumentos, homens notáveis, usos e curiosidades*, Rio de Janeiro, B.L. Garnier, 1877.

Santos Mesquita's master's thesis *O Brasil nas exposições universais (1862 a 1911): mineração, negócio e publicações*³⁸ focuses on the Brazilian mining exhibitions containing a rich source of information on the subject. In his study, he mentions industrial exhibitions that took place in Brazilian territory before national and international exhibitions. According to the author, Iglésias in the work *Política Econômica do Governo Provincial Mineiro (1835-1889)*³⁹, “industrial fairs or exhibitions” were held in various locations in Brazil with the aim of attracting attention and establishing contacts.

It is also important to analyse the birth of Industrial Museums in Brazil and in the world. According to Françoise Hamon, industrial museums had their first appearance in France and on the European continent in the 1840s with the advent of these product and industrial exhibitions⁴⁰. The first institutions concerned with preserving ancient machines and objects of industry and technology, as well as their technical processes and crafts, had as its origin the *Conservatoire National des Artes et Métiers* in Paris with its creation in 1794, and later became the *Musée des Arts et Métiers* from Paris.

The discussion regarding part of the historiography on Universal Exhibitions shows the existence of numerous works that approach these events from a variety of different perspectives. However, a more in-depth study of industrial and national exhibitions in Brazil and of Brazilian participation in the Universal Exhibitions was a subject that was rarely addressed in the literature analysed. Thus, we aim to make a more in-depth analysis of the Brazilian participation in these events, observing especially how industrial exhibitions and collections were organised and exhibited.

5. Methodology

This research develops an Exploratory Methodology, where the object of study are Brazilian industrial exhibitions and industrial collections in National and International Exhibitions of the 19th century. The meaning of the term exploratory

³⁸ Santos, Paulo Coelho Mesquita, « O Brasil nas exposições universais (1862 a 1911): mineração, negócio e publicações », Master's thesis, Universidade Estadual de Campinas, Instituto de Geociências, 2009, 276 p.

³⁹ Iglésias, Francisco, *Política Econômica do Governo Provincial Mineiro (1835-1889)*, Rio de Janeiro, Ministério da Cultura/Instituto Nacional do Livro, 1958.

⁴⁰ Hamon, Françoise, « Le Musée Industriel entre l'Exposition des Produits de l'industrie et le Musée Technologique », In Georgel Chantal, *La Jeunesse des Musées: les musées de France au XIX siècle*, Paris, Musée d'Orsay - Réunion des Musées Nationaux, 1994, p. 91- 99.

methodology was discussed in the final board of defence of the work, where we use this term in the sense that the objective of the work is only to explore the research questions and not to offer final and conclusive solutions to existing problems. In the sense that it is an investigation that the problem has not yet been clearly defined or explored in that field of study.

For its elaboration, besides extensive bibliographic research, it was carried out in newspapers, dissertations, historical researches, reports, memoirs, private collections, public and private archives, oral testimonies, and analyses and comparisons of documentary and iconographic sources, among others.

Iconographic sources, with an emphasis on photography, played a very important role in recording these events and are important sources for a comparative analysis of the objects and the museography used. Within the wide range of documentation and material left by Universal Exhibitions, we can highlight the analysis of the traditional catalogues, reports, and advertising books edited by these events.

The books that were written in the period of the Universal Exhibitions are also important original sources of these events. Some examples of these sources about the French industrial exhibitions in the late 18th and early 19th century are from the authors Vervynck and Dubois in the book *Histoire des Expositions Industrielles*⁴¹, which deals with the history of industrial exhibitions in France since 1798. Another source was Colmont in his book *Histoire des expositions des produits de l'industrie Française*, written in the 19th century, where he details the history and progress of French industry in the 19th century, covering everything from fairs of various products in the Middle Ages, to the founding of the *société d'encouragement or l'industrie nationale* and the French industrial exhibitions from 1806 to 1834⁴².

Another source used in the research are the promotional leaflets written for the Exhibitions by the government or by Brazilian commissioners. We can highlight mainly the reports of the Brazilian commissioners, which contain detailed information on the exhibitions and selected objects. Another important source used were period newspapers available in the online database of the Brazilian National Library's digital database.

⁴¹ Vervynck d., Dubois E., *Histoire des Expositions Industrielles*, Paris, L. Grollier Editeur, 1867.

⁴² Colmont, M. Achille de, *Histoire des expositions des produits de l'industrie française*, Paris, 1855, 566 p. Accessed on 12 April 2021. URL : <http://catalogue.bnf.fr/ark:/12148/cb30259454z>

Our analysis is focused on industrial exhibitions from the point of view of their history, technology and organisation, their way of cataloguing and presenting the collections. Museography is defined as the practical or applied part of museology, but in our research we focus on the field of the expography of the collections and industrial exhibitions selected. By that, we consider that the history of science should be thought of from the study of the configuration and the way of thinking of each epoch. With this, we analyse museography, or the criteria of organisation, selection, and exposure of these objects from the context configuration and movement of knowledge conveyed in the 19th century.

According to the study of Samuel Alberti *Objects and the Museum*⁴³, we can trace the life of an object before its musealization, through various records, such as catalogues, reports, receipts, publications, newspapers, among others. These records prove that museum objects move in complex ways and along different paths, between acquisitions, individuals, and museums. He calls this process the "network of relationships" of objects, which acquire meanings and identities through their past. Following this methodology, we also aim to analyse this "network of relationships" in the collections of 19th century Brazilian industrial exhibitions and understand their movement and trajectories.

6. Structure of work

We start the work with an introduction that contains the field of interest, the problematic, the objectives, the state of the art, the methodology and structure of the work. The body of this work is divided into four chapters that are subdivided into specific themes. Finally, we have the conclusion of the work and the bibliography.

The first chapter begins with an introduction to the origins of industrial exhibitions in Brazil and Europe in the 18th and 19th centuries. In this chapter, we will develop around the organisation of industrial exhibitions in France, Spain, and Portugal. We consider the traditions that contributed to the creation of these exhibitions, exploring the influence of the cabinets of curiosities, the traditions of fairs and markets, and the emergence of economic societies. The second part of this chapter develops the emergence of industrial exhibitions in Brazil, focusing on the economic and political

⁴³ Alberti, Samuel, « Objects and the Museum », *Isis*, n° 96, 2005, p. 559–571.

context of the country in the early 19th century and the economic and industrial societies created during that period.

The second chapter is a more in-depth study and an inventory of the industrial collections and exhibitions present in the five Brazilian national exhibitions. The chapter is subdivided into five national exhibitions that took place between 1862 and 1889, all in Rio de Janeiro. We aim to explore the motivation and organisation of these exhibitions, exploring available documentary and iconographic sources.

The third chapter follows a more general analysis of Brazil's participation in the 19th century Universal exhibitions and the trajectory of industrial collections. The chapter was subdivided into three universal exhibitions that followed their preparatory Brazilian National Exhibitions, understanding that it would make more sense to analyse the exhibitions and collections with more information and available iconographic documentation.

The fourth chapter is an analysis of the museography of industrial exhibitions in Brazil, observing the possible existence of a specific museography of the analysed exhibitions from the 19th century. We have divided this chapter into three parts, the first is an analysis of the museography of 19th century industrial exhibitions, the second is a study of the museums of the 19th century in Brazil and internationally and their relationship with the Universal Exhibitions, and the third is an analysis from the International exhibitions to Contemporary Industrial Exhibitions and Museums, and what is new in their presentation of industrial objects. Finally, we conclude the work with the results obtained where we present an analysis of the museography of industrial collections and exhibitions, and in the investigation of object and collections.

After discussion with the defense board we saw that it is important to emphasize that the term museography in this work aggregates the entire process of the exhibition, not just the final process. It was also discussed a problem of opening a little too much of the chronology in the work in the last chapter, chapter four, where we skip an analysis of the nineteenth century to the twenty-first century, with examples of museums today. However, we highlight the importance of the comparison of industrial exhibitions in the nineteenth century and its new possibilities today, as well as the relationship of the transfer of objects and collections that were in the Universal Exhibitions of the nineteenth century and that are now in these institutions.

CHAPTER 1

Brazilian Industrial Exhibitions in the International Context

Among the phenomena that characterised the development of industrial society in the 19th and early 20th centuries, we can find technical museums and universal exhibitions⁴⁴. To start a more in-depth study of these phenomena, it is important to know their bases and the first industrial exhibitions that began to appear in the 17th and 18th centuries in Europe. The first chapter of this research will analyse the beginning of industrial exhibitions in Europe and how they arrived in Brazil, with a focus on France, Spain, and Portugal, which are countries that had great relevance as the beginning of these events.

At the beginning of the 19th century, we can find several national, regional, and local celebrations, organised by institutional initiatives of different characters. One of the first examples found in literature is the exhibition held in Paris in 1683 with an exhibition of one-man products that resulted in an illustrated catalogue⁴⁵.

According to the author Horacio Capel, four traditions contributed to the beginning of these agricultural and industrial exhibitions in Europe: the economic activities of societies that stimulated innovation; the cabinets of curiosities; technical-scientific espionage; and the tradition of fairs and markets⁴⁶. According to the author, the will to preserve and reward the development and innovations of agricultural production manufacturers has already existed since the 18th century⁴⁷. Medieval fairs sold their products, different from these industrial exhibitions, which aimed to present advances and stimulate innovation.

One of the antecedents of the exhibitions we studied are the cabinets of curiosities, that existed since the 16th century from the tradition of bringing together artistic and natural objects in exhibitions. The presentation of rare and curious objects in the first

⁴⁴ Matos Ana Cardoso de, Gouzévitch Irina, Lourenço Marta C. (dir.), *Expositions Universelles, Musées Techniques et Société Industrielle*, Lisboa, Colibri, 2011, p.7.

⁴⁵ For more information about the 1683 exhibition in Paris see Walter, G. Endrei, « The First Technical Exhibition », *Technology and Culture*, t. 9, n° 2, 1968, p. 181-83.

⁴⁶ Capel Sáez, Horacio, « Las Exosiciones Nacionales y locales em la España del siglo XIX: médio local, redes sociales y difusión de innovaciones », In Silva Suárez, Manuel (ed.), *Técnica e Engenharia em Espanha IV: El Ochocientos, Pensamiento, profesiones y sociedade*, Aragón, Real Academia de Ingeniería Institución “Fernando el Catílico” Prensas Universitarias de Zaragoza, 2009. p. 152.

⁴⁷ *Ibidem*. p. 152.

half of the 19th century became something of great attraction for the public, with traveling exhibitions being organised mainly in the United States and Canada⁴⁸. The creation of museums ended these traveling exhibitions, but trade fairs of various products began to be organised in parallel, which ended up in industrial exhibitions⁴⁹.

Another action that stimulated the beginning of these events was the espionage developed by different governments during the 18th and 19th centuries. In Europe, several countries developed industrial and scientific espionage actions by sending specialists abroad to describe engineering and machinery works, bringing their application to their own national industry. In addition to government action with espionage, we can highlight the important role of societies and friends of industry, who encouraged with rewards, innovations in agriculture and technology and developed these first industrial exhibitions in the mid-eighteenth century.

1.1 The origin of the first industrial exhibitions: the case of France, Portugal, and Spain

Industrial exhibitions became national through the initiatives of societies that promoted the industry, such as the Society of the Encouragement of the Arts, Manufactures and Commerce (better known as the Royal Society of Arts)⁵⁰. These early industrial exhibition initiatives sought economic, scientific, and artistic progress through the dissemination of new techniques and the awarding of prizes to promising inventors and artists. This movement influenced countries such as France, Austria, Portugal, and Spain to develop their own national industrial exhibitions in the mid-18th century⁵¹.

Great Britain was the basis for the first Exhibition of a universal character in 1851, organised by members of the Royal Society of Arts. This same society promoted what was probably the first exhibition of manufactured products in England, between 1756 and 1757⁵². This industrial exhibition experience was followed by several other events

⁴⁸ *Ibidem.* p. 154.

⁴⁹ *Ibidem.*

⁵⁰ Matos, Ana Cardoso de, « Introduction », In Matos Ana Cardoso de, Gouzevitch Irina, Lourenço Marta C. (eds.), *Expositions universelles, musées techniques et société industrielle/World Exhibitions, Technical Museums and Industrial Society*, Lisboa, Colibri, 2010, p. 11.

⁵¹ *Ibidem.*

⁵² Henry, Trueman Wood, *A History of the Royal Society of Arts*, Cambridge, Cambridge University Press, 1913.

of a national character, also held in France and the United States, culminating in the first Universal Exhibition experiences.

Until the late 1840s, Britain organised some unsuccessful industrial exhibitions particularly due to an industrial secrecy policy imposed by the British government in the first decades of the 19th century. However, the Universal Exhibition of 1851 in London changed this panorama of secrecy and industrial competition, and the national exhibitions became international. The London Exhibition of 1851 was a starting point that propelled the history of industrial exhibitions around the world. We will start a more in-depth study of the first industrial exhibitions in France in the late 18th and 19th centuries.

Industrial Exhibitions in France

France is the cradle of the first institutions concerned with preserving old machines and objects of industry and technology, as well as their technical processes and crafts, with the example of the *Conservatoire National des Artes et Métiers* in Paris created in 1794, and which later became the *Musée des Arts et Métiers*. The professional teaching of science and industry was becoming something important and being organised on the model of the Paris *Conservatoire d'arts et Métiers*, which spread to several countries that sought to stabilize these same types of institutions in the beginning of the 19th century⁵³.

In the French context, the *Société d'encouragement pour l'industrie Nationale*, or Society for Incentives to National Industry, was a society that played an important role in promoting French industry and industrial exhibitions. The association was founded in 1801 with the aim of promoting France's involvement in the Industrial Revolution, promoting the creation of services of national interest⁵⁴. This is one of the many societies that emerged during the Enlightenment, influenced by the Encyclopaedia or *L'Encyclopédie raisonné des sciences, des arts et des métiers* by

⁵³ Matos, Ana Cardoso de, « Les musées techniques portugais et les expositions universelles au XIXe siècle » In Matos Ana Cardoso de, Gouzevitch Irina, Lourenço Marta C., *Expositions universelles, musées techniques et société industrielle/World Exhibitions, Technical Museums and Industrial Society*, Lisboa, Colibri, 2010, p. 72.

⁵⁴ René, Tresse, « Le Conservatoire des Arts et Métiers et la Société d'Encouragement pour l'Industrie nationale au début du XIXe siècle. », *Revue d'histoire des sciences et de leurs applications*, t. 5, no 3, 1952, p. 246-264.

Denis Diderot, which was a compilation of various industries' works with machines and utensils that were used⁵⁵.

According to the authors Vervynck and Dubois in their book on the history of industrial exhibitions in France, the 1798 exhibition started a regular series of exhibitions of this kind⁵⁶. The idea of creating this first industrial exhibition came from the Minister of the Interior, François de Neufchateau, to commemorate the anniversary of the founding of the republic. The Directory of the French Republic's governing committee approved in 1798 a circular that notified government officials that an exhibition of the products of French industry would be held with the celebration of the anniversary of the first *Vendémiaire VI*⁵⁷. The exhibition took place at the Champ de Mars and lasted for three days, with the presence of 110 exclusively French exhibitors that received 23 awards at the event⁵⁸.

The architect, Jean-François, who later also built the *Arc de Triomphe*, designed a large circle of porticoes around a Temple of Industry to display the objects of industry for this exhibition. The products consisted of a mixture of inventions by individuals and products of the French industry. The 1798 exhibition played an important role because it started a series of exhibitions called *Exposition des produits de l'industrie française* (Exhibition of Products of the French Industry) which took place from 1798 to 1849 in Paris. These exhibitions were public events that aimed to offer an overview of the productions of the various branches of industry and stimulate French industry.

There was a very clear rivalry between France and England that influenced the beginning of industrial exhibitions in France. This rivalry was motivated by the sudden growth of cheap English products, products of the First Industrial Revolution, which jeopardize the French industry⁵⁹. In this first exhibition of 1798 according to the author

⁵⁵ *Encyclopédie*, or *Dictionnaire raisonné des Sciences, des arts et des Métiers* was one of the first encyclopedias, having been published in France in the eighteenth century. The last volumes were published in 1772.

⁵⁶ Vervynck d., Dubois E., *Histoire des Expositions Industrielles*, Paris, L. Grollier Editeur, 1867, p. 11-12. Original Citation: « La première eut lieu cette même année, au Champ- de Mars le jour de l'anniversaire de la fête de la République. Tous les industriels furent appelés à y prendre part par une circulaire en date du 1 1 fructidor an VI (28 août 1798), adressée par François de Neufchateau aux administrations centrales des départements (...) ».

⁵⁷ Vendémiaire was the first month in the French Republican calendar. The celebration of the anniversary of the first Vendémiaire was held on September 22, 1798.

⁵⁸ « Expositions publiques des produits de l'industrie française avant 1850 », Accessed on 10 April 2021. URL : sur archivesnationales.culture.gouv.fr.

⁵⁹ Hafter, Daryl M, « The Business of Invention in the Paris Industrial Exposition of 1806 », *The Business History Review*, t. 58, n° 3, 1984, p. 317.

Arthur Chandler, the jury noted in its official catalogue that products comparable to those of British industry were especially welcome:

“When the jury made its selection on the final day of the exposition, it chose products that seemed to offer the best chance of competing successfully with the English. [...] The products displayed by them ranged from steel manufacture to bonnets, typography to spun cotton, pencils to pottery. After the distribution of prizes, the winning exhibits were solemnly placed inside the now-complete Temple of Industry. In its final report, the jury declared that "we may announce to our government that the moment has come when France shall escape from servitude to the industry of her neighbours.”⁶⁰

Neufchâteau after the 1798 exhibition proposed that industrial exhibitions take place annually in conjunction with another existing agricultural festival. However, Neufchâteau was deposed from his post by order of the Directory, and then Napoleon Bonaparte's forces were put into action and the French Republic became a consulate. However, after a gap of three years the new French regime decided to continue with the idea of holding exhibitions to honour and promote French industry⁶¹. Thus, from 1801 to 1849 Paris received 10 national exhibitions, with larger numbers of exhibitors in each edition.

According to the author Colmont, these industrial exhibitions in Paris had their origin in the fairs held in several European cities in the Middle Ages, or as they were known as “the village trade fairs”⁶². These events were commercial enterprises and public entertainment, common throughout France and full of celebration and revelry⁶³.

It was possible to establish a table with the *Exposition des produits de l'industrie française* from 1798 to 1849, from the data published by the Minister of Commerce, in

⁶⁰ Chandler, Arthur, « L'Exposition publique des produits de l'industrie française Paris, 1798 », *World's Fair*, t. X, n°1, 1990. Accessed on 10 April 2021. URL: <http://www.arthurchandler.com/1798-exposition>.

⁶¹ *Ibidem*.

⁶² Colmont, M. Achille de, *Histoire des expositions des produits de l'industrie française*, Paris, 1855, 566 p. Accessed on 10 April 2021. URL : <http://catalogue.bnf.fr/ark:/12148/cb30259454z>

⁶³ Costaz, Claude Anthelme, *Histoire de l'administration en France de l'agriculture, des arts utiles, du commerce, des manufactures, des subsistances, des mines et des usines*, Paris, Huzard, 1832.

his report of January 14, 1849, on the title of *Relevé general des expositions de l'industrie*⁶⁴ (Table n°1):

Table 1 - Relevé general des expositions de l'industrie en France 1798-1849.

Year	Place of Exhibition	Number of Exhibitors	Number of Prizes
1798	Champ de Mars	110	23
1801	Louvre	229	80
1802	Louvre	540	254
1806	Esplanade des Invalides	1.422	610
1819	Louvre	1.662	869
1823	Louvre	1.642	1.091
1827	Louvre	1.695	1.254
1834	Place de la Concorde	2.447	1.785
1839	Champs-Élysées	3.281	2.305
1844	Champs-Élysées	3.960	3.253
1849	Champs-Élysées	4.542	-

Source: Table n° 1 – Relevé general des expositions de l'industrie en France 1798-1849 Elaboration personnelle à partir de : L Colmont, M. Achille de, *Histoire des expositions des produits de l'industrie française*, Paris, 1855, p. 317. Accessed on 9 April 2021. URL : <http://catalogue.bnf.fr/ark:/12148/cb30259454z>

Author Daryl Hafter studies the 1806 Industrial Exhibition in Paris and extols its importance as a precursor to subsequent industrial exhibitions. This exhibition had a much larger number of exhibitors than its later ones (1798, 1801, 1802). According to the author, the exhibitions of 1801 and 1802 emphasised the military industries and were granted in a rush, failing to project an image of “industrial excellence and national prosperity”⁶⁵. The 1806 exhibition, by contrast, was carefully planned to promote the new imperial regime. The exhibition located on the *Esplanade des Invalides* was designed to combine French industry with luxury production, displaying its most advanced industrial products in an elegant and sophisticated space⁶⁶.

The author also highlights the importance of the report of the jury of the 1806 exhibition for being a document of record of the transitional era of French industrialization, but little explored by contemporary researchers:

⁶⁴ Colmont, 1855, p. 317.

⁶⁵ Hafter, Daryl M, « The Business of Invention in the Paris Industrial Exposition of 1806 », *The Business History Review*, t. 58, n° 3, 1984, p. 319.

⁶⁶ *Ibidem*, p. 320.

“While expositions are ephemeral, the Jury Report remains an important survey of a transitional era in French industrialization that is scantily documented. Now difficult to obtain, the Jury Report has not yet received the study it deserves. [...] Volume 1 lists the items exhibited, their awards, and the judges' comments. The second volume describes manufacturing establishments by region and department, providing a unique comprehensive picture of early French industrialization. For the historian, the *Jury Report* is valuable both because it surveys French industry and because it details the attitudes of the officials who set the exposition's guidelines”⁶⁷

The exhibitions sought to expand the information and impact of these events in an easier way. This dissemination was done through these exhibition catalogues, periodicals, and publications. These publications are today important sources of information about technological and industrial advances at the time. Many of these sources contained information about existing companies, with data such as the firm's history, date of foundation, number of workers, raw materials, among others, being rich sources for the historiography of companies and industry.

According to Daryl Hafer, 18th century exhibitions often valued ingenious and intelligent inventions, but most of them were not essentially economically useful. The 1806 exhibition, unlike the previous ones, only offered prizes for machines that had previously proven viable commercial potential and criticized what they considered as “primitive technology”⁶⁸. The inventions on display were divided into three categories, those that introduced a new process (future mechanical processes), those that created a new process, and those that provided a labour-intensive job. These inventions were precursors of the future processes of modern mechanical industry and production methods.

According to Carpenter, the success of French exhibitions influenced the rest of Europe, which in 1851 approximately 150 exhibitions had already taken place in this genre:

⁶⁷ *Ibidem*.

⁶⁸ *Ibidem*. p.325.

“Since nearly every French exposition was more successful than the prior ones, other countries began to emulate the French example. Even the word was borrowed. The Swedes used the word "exposition," and one can even find it in German works. By the 1830s, the practice had spread throughout almost all of Europe. Up to 1851, perhaps as many as 150 national, state, or local exhibitions had been held.”⁶⁹

The industrial exhibitions in Paris had different characteristics such as the number of opening days and the number of visitors. According to data from Carpenter, the 1798 exhibition was open for 5 days, while the 1819 exhibition was open for a month and the 1827 exhibition lasted 62 days⁷⁰. It is possible to notice from the data that the number of visitors and exhibitors increased in each edition, where we can assume the growth of interest by the public. The exhibition was not only important for the government, but also for the companies that exhibited their products. In addition to receiving prizes of monetary value, they also gained recognition and prestige.

The government took a great interest in these exhibitions and sponsored these events. The aid and sponsorship offered by the government varied by country and depended on their political and economic contexts. The government of France, in addition to paying transport expenses for exhibitors, was responsible for providing the prizes and venues for the exhibition⁷¹. According to Carpenter, governments subsidized industrial exhibitions with the hope of stimulating industrialisation and increasing exports, whilst simultaneously enabling national prestige⁷².

The *Expositions Publique des Produits de l'industrie Française* were born from an intense feeling of nationalism and industrial and economic competition with England. These exhibitions were the precursors to the beginning of other industrial exhibitions in Europe, and later to the Universal Exhibitions. We will then study the beginnings of these phenomena in Spain and Portugal and the influence of these first French industrial exhibitions.

⁶⁹ Carpenter, Kenneth (1972), « European Industrial Exhibition before 1851 and their Publications », *Technology and Culture*, t. 13, n° 3, p. 466.

⁷⁰ *Ibidem.* p. 467.

⁷¹ *Ibidem.* p. 468.

⁷² *Ibidem.*

Industrial Exhibitions in Spain

In Spain, as in France, Portugal and other countries in Europe, economic societies encouraged innovations in agriculture and industry with rewards. Spain adopted the same attitude of encouragement and reward to encourage this production. One such example is the *Sociedade econômica de amigos do país*, which was created under the influence of the Dublin Society for Improving Husbandry, Manufactures and Other Useful Arts of 1731. The societies that appeared in this period were concerned with organizing contests on ways of improving agriculture and manufactures, founding botanical gardens and fields of experimentation, and creating schools for teaching trades⁷³.

We can highlight the exhibitions of Castilian products and manufacturers from 1759 and 1802, which were caused respectively by the visits of King Carlos III and Carlos IV to Barcelona. These exhibitions preceded those to be held in Spain in the future from 1820 onwards.⁷⁴ The public exhibitions of agricultural and industrial production from the 1820s were promoted by three Spanish institutions influenced by the Enlightenment: *la Real Sociedad Económica de Amigos del País de Valencia*, the *Junta de Comercio de Barcelona* and the *Real Conservatorio de Artes* in Madrid. These exhibitions were due to the economic development after the French invasion, and in the valorisation and defence of the national industry⁷⁵.

The *Sociedad Económica de Amigos del País de Valencia* organised in 1820 what was considered the first exhibition of industrial products in Spain, awarding prizes for agriculture and industry⁷⁶. The first Castilian exhibition was organised by the *Junta de Comercio* in 1822 to show the progress of industrial activity abroad and boost the consumption of national artifacts. This same show was repeated in Barcelona in 1825

⁷³ Capel Sáez, Horacio, « Las Exosiciones Nacionales y locales em la España del siglo XIX: médio local, redes sociales y difusión de innovaciones », In Silva Suárez, Manuel (ed.), *Técnica e Ingeniería em España IV: El Ochocientos, Pensamiento, profesiones y sociedade*, Aragón, Real Academia de Ingeniería Institución “Fernando el Católico” Prensas Universitarias de Zaragoza, 2009. p. 153.

⁷⁴ *Ibidem.* p. 153.

⁷⁵ *Ibidem.* p. 156.

⁷⁶ A data da primeira exposição industrial na Espanha de 1822 aparece em Aguiar Civeira Inmaculada, *Demetrio Ribes, arquitecto (1875-1921)*, Valencia, Generalitat Valenciana, Conselleria d’Infraestructures i transports, 2004.

and 1826, and again in 1827 and 1828. In 1829, another similar exhibition would also be organised in Barcelona by Maria Cristina's promised visit to Fernando VII⁷⁷.

In Madrid, the exhibitions were the initiative of the *Real Conservatorio de Artes*, an institution created in 1809 by the government using the *Paris Conservatoire des Arts et Métiers* as a model. The initiative of the *Real Conservatorio de Artes* aimed to promote industrial progress and the teaching and practices of crafts with government support⁷⁸. In 1827, a public exhibition of industrial products from Spain took place in Madrid by royal orders of Fernando VII.

This exhibition took place for two months in 1827 at the premises of the *Real Conservatorio de Artes* de Madrid⁷⁹. The exhibition was organised and divided into twelve sections that featured the most significant production in Spain, allowing for a general idea of the situation of the country's industry and economy. The success of this exhibition encouraged the organisation of another exhibition of the same genre in 1828, which had the same organisational model as its previous one, with minor changes.⁸⁰

The third and fourth national public exhibition *Exposição pública nacional dos produtos da indústria da Espanha* took place respectively in 1831 and 1834. The Carlist war prevented further exhibitions of this kind from happening for a while, and another national exhibition could only be organised in 1841 at the Royal Conservatory of Arts of Madrid⁸¹. Also in 1844, a new industrial exhibition was held in Barcelona and was organised by the *Junta de Comercio*. This exhibition was arranged in an improvised way after several political changes and with few artifacts on display. A year later, in 1845, another edition of the Public Exhibition of Industrial Products was held in Madrid.

According to the author Horacio Capel, we must consider that the 1840s in Spain reflected several economic renovations and industrial activities, such as the construction of roads and the implantation of industrialists in several cities. These industrial innovations brought initiatives to improve the teaching of techniques in higher schools, also creating institutions such as the Industrial Institute of Catalonia.

⁷⁷ Capel Sáez, Horacio, « Las Exosiciones Nacionales y locales em la España del siglo XIX: médio local, redes sociales y difusión de innovaciones », In Silva Suárez, Manuel (ed.), *Técnica e Engenharia em Espanha IV: El Ochocientos, Pensamiento, profesiones y sociedade*, Aragón, Real Academia de Ingeniería Institución “Fernando el Católico” Prensas Universitarias de Zaragoza, 2009. p. 157.

⁷⁸ *Ibidem*.

⁷⁹ *Ibidem*, 158.

⁸⁰ *Ibidem*.

⁸¹ *Ibidem*, p. 164.

We can conclude that the industrial exhibitions in Spain, despite having evident development results, do not seem to have reflected great advances, especially when compared to the experiments in other European countries, such as France. The Spanish exhibition numbers were much lower compared to the French exhibitor numbers (Table nº 2):

Table 2 - Number of Exhibitors at Industrial Exhibitions in Spain in the early 19th century.

Year	Number of Exhibitors
1827	297
1828	349
1821	228
1841	217
1845	325

Source: Elaborated by the author with information from: Miguel I serra, « Espanya i les exposicions universals del segle XIX », In Enrich Roser, Lusa Gillermo, Mañosa Montse, Moreno Xavier, Roca Antoni (dir.), Tècnica i societat em el món contemporani, Sabadell, Museu d’Història de Sabadell, 1994 p. 163-178.

Spain suffered some political instability with the establishment of the liberal regime (1820) which affected the development of industrial exhibitions, but in quieter periods these events developed at different scales, national, regional, and local in the early 19th century⁸². We can particularly highlight the important role played by the economic societies of friends of the country, the *Junta de Comercio*, and the *Conservatorio de Artes*, which developed actions and events in the industrial and economic direction of the country.

As in several countries, the State supported Spain's participation in the Universal Exhibitions that were organised from 1851 onwards, sending commissions to examine advances and make disclosures. The visit to the exhibitions served to introduce important innovations in electricity generation and transmission in Spain. We conclude by highlighting the important role played by the State, regional and local institutions and associations, and private economic agents in the creation of these first industrial exhibitions. State intervention supported technological innovation by driving these exhibitions and products from industries and new techniques.

⁸² *Ibidem*, p. 206.

Industrial Exhibitions in Portugal

Portugal is one of the pioneers in setting up industrial exhibitions in Europe. We can find the record of the first industrial exhibition in Portugal in 1775 in Oeiras, organised during the industrialist phase of the Pombaline consulate⁸³. According to what is found in the *Arquivo Pitoresco*, the town of Oeiras hosted the first industrial exhibition in Portugal, and the first to be held in Europe. Also, according to this document, it is stated that it was a great fair, attended by all kinds of products from the Portuguese manufacturing industry, exhibiting everything that was manufactured in the country⁸⁴.

After this forerunner event, we can find the first initiatives to enhance industrial collections in 1807 when the Chamber of Commerce of Portugal created a collection of books, drawings, machine models, and other objects to promote branches of national industry⁸⁵. The initiative and concern to create a collection that illustrated the national industrial advances of the time showed that Portugal was concerned with preserving this memory and its crafts⁸⁶.

However, the Portuguese political context of the time did not allow the creation of this first industrial collection. Portugal at this time was being invaded by Napoleon's troops, and in 1808 the royal family was forced to move to their colony in Brazil. However, the idea of creating an institution that would preserve this type of collections was established at that time and continued to be discussed in the coming years⁸⁷.

As in France and England, industrial exhibitions materialised nationally from the initiatives of societies that promoted the industry. These societies aimed at disseminating knowledge to places where economic development was increasingly

⁸³ Mendes, J. Amado, « Exposições Industriais em Coimbra na segunda metade do século XIX (1) », *O Instituto. Revista Científica e Literária*, Coimbra, Instituto de Coimbra, 1979, vol. CXXXIX, p. 252.

⁸⁴ Barbosa, Vilhena I. de « Fragmentos de um roteiro de Lisboa (Inédito), Arrabalde de Lisboa. Paço d'Arcos, Oeiras e Carcavellos », *Arquivo Pitoresco*, vol. VI, 1863, p. 386. Original Citation: « A vila de Oeiras viu dentro dos seus muros a primeira exposição industrial, que houve neste reino, e também a primeira, julgamos poder afirmá-lo, que se realizou na Europa [...] se fizesse, na vila de Oeiras, uma grande feira, à qual concorresse todo o género de produtos da indústria fabril portuguesa [...] A feira foi, portanto, uma verdadeira e completa exposição de tudo o que se fabricava no país ».

⁸⁵ Decreto de 24 Junho de 1807, In Pedreira, Jorge, *A estrutura industrial e mercado colonial: Portugal e o Brasil (1780-1830)*, Lisboa, Difel, 1994.

⁸⁶ Matos Ana Cardoso de, Sampaio Maria da Luz, « Património Industrial e Museologia em Portugal », *Museologia&Interdisciplinaridade*, t. III, nº 5, 2014, p.97.

⁸⁷ *Ibidem*.

dependent on advances in science and technology in the early 19th century. The first society in Portugal in this context was created in 1822 under the name of *Sociedade Promotora da Indústria Nacional*. At that time, industrial activity still did not have a privileged place in the concerns of Portuguese society, in the sense that they encompassed all material activities such as agriculture, fishing, industry, and commerce⁸⁸.

Portugal was facing a difficult moment of political and economic crisis in the beginning of the 19th century. The Revolution of 1820, or liberal revolution in Porto, brought the creation of several institutions that aimed at mental renewal and technical progress based on the French model of the *Société d'encouragement pour l'industrie Nationale*. It is in this context that the Society for the Promotion of National Industry was created in 1822 by a group of liberals and academics from the University of Coimbra⁸⁹. The society sought to update the country's level of technical and scientific knowledge and promote contacts with other companies that support the industry abroad, especially Paris and London⁹⁰.

In 1823, Portuguese society already had many members, but the Portuguese political situation was still not favourable to initiate and support its practices. It was necessary to have the political support, to have surveys of statistical resources about the industry in these regions of the country so that measures for economic improvement could be proposed, and to understand the fields where the dissemination of knowledge was necessary⁹¹. It was only in 1836 that the government began its support where it determined the obligation to create commercial and industrial associations that would boost public wealth together with government assistance⁹².

In 1836, the decree for the creation of the Arts and Crafts *Conservatórios de Artes e Ofícios de Lisboa e Porto* also entered into force, with the objective of creating a deposit of industrial collections for instructions, practices, and industrial processes in the main cities of Portugal, Lisbon, and Porto. The conservatories were created by Passos Manuel, inspired by the Paris *Conservatoire des Arts et Métiers*. This collection

⁸⁸ Matos, Ana Cardoso de, « Sociedades e associações industriais oitocentistas: projectos e acções de divulgação técnica e incentivos à actividade empresarial », *Análise Social*, t. xxxi, nº 2, 1996, p. 398.

⁸⁹ Grupo de liberais, de entre os quais se destacavam Cândido José Xavier, Ernesto Biester, Angelo da Costa e Ribeiro Guimarães, na criação da Sociedade.

⁹⁰ *Ibidem*.

⁹¹ *Ibidem*, p. 399.

⁹² *Ibidem*, p. 400. Portaria de 23 de setembro de 1836.

showed several examples from different times and models of new inventions, with temporary and permanent exhibitions exhibiting the products of the national industry.

According to the Government Gazette of 1836, the creation of the Arts and Crafts Conservatory was for the instruction of industrial artisans and to serve the popular demonstration of the applications of the sciences and arts, among other objectives: to encourage emulation and show the comparative state of national industry influencing their progress, and to become a lasting monument of glory to the reign⁹³.

In this way, Portugal was heading towards a field that sought the valorisation and development of industry, improving and organising its national industry and instructing the industrial classes. However, the functioning of these exhibitions was not yet corresponding to their creative objectives. The Conservatories of Arts and Crafts of Porto closed in 1844 and the one in Lisbon was expected to be integrated with the Polytechnic School⁹⁴. The second half of the 19th century in Portugal records several legislative texts that had the objective of organising the museums that should function together with the Industrial Institutes created in 1852⁹⁵.

Some of the societies that emerged can be linked to the defence of industrial interests: the *Sociedade Promotora da Indústria Nacional* (1822), the *Associação Industrial Portuguesa* (1837), the *Associação Industrial Portuense* (1852), and the *Associação Promotora da Indústria Fabril* (1860). These associations were created by initiatives of entrepreneurs and men of science independent of state power.

The industrial societies created in Portugal in the 19th century took care of several actions, such as the organisation of industrial exhibitions, which had the objective of spreading industrial education and disseminating the principles of science and technique. These actions were developed based on the perception that the country needed a technological renovation and business incentives to defend industrial interests. These exhibitions tested the country's productive capacity and promoted technical and scientific dissemination through the diffusion of industrial knowledge and new technologies used.

⁹³ Diário do Governo, n.º 276, 1836. Original Citation: « a criação de um Conservatório de Artes e Offícios, para instrução dos artistas, que sirva à demonstração popular das preciosas aplicações das Ciências às Artes, que excite a emulação e que, mostrando o estado actual e comparativo da indústria nacional, influa poderosamente nos seus progressos, será um monumento duradouro de glória para o reinado (...), pelos incalculáveis interesses que dela provirão à Nação».

⁹⁴ Matos Ana Cardoso de, Gouzévitch Irina, Lourenço Marta C. (dir.), Expositions Universelles, Musées Techniques et Société Industrielle, Lisboa, Colibri, 2011, p.74.

⁹⁵ *Ibidem*.

The Sociedade Promotora da Indústria Nacional held a national assembly in 1827 with numerous members and spectators, where they had the opportunity to set up an exhibition with machines and models existing in the society's office and its conservatories, as well as artifacts and products from the industry⁹⁶. This initiative of setting up an industrial exhibition was repeated in 1838, 1840, 1844, and 1849, all promoted by the *Sociedade Promotora da Indústria Nacional*. But the 1849 exhibition in Lisbon was the first nationwide⁹⁷.

The numbers of exhibitors at industrial exhibitions in Portugal were similar to exhibitions in Spain, with a small number compared to those in France in the same period. For example, the Portuguese industry show in 1849 only managed to double the number of competitors from the previous one, bringing together a total of 300 exhibitors⁹⁸. Similar to what happened in Spain, Portugal was also just out of a civil war. The exhibitions were presented to show the Portuguese unity and ingenuity, and for the protection of the national industry.

This dynamic context of exhibitions remains active in the second half of the century, but with the appearance of specialised exhibitions, which constituted an important feature of the mid 19th century. From 1850 onwards, the exhibitions acquired a more specialized character, also serving as preparation for the Universal Exhibitions. This preparatory character spread to several countries, including Latin American countries, which also began to organise national preparatory exhibitions for the Universal Exhibitions, also starting agricultural and fine art exhibitions in this period.

We can observe this characteristic in the 1850 exhibition in Madrid, which was a continuation of the Spanish industrial exhibitions since 1820, but represented a change, serving also for the preparation for the Universal Exhibition in London of 1851. We can observe then the appearance of specialised exhibitions, as in Portugal, where industrial exhibitions took place in Porto in 1861 and Coimbra in 1869, and others in later years. At the same time, exhibitions of a more general nature also continued to take place only leaving the capitals and extending to smaller cities⁹⁹.

⁹⁶ Matos, Ana Cardoso de, « Sociedades e associações industriais oitocentistas: projectos e acções de divulgação técnica e incentivos à actividade empresarial », *Análise Social*, t. xxxi, nº 2, 1996, p. 407.

⁹⁷ *Ibidem*.

⁹⁸ Capel Sáez, Horacio, « Las Exosiciones Nacionales y locales em la España del siglo XIX: médio local, redes sociales y difusión de innovaciones », In Silva Suárez, Manuel (ed.), *Técnica e Engenharia em Espanha IV: El Ochocientos, Pensamiento, profesiones y sociedade*, Aragón, Real Academia de Ingeniería Institución “Fernando el Catílico” Prensas Universitarias de Zaragoza, 2009. p. 167.

⁹⁹ *Ibidem*, p.206.

Portugal's participation in the 1851 Universal exhibition in London also had an impact on the creation of institutions for the preservation of industrial collections. After his participation in 1851, the decree of December 31, 1852 came into effect, creating the Industrial Institute of Lisbon and the Industrial School of Porto, which provided for the creation of Industrial Museums¹⁰⁰. However, the lack of resources prevented the creation of these museums. In the second half of the century, the organisation of industrial exhibitions became more regular in Portugal thanks to the initiative of various societies and associations that were formed. Of these, the industrial exhibition held in Lisbon in 1888 was particularly important.

¹⁰⁰ Matos Ana Cardoso de, Sampaio Maria da Luz, « Património Industrial e Museologia em Portugal », *Museologia&Interdisciplinaridade*, t. III, nº 5, 2014, p. 98.

1.2 The context of the organisation of the first Brazilian Industrial Exhibition

The transition of the 19th century in Brazil is characterised by the crisis of the Old Colonial System and the transfer of the seat of the Portuguese monarchy to Brazil, with a set of implements in social, economic, and cultural issues that brought about several transformations. The colony was already recognised for its natural wealth, but there was still no use of its natural resources and territory, nor the economic use of these resources. After the transfer of the Portuguese court, some technical institutes and certain research activities began to appear¹⁰¹.

Portugal controlled its colony through several prohibitions, such as the prohibition of trade with other nations, making any economic or cultural exchange with other regions impossible. The Colonial Pact prevailed the set of laws that guaranteed the economic exclusivity of the metropolises over their colonies. In this set of norms, most manufacturers and the creation of higher education schools and printing presses in the colony's territory were prohibited. All these prohibitions avoided competition with the colony itself while leaving them dependent on Portuguese manufacturers¹⁰².

Scientific activities in colonial Brazil were initiated by Portuguese stimuli arising from studies of natural sciences that sought examples of Brazilian flora and surveys of interesting and marketable products. The period at the end of the 18th century is characterised by incentives to increase the quantity and improvement of colonial production. It is possible to find "memoirs" and official correspondence that register this concern with promoting the production of raw materials for the industrialisation of Portugal and the promotion of agriculture¹⁰³. These memories were often expressed from exploratory trips through Brazilian territory.

The relationship between the metropolis and the colony only changed exceptionally after 1808, with the transfer of the Portuguese court to Brazil. This change brought the end of a series of prohibitions and the beginning of a period of transformation in Brazilian territory. This factor brought the Decree of Opening Ports of Friendly Nations, taking Brazil out of isolation and bringing new possibilities for

¹⁰¹ Schwartzman, Simon, *A ciência no império. In: Um espaço para a ciência: a formação da comunidade científica no Brasil*, Brasília, Ministério da Ciência e Tecnologia, 2001, p. 54.

¹⁰² Figueiras, Carlos A. L, « Origens da ciência no Brasil », *Química Nova*, t. 3, n° 13, 1990, p. 227.

¹⁰³ Lopes, Maria Margaret, *O Brasil descobre a pesquisa científica. Os museus e as ciências naturais no século XIX*, São Paulo, Hucitec, 1997, p. 36.

economic and cultural exchanges with other European nations¹⁰⁴. Among the various initiatives of Prince Regent D. João VI, we highlight the creation of various institutions for the modernisation and development training in service and protection of the royal court.

The administration of D. João VI (1808-1821) was responsible for organizing a chair of Economic Sciences and for creating the Bahia School of Surgery, the Academy of Guards-Marinha, and the Medical-Surgical and Military Academy. The Portuguese State also participated in the creation and financing of institutions in different areas, such as Banco do Brasil (1808), Typography Régia (1808), the National Library (1810), the Royal Museum (1818), and the National Observatory (1827).

In addition to these initiatives, Academies were also created to encourage Natural History¹⁰⁵. The first Brazilian museum is identified by historiographers as the former “Casa de História Natural”, or more popularly known as the “House of Birds” created in 1784¹⁰⁶. This first form of museum collected, stored, and prepared natural products and indigenous adornment to send to Lisbon. The Prince Regent extinguished the positions of this museum in 1813 and in 1818 created by decree of the Royal Museum of Rio de Janeiro in its place.

These new institutions brought the need and demand for specialized professionals and the creation of new schools of higher study in Brazil, giving rise to the first elite of Brazilian intellectuals. This cultural elite, following practices from abroad, brought about the formation of cultural and scientific societies and associations. These societies were generally formed by this elite of literate men and intellectuals who shared common interests in cultural and scientific activity.

Several scientific societies began to emerge during this period. In 1829, the Society of Medicine of Rio de Janeiro (SMRJ) was created through the Academy of Medicine of Rio de Janeiro, aiming at the development of medicine in Brazil. During the 19th century it is possible to perceive a great movement of production and publication using the practice of “scientific popularization”. The term “scientific

¹⁰⁴ The end of the Portuguese commercial exclusivity and the consequent legalization of direct trade between the colony and the "friendly nations" were decreed by Royal Charter dated January 28, 1808. The annulment of legal restrictions on the development of manufacturing activities in Brazil was determined by the Alvará of April 1st of that same year.

¹⁰⁵ Lopes, Maria Margaret, *O Brasil descobre a pesquisa científica. Os museus e as ciências naturais no século XIX*, São Paulo, Hucitec, 1997, p. 39.

¹⁰⁶ Coleção das Leis do Reino de Portugal, 1759-1808, In Moacyr, P., *A Instrução e o Império. Subsídios para a História da Educação no Brasil de 1823 a 1853*, São Paulo, Nacional, série 5ª, Brasiliana, vol.66, Biblioteca Pedagógica Brasileira, 1936.

popularization” was widely used in this period about the practice of instructing the grand public about scientific methods and means. Producers of these materials were often linked to natural history museums and scientific expeditions, publishing periodicals in museum annals.

The beginning of the 19th century was also characterised by a slow process of Brazilian industrial modernisation and development. There was the idea that slavery itself did not contribute to the creation or invention of new discoveries in the field of agriculture¹⁰⁷. This perspective came from the liberal point of view of the 19th century that challenged the maintenance of slave labour in economic development. Among these difficulties in economic and industrial development we can highlight the physical obstacles of irregular fields, transport difficulties, and infrastructure problems for the maintenance and repair of equipment¹⁰⁸.

Colonial Brazil is characterised by issues of a social and cultural order, focused on a strong reluctance to adapt and incorporate new techniques for improving crop production and a theoretical lack of knowledge necessary for agricultural development. This context began to change in the 19th and 20th centuries when schools and technicians and higher education were consolidated. Associations and societies contribute to this context, and begin to play an important role in the process of the constitution of the Brazilian scientific and industrial field, structuring some professional categories and influencing the elaboration of scientific concepts.

An important society created in this context was the *Sociedade Auxiliadora da Indústria Nacional* (SAIN), a civil society governed by private law founded in 1831 and supported by the Ministry of Business of the Empire with the objective of promoting Brazilian industry. The society was made up of a scientific community, comprising scientists, scholars, politicians, and businessmen. According to its statute of 1831, its main objective was to “promote, by all means within its reach, the improvement and prosperity of Industry in the Empire of Brazil”¹⁰⁹.

¹⁰⁷ Cribelli, Teresa, « O mais útil de todos os instrumentos: o arado e a valorização da terra no Brasil no século XIX », In Motta, Márcia e Secreto, Verônica (Orgs.). *O Direito às avessas: por uma História Social da Propriedade*. Guarapuava: Unicentro, Niterói Eduff, 2011, p. 291-312.

¹⁰⁸ *Ibidem*.

¹⁰⁹ Estatuto da Sociedade Auxiliadora da Indústria Nacional, 1831, In Barreto, Corrêa, Patrícia Regina, « Sociedade Auxiliadora da Indústria Nacional: Oficina de Homens », XIII Encontro de História Anpuh-Rio-Identities, 2008, p. 3.

The Society was created in 1820 by Ignácio Alves Pinto de Almeida¹¹⁰, manufacturer and dealer of sugar and distilled beverages, and published in 1825 the Resolution approving the establishment of the society in the court. Ignácio Pinto de Almeida drafted the first Statute of the association, modified in 1827 and 1831, where one of the objectives was to organise “exhibitions of natural and industrial products”¹¹¹. This project was not successful until the 1860s, with the holding of the First National Exhibition in preparation for the Universal Exhibition of 1862 in London.

The first statute approved in 1825 assigned SAIN the obligation to provide all possible services to people who wanted to import machines or models for use in Brazilian territory, offering incentives and rewards for the benefit of the industry, also evaluating and disseminating models and inventions¹¹². It is important to emphasise that the term “industry” in this context and time had a broader application and can be understood as a gathering of mechanized activities and also as any ingenious action that generates wealth. The terminology was also used for any work with a degree of complexity that required specific skill, such as agriculture, commerce, and crafts¹¹³.

SAIN was inspired by the French society *Société D'Encouragement à L'Industrie Nationale* (1801) and the Portuguese society *Sociedade Promotora da Indústria Nacional* (1822). Society was mainly focused on the transformation and modernisation of agriculture, influencing its development and technological adaptations, resulting in the resumption and expansion of Brazilian agriculture. To materialise these issues and popularise the new techniques, the association created the magazine *O Auxiliador da Indústria Nacional* in 1833, reporting monthly memory, foreign and national articles, minutes, reports, and opinions, until 1892.

¹¹⁰ Momesso, Beatriz Piva, « Indústria e trabalho no século XIX: o estabelecimento de fundação e máquinas de Ponta d'Areia. », Master's thesis in History, Universidade Federal Fluminense, 2007, p. 44. Original Citation: « No ano de 1824, quando não havia política orientada para a produção interna, Ignacio Alves Pinto, fabricante de aguardente, encaminhou a D. Pedro I os estatutos de uma sociedade que beneficiaria a ‘indústria nacional’, estabelecendo um depósito e conservatório de máquinas e moldes. O tribunal da Junta aprovou a existência da Sociedade Auxiliadora da Indústria Nacional, considerando que ela poderia ser de muita ‘utilidade no adiantamento da agricultura e das artes’. O mesmo Ignacio Alves Pinto trabalharia sistematicamente para organizar a Exposição Nacional da Industria do ano de 1861».

¹¹¹ Werneck, da silva, José Luiz, « Isto é o que me parece. A Sociedade Auxiliadora da Indústria Nacional (1827-1904) na formação social brasileira. A conjuntura de 1871 até 1877, « Isto é o que me parece. A Sociedade Auxiliadora da Indústria Nacional (1827-1904) na formação social brasileira. A conjuntura de 1871 até 1877 », Master's thesis, Universidade Federal Fluminense, Instituto de Ciências Humanas e Filosofia, v. 2, 1979, p. 61.

¹¹² *Estatutos da Sociedade Auxiliadora da Indústria Nacional*, Rio de Janeiro, Typographia Imperial, 1828, p.65.

¹¹³ Barreto, Corrêa, Patrícia Regina, « Sociedade Auxiliadora da Indústria Nacional: Oficina de Homens », XIII Encontro de História Anpuh-Rio-Identities, 2008.

Brazil was the stage for several expeditions in the 18th and mainly 19th century, with a considerable increase in these initiatives after the decree opening the ports to friendly nations¹¹⁴. In the first half of the 19th century, Brazilian naturalists affirmed the need for new exploration trips and the need for the formation and study of collections made by national scientists.

The Brazilian Historical and Geographical Institute (IHGB) was created in 1838 at a SAIN assembly, with the central guidelines for the collection and publication of documents relevant to the history of Brazil and for encouraging public education and the study of History. In 1856, the IHGB organised the Scientific Committee for Exploration, carried out between the years 1859 and 1861. These expeditions carried out research in the areas of botany, geology, mineralogy, zoology, astronomy, geography, and ethnography in the territory of Ceará and its surroundings.

Among the surveys and collections carried out by the Scientific Committee for Exploration, two exhibitions were organised at the National Museum. The first exhibition organised on September 7, 1861 presented natural artifacts from the Province of Ceará and products related to industry, and the second, which is considered the first National Exhibition, was held on December 2, 1861. According to the author, Moreira de Azevedo had believed that Brazil could not hold industrial exhibitions, as it did not have an industry or products that could be exhibited and appreciated. But with the exhibition of Ceará's productions, it was proved that the country could present examples of its industry, which already had useful and appreciated products, and it was convenient to hold these industrial exhibitions¹¹⁵.

The exhibition of products from Ceará was organised by the naturalist Manuel Ferreira Lagos (1816-1871), who participated in the Expedition of the Scientific Commission of Exploration and exhibited part of the results of the expedition. On September 7 1861, the “Exhibition of Ceará products” was inaugurated at the National Museum, open until September 15th. This exhibition is considered a pioneer in Brazilian industrial and scientific exhibitions. According to the author Moreira Azevedo, on the same day that this exhibition was held in Rio de Janeiro, a ceremony

¹¹⁴ Lacerda, João Baptista de, *Fastos do Museu Nacional*, Rio de Janeiro, Imprensa Nacional, 1905.

¹¹⁵ Azevedo, Moreira de, *O Rio de Janeiro. Sua história, monumentos, homens notáveis, usos e curiosidades*, Rio de Janeiro, B.L. Garnier, 1877, p.261. Original Citation: « Julgara-se até então que o Brasil não podia fazer essas festas industriais, por não ter indústria nem produtos que pudessem ser exibidos e apreciados; mas, expostas as produções do Ceará, provou-se que podia o país apresentar exemplares de sua indústria, que já contava produtos úteis e apreciados, e que convinha fazerem-se essas festas civilizadoras da inteligência e do trabalho chamadas – exposições industriais ».

similar to a fair or industrial exhibition took place at the same time on the hill of Santa Cruz, on the border of the city of Ouro Preto¹¹⁶.

This simultaneous exhibition was not reported in journals from Ceará and is hardly mentioned by researchers in the field, despite its importance at the time, which shows that the idea of making exhibitions was already current in the period. According to the author Iglésias, "industrial fairs or exhibitions" were also held in various locations in Brazil, by private or official initiative, with the aim of attracting curiosity, attracting attention, and establishing contacts. This first took place in Ouro Preto, from 7 to 14 September 1861, with government assistance. Thus, making public, then, the existence of an industrial reality, albeit modest, in the Province as in other parts of Brazil¹¹⁷.

The proposals for industrial exhibitions in Brazil in the second half of the 19th century were linked to this project of modernisation of societies generated by the intellectual and imperial elites at the beginning of the First Reign. Many social actors were against the idea of exhibitions in Brazil, but the project gained strength with the creation of the Ministry of Agriculture, Trade and Public Works (1860), which assumed the role of providing institutional support to SAIN. The two institutions together started to manage and organise the collections and exhibitions of natural, agricultural, and industrial products¹¹⁸.

The lack of institutions and encouragement in the national industry to promote national exhibitions led Brazil to not be able to officially participate in the first Universal Exhibitions. Brazil showed interest in participating in these events, but refused to participate in the first two exhibitions, the 1851 exhibition in England and the 1855 exhibition in France. According to the newspaper, *Auxiliador da Indústria*

¹¹⁶ Azevedo, Moreira de. *O Rio de Janeiro: sua história, monumentos, homens notáveis, usos e curiosidades*. Vol. II, Rio de Janeiro, B. L. Garnier, 1877, p. 261.

¹¹⁷ Iglésias, Francisco, *Política Econômica do Governo Provincial Mineiro (1835-1889)*, Rio de Janeiro, Ministério da Cultura/Instituto Nacional do Livro, 1958, p.118. Accessed on 9 April 2021. URL: https://archive.org/details/inglesias_polit/page/n113/mode/2up?q=exposi%C3%A7%C3%B5es.

Original Citation : « No mesmo dia que celebrava-se no Rio de Janeiro essa festa industrial, executava-se no monte de Santa Cruz, fronteiro á cidade de Ouro Preto, cerimonia semelhante. Em agosto de 1860 um missionário capuchinho erguera nesse monte uma cruz, e, saudando o povo com três dias de festejo o symbolo da redempção, resolveu levantar alli uma ermida; no anno seguinte, tendo de repetir-se o festejo, propoz um vereador da camará de Ouro-Preto que se estabelecesse alli, junto ao madeiro da cruz, uma feira ou exposição industrial, para ser assim festejado o dia 7 de setembro. A idéa encontrou echo em toda a provincia; construiu-se no monte um edificio para receber os productos agricolas e outros objectos, e realizou-se a primeira exposição na provincia ».

¹¹⁸ Werneck, da silva, José Luiz, « Isto é o que me parece. A Sociedade Auxiliadora da Indústria Nacional (1827-1904) na formação social brasileira. A conjuntura de 1871 até 1877 », Master's thesis, Universidade Federal Fluminense, Instituto de Ciências Humanas e Filosofia, v. 2, 1979, p. 111.

Nacional, the country was flattered and contemplated the event, but lack of time prevented the organisation from participating in the event¹¹⁹.

The Brazilian government was in territorial conflict with France over the French Guiana region in 1855, and this tension was one of the factors that discouraged Brazil from participating in the Universal Exhibition of 1855¹²⁰. Brazil was also in conflict with England in the 1860s due to the diplomatic crisis named the Christie issue¹²¹; however, he officially accepted the invitation to the Universal Exhibition of London in 1862.

SAIN was of great importance in the organisation of national and international exhibitions in the 19th century, participating in the acquisition and exchange of Brazilian industrial objects. According to its statute approved in 1825, the society had as its main objective and concern the acquisition, collection and conservation of machines, models, and inventions acquired for the increase and prosperity of the Empire's National Industry. The National Museum also had an influence on the organisation of Universal Exhibitions, with an active participation in the collection and sending of objects.

The main institutions involved in the organisation of these exhibitions were the Auxiliadora da Indústria Nacional, the Secretary of State for Agricultural Affairs, Public Works Trade, and the National Museum¹²². It is possible to consult the documentation and organisation of these events through periodicals and parliamentary debates, such as the periodical *O Auxiliador da Indústria Nacional*, which contains the stages of organizing national and international exhibitions.

¹¹⁹ «Sessão do Conselho em 20 de Julho de 1850 », *O Auxiliador da Industria Nacional : Ou Collecção de memorias e Noticias interessantes*, nº 3, 1850, p. 120. Original Citation: « A comissão especial reconhecendo a imensa utilidade que da projectada Exposição de Londres virá à indústria e às artes de todos os paizes [...] Mas sendo certo, que já nos falta o tempo indispensável para que a Sociedade Auxiliadora, ou alguma outra corporação, ou pessoa, por mais diligente que seja, podesse colligir, apromprar, e remeter amostras de productos naturaes, que fossem bem recebidos na indicada secção da Exposição, que deve ser aberta em Londres, como se annuncia, daqui a 6 ou 7 mezes, sente a comissão reconhecer igualmente que não nos é possível concorrermos com o nosso contingente para a projectada Exposição ».

¹²⁰ Ferreira, Cristina Araripe, « Difusão do conhecimento científico e tecnológico no Brasil na segunda metade do século XIX: a circulação do progresso nas exposições Universais e Internacionais. », Master's thesis in History of Science and Health, Fundação Oswaldo Cruz, 2011.

¹²¹ The Christie Issue was a diplomatic crisis between the governments of the Empire of Brazil and the British Empire, which took place between 1862 and 1865. This issue was the result of a series of incidents involving both nations, by the performance of the British ambassador credited to Brazil, William Dougal Christie, which culminated in the rupture of diplomatic relations at the initiative of Brazil.

¹²² Heizer, Alda Lúcia, « Observa o Céu e Medir a Terra. Instrumentos científicos e a participação do Império do Brasil na Exposição de Paris de 1889 », Doctoral thesis, Universidade Estadual de Campinas, Instituto de Geociencias, 2005.

The process of industrialization in Brazil suffered a great debate and was discussed by the main institutions and societies of the 19th and 20th century, related to government stimulus and the process of industrial development. This discourse implied the construction of an industrial development structure and an industrialization process throughout the national territory. According to Monica Martins, at the end of the 1850s, with the increase in the value of slave labour, there was a need to invest in other forms of work. Technological advances and scientific discourse presented a possible solution to these difficulties. Only at the end of the 19th century did intellectuals and the Brazilian scientific field assert themselves to lead the country to modernisation and industrialization¹²³.

We can find these projects and disputes of Brazilian industrialization in the analysis of the SAIN documentation: the dispute in the speech about the participation or not in the Universal Exhibitions, the debate about what should or not be shown, the issue of slavery associated with the delay, elements of Brazilian agricultural backwardness, and the possibility of exhibiting goods for foreign trade. SAIN had an important influence in the implantation of scientific practices and knowledge in the empire, developing different initiatives in the formulation of public policies in search of industrial modernisation in the country.

The Universal Exhibitions marked Brazil's entry into a new exhibition circuit of its production and natural resources to the rest of the world. The exhibition catalogues are important sources that showed the country's natural wealth and that also served for the knowledge and study of its own national industry. Brazil's participation in the exhibitions also shows the government's decisive role in its participation and interests developed in these events. Industrial exhibitions went beyond exhibition spaces, places of proliferation of political ideas and scientific knowledge in the 19th century. The next chapter will analyse the exhibits and museography of Brazilian industrial exhibitions at the National Exhibitions in the 19th century, using mainly the available sources and documentation from these associations.

¹²³ Martins, Monica, « O impacto das Exposições Universais do século XIX para as relações econômicas brasileiras e o avanço tecnológico: uma análise sobre a participação das províncias », *XII Congresso Brasileiro de História Econômica & 13a Conferência Internacional de História de Empresas*, Niterói, 2017, p. 4.

CHAPTER 2

Brazilian Industrial National Exhibitions

The Brazilian participation in the Universal Expositions was very significant even though it did not occupy a prominent place in international economic relations, and it was still a slave economy at the end of the 19th century. Brazil participated in these exhibitions, displaying its products of interest to the international market to be sold, as was the case with agricultural and industrial products¹²⁴.

According to Hobsbawm, the capitalist economy changed in four ways in the 19th century. This directly affected the imperialist period, where the Universal Exhibitions were precursors of these processes¹²⁵. The 1st form of change according to the author was the entry into a new technological era; the 2nd the deepening of a market economy and mass consumption; the 3rd the international competition between rival industrial economies; and finally, economic concentration and market control. All these elements resulted in a rupture in the structure of world economic organisation, creating a separation between "underdeveloped" countries and industrialized powers. This highlighted the dispute for raw materials and conditions for industrial investment.

It is possible to notice several transformations in the Brazilian society from 1850 onwards, when the Empire's political agenda included measures aimed at improving the material living conditions of the population. These changes implied the industrialization of the country and the modernization of a production structure. However, in this 1st moment there was not an effective mobilization in relation to the issues presented by the *Sociedade Auxiliadora da Indústria Nacional* (SAIN) in the implantation of industrial establishments in urban centres¹²⁶.

SAIN highlighted Brazilian industry in this period as a synthesis of the tripod of agricultural, artisanal, and commercial production. Thus, only later was the term "industry" specifically associated with manufacturing. According to Werneck, in the

¹²⁴ Martins, Monica, « O impacto das Exposições Universais do século XIX para as relações econômicas brasileiras e o avanço tecnológico: uma análise sobre a participação das províncias », *XII Congresso Brasileiro de História Econômica & 13a Conferência Internacional de História de Empresas*, Niterói, 2017, p. 3.

¹²⁵ Hobsbawm, John, Eric, *A era das revoluções*, São Paulo, Paz e Terra, 1996, p. 418.

¹²⁶ Ferreira, Cristina Araripe, « Difusão do conhecimento científico e tecnológico no Brasil na segunda metade do século XIX: a circulação do progresso nas exposições Universais e Internacionais. », Master's thesis in History of Science and Health, Fundação Oswaldo Cruz, 2011.

19th century industry was linked to all meanings of invention, creation, and production, especially if these were assigned an economic value¹²⁷. SAIN was mostly composed of politicians and scientists, with the directorate generally held by politicians and the other positions of secretaries and editors by professors or specialists in Natural Sciences¹²⁸.

This new diversified economic agenda was caused by the growth of Brazilian exports of coffee, sugar, cotton, and investment in the trade of raw materials sought by European countries, producing a favourable environment for the presentation of the country before the rest of the world in the 19th century¹²⁹. All these factors convinced the monarchy to decide on Brazil's participation in the Universal Expositions. We highlight the interests of the agricultural sectors and exporters of raw materials, which were supported by SAIN and were well represented at these events.

Emperor Dom Pedro II signed the Decree of 25 October 1861, determining the participation of Brazil in the Universal Exhibition of London in 1862. According to the decree, the objectives of this participation were to attract European immigrants, to create conditions for the entry of foreign capital, and to advertise Brazil abroad. The decree specifies the following:

“To make the Empire known and properly appreciated, presenting some specimens of its many and valuable products, with the aim of exchanging them, and of stimulating European capitals, arms and intelligence for their extraction and preparation; to give an idea, although weak, of our activity and civilization, thus dispelling prejudices that may have been formed against us, this is the main aim we have in mind by sending several products to the London International Exhibition¹³⁰.”

Throughout the 2nd half of the 19th century, Universal Exhibitions was not only a presentation of agricultural, industrial, artistic, and cultural products, but also places for the promotion of diverse ideologies, knowledge, and social practices. This context gives

¹²⁷ Werneck, da silva, José Luiz, « Isto é o que me parece: a Sociedade Auxiliadora da Indústria Nacional (1827-1904) na formação social brasileira. A conjuntura de 1871 até 1877 », Master's thesis in History, Universidade Federal Fluminense, 1979, p.95.

¹²⁸ Corrêa, Barreto, Patrícia Regina. « Sociedade Auxiliadora da Indústria Nacional: Oficina de Homens », *XIII Encontros de História Anpuh-Rio*, Rio de Janeiro, Identidades, 2008, p. 3.

¹²⁹ Martins, Souza, Monica de., « O espetáculo da economia: a Primeira Exposição Nacional da Indústria no Império do Brasil, em 1861 », *Topoi (Rio J.)*, Rio de Janeiro, t. 21, nº 44, 2020, p. 497-517.

¹³⁰ Decreto de 25/10/1861 In Neves, Margarida de Souza, *As Vitrines do Progresso*, Rio de Janeiro, Relatório de pesquisa, PUC- RJ, Departamento de História, FINEP, 1986, p. 45. Original Citation: “Tornar o Império conhecido, e devidamente apreciado, apresentando alguns espécimens de seus multiplicados e valiosos productos, com o fim de permutal-los, e de excitar capitaes, braços e intelligencia da Europa para sua extração e preparo; dar uma idéia posto que fraca de nossa actividade e civilização, fazendo assim desvanecer preconceitos, que se se hajão formado contra nós, tal é o alvo principal a que visamos remettendo diversos produtos à Exposição Internacional de Londres” .

rise to the specialised exhibitions, which constituted an important feature of the mid-century. As of 1850, the National Exhibitions in Brazil acquire this character, also serving as preparation for the Universal Exhibitions, a practice that spread through several countries.

Brazil's participation in the Universal Exhibitions involved the gathering of many efforts and resources. The emperor was keen to show Brazil as a modern and "civilized" nation to the rest of the world. The organisation for the event demanded financial support from the government and from important institutions of the empire. This whole process involved: internal and external transportation, proper packaging, treatment of species by experts, assembly of stands in Brazil and abroad, organisers, judging committees, awards and production of catalogues, among others¹³¹.

The organisation of National Exhibitions was already foreseen in SAIN's statutes since 1857, with the objective of promoting the improvement and prosperity of all branches of industry. In all, five national exhibitions were held in the city of Rio de Janeiro, all preparatory for Brazil's participation in international exhibitions. When making a survey and analysis of these national exhibitions, we observe more specifically its exhibition discourse in the presentation of industrial products.

For the organisation of the National Exhibitions, the provinces appointed local committees to collect, pack, and send the natural and industrial objects, as well as to catalogue the products to be sent¹³². These commissions were responsible for the Province catalogue. The provinces were also encouraged by the Empire to organise their own local exhibitions, creating the *Instruções para as Exposições Agrícolas nas Províncias do Império*¹³³; which, in 22 articles, indicated how provincial events should be organised. In the instructions, some provinces were designated to host regional exhibitions, receiving from nearby regions marketable products, both agricultural and manufactured.

19th-century exhibition catalogues usually consist of lists of products and exhibitors indicating the cities of origin of the collections. To organise this list, classification categories build large sets, groups, and classes. According to the authors, Schroeder-gudehus and Rausmussen, the classificatory thought of the Universal

¹³¹ *Ibidem*. p.502.

¹³² *Catálogo dos produtos naturaes e industriais remetidos das províncias do Império do Brazil*, Rio de Janeiro, Typographia nacional, 1862, p. 33.

¹³³ *Jornal Treze de Maio*. Nº 71, Ano XVII, Edição de 9 de outubro de 1861. URL: http://memoria.bn.br/pdf/700002/per700002_1861_00071.pdf

Exhibitions followed the French, English, or North-American principles, creating different ways of organising exhibitions¹³⁴.

The National Exhibitions analyse took place in the years 1861, 1867, 1873, 1875, and 1888, as we can see in the table below (Table No. 3). Documentation was collected on the five national exhibitions, but illustrative and photographic records were only found for two exhibitions, those of 1861 and 1866. Each of these exhibitions were a preparatory event for the Universal Exhibitions of England (1862), France (1867 and 1889), Vienna (1873), and Philadelphia (1876). We must emphasize that the studied events are proven by the documented survey of these expositions, all located in the period of the Brazilian 2nd Reign.

Table 3 - National Exhibitions in Rio de Janeiro in the 19th century

Date	City	International Exhibition	Duration	Number of Visitors
1861	Rio de Janeiro	London 1862	45 days	50.000
1866	Rio de Janeiro	Paris 1867	57 days	53.000
1873	Rio de Janeiro	Vienna 1873	33 days	42.000
1875	Rio de Janeiro	Philadelphia 1876	45 days	67.000
1888/89	Rio de Janeiro	Paris 1889	48 days	62.000

Source: Table prepared by the author with data taken from the documents analysed in the research.

In this study, we sought not only to analyse the museography of the Brazilian national exhibitions, but also how we can use the exhibition discourse to understand how the objects were organised. The photographic records of these exhibitions are essential for this analysis. From these records we will observe aspects such as the exhibition space and the objects presented, the way they were arranged, according to which typologies and groups they were organised, and why they were grouped in this way. We also seek to understand how the pre-existing building was transformed and adapted for these events, and how this aspect influenced the exhibition discourse.

¹³⁴ Mollier Jean-Yves, Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), *Les fastes du progres: le guide des expositions universelles 1851-1992*, Paris, Flammarion, 1992, p.60.

It is important to understand within this analysis that the whole organisation of the Universal and National Exhibitions were ordered by regulations that followed the recommendations of the Universal Exhibition Commissions, necessarily adapted to local possibilities. These regulations sought to guide the choice of products according to the categories that would be included in the foreign exhibitions and make recommendations regarding the exhibition space.

2.1 National Exhibition of 1861

On 2 December 1861, the 1st "National Exhibition" took place at the Central School of Rio de Janeiro, the then capital of the Empire, which was a preparation for the presentation of Brazil at the Universal Exhibition of London in 1862. The exhibition was supported by the imperial government and organised by the *Sociedade Auxiliadora da Indústria Nacional* and the *Imperial Instituto Fluminense de Agricultura*.

The decision to participate in the Universal Exhibitions was taken after several debates within SAIN, where participation was seen as opportune, but at the same time presented great difficulties to be organised¹³⁵. Some of the central points discussed in the debates were: the concern with the presentation and display of slavery, the difficulties in incorporating new techniques in agricultural production, the lack of structure to boost factory production, and the delay in the country's industrialisation process¹³⁶.

The 1st National Exhibition of Industry had over 50,000 visitors and was opened between 2 December 1861 and 6 January 1862, lasting 45 days. At this exhibition 9,962 objects were presented and the *Catálogos dos Produtos Naturaes e Industriaes remetidos das províncias do Império do Brazil*¹³⁷. This catalogue contains a detailed description of the objects sent by each of the provinces of Brazil, but it is organised and divided by provinces, using the classification described in *Instruções para as Exposições Agrícolas nas Províncias do Império*¹³⁸. The instructions are classified into

¹³⁶ Martins, Souza, Monica de., « O espetáculo da economia: a Primeira Exposição Nacional da Indústria no Império do Brasil, em 1861 », *Topoi (Rio J.)*, Rio de Janeiro, t. 21, nº 44, 2020, p. 497-517.

¹³⁷ *Catálogo dos produtos naturaes e industriais remetidos das províncias do Império do Brazil*, Rio de Janeiro, Typographia nacional, 1862.

¹³⁸ *Jornal Treze de Maio*. Nº 71, Ano XVII, Edição de 9 de outubro de 1861. URL: http://memoria.bn.br/pdf/700002/per700002_1861_00071.pdf

the following four sections: Products of the Agricultural Industry and Natural Products, Minerals, Manufactured Articles, and Fine Arts.

The *Ministério da Agricultura, Comércio e Obras Públicas* (MACOP), created in 1860, was in charge of the event to which SAIN and the *Imperial Instituto Fluminense de Agricultura* (IIFA) were linked. These institutions acted strongly in discussions on industrial and agricultural production in the country, with emphasis on the organisation of these events.

Figure 1 - Palace of the National Exhibition 1861



Source: Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861, p. 69.

The Central School Building was 1st intended to host the Royal Military Academy installed in 1812 in Rio de Janeiro. In 1874, the Academy was replaced by the Polytechnic School, and in 1937 the building was integrated into the University of Brazil. The original building, designed by French engineer Pierre Joseph Pézérat¹³⁹. had two floors. At the beginning of the 20th century a 3rd floor was built¹⁴⁰. Thus, the

¹³⁹ Pierre Joseph Pézérat (1801-1872), born in La Guiche in France, was a French architect and engineer, with important works in Brazil and Portugal.

¹⁴⁰ Information taken from the Ipatrimônio website. Accessed on 6 May 2021. URL: <http://www.ipatrimonio.org/rio-de-janeiro-instituto-de-filosofia-e-ciencias-sociais-ifcs-ufrj/#!/map=38329&loc=-22.905446313589696,-43.18148979169409,17>.

route and the exhibition discourse had to be adapted to the pre-existing building that was used as a military school. The classrooms and corridors were adapted to receive the exhibition.

From this exhibition, the *Relatório geral da Exposição Nacional de 1861* and the *Relatório dos Jurys Especiais*¹⁴¹ were published, which we will use to analyse the museography and the products on display.

The participation of the provinces in the event was greater than the organising committee had anticipated, and the entire building of the Central School was occupied by products. According to the Commission Report, it was initially thought that the objects on display would occupy only a few rooms of the Central School building; but all the rooms, hallways, galleries, patios, and terraces were filled to such an extent that the objects could not be arranged in a convenient and methodical manner¹⁴². This fact certainly influenced the exhibition discourse and the distribution and organisation of the objects in the building.

The Provincial Exhibitions suggest a significant commitment in the selection and sending of the products, despite the short time and transport difficulties. The Emperor's involvement in the exposition was quite visible, as he recommended to the provinces that they send to the court the objects capable of giving the idea of the different branches of industry of the respective provinces¹⁴³.

Efforts were made to make a prior evaluation of the national products exhibited in the provinces: selection, exhibition, and awarding. The provinces of the Empire were invited to gather everything that could represent their natural and industrial riches, make local exhibitions, and send to the Court whatever could be compiled in order to make the National Exhibition. Only three months elapsed between that invitation and the inauguration of the exhibition. The Central Directing Commission of the 1861

¹⁴¹ Cunha, Antonio, Luiz Fernandes da. *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*, Rio de Janeiro, Typografia do Diário do Rio de Janeiro, 1862.

¹⁴² Cunha, Antonio Luiz Fernandes da., *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*, Rio de Janeiro, Typografia do Diário do Rio de Janeiro, 1862, p. 21. Original Citation: « Suppoz-se no princípio que os objectos expostos mal occupariam algumas das salas do edificio da Escola Central, destinado para Palácio da Exposição Nacional; entretanto encheram-se todas as salas, vestibulos, galerias, pátéos e terraços desse vasto edificio; que ficou de tal modo repleto que os objectos não puderam ser dispostos de um modo conveniente e methodico ».

¹⁴³ *Catálogo dos produtos naturaes e industriais remetidos das províncias do Império do Brazil*. Rio de Janeiro, Typographia Nacional, 1862, p. 8. Original Citation: « os objectos capazes de dar ideia dos diferentes ramos de industria das respectivas províncias ».

National Exhibition began its work in August 1861 and managed in three months to receive and organise the exhibits¹⁴⁴.

The imperial government appointed an organising committee of 16 members, which was later reduced to 13, to promote and run the national exhibition. The organising committee invited 30 people to form the exhibition jury. According to the report, these people were considered competent and qualified to judge the industrial products, some being international guests. The 30 jurors were separated into 5 groups in which all the exhibited objects were distributed, and each group had 9 invited jurors and 3 from the organising committee¹⁴⁵. It was also up to the courts to choose which products should be sent to London.

Some of the people who formed the organising committee of the exhibition were: José Pedro Diàs de Carvalho (1808-1881), Brazilian journalist and politician; Conde de Baependy (1812-1887), Brazilian landowner and politician; Joaquim Antonio de Azevedo (1795-1862), Portuguese politician and Minister of the Kingdom; and Raphael Archanjo Galvão Filho, Brazilian engineer and entrepreneur.

The total sum of the objects exhibited exceeded 9,962 objects, the city and province of Rio de Janeiro had a total of 5,928 objects, and the other provinces 4,034 objects. Of these exhibits 1,495 objects were chosen and sent to the London Exhibition¹⁴⁶. It featured tools, agricultural machinery and appliances, food substances, agricultural products, raw and improved, some examples of industry and handicrafts.

We used the book *Recordações da Exposição Nacional de 1861*¹⁴⁷, written by the Marquis of Abrantes, which includes illustrations lithographed by the Fleiuss Brother & Linde Artistic Institute, of the National Exhibition of 1861. The following information on the organisation of the exhibition and the products on display are all taken from the *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*.

The organisers of the 1st National Exhibition sought to follow international standards by organising the exhibition into five major groups:

- Agricultural Industry;

¹⁴⁴ Cunha, Antonio, Luiz Fernandes da. *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*, Rio de Janeiro, Typografia do Diário do Rio de Janeiro, 1862, p.12.

¹⁴⁵ *Ibidem*.

¹⁴⁶ *Ibidem*, p.21.

¹⁴⁷ Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861.

- Manufacturing and Manual Industry;
- Metallurgical Industry, Arts and Chemicals;
- Mechanical and Liberal Arts;
- Fine Arts.

In this paper we will analyse only the products of the following three groups: Agricultural Industry; Manufacturing and Manual Industry; and Metallurgical Industry, Arts and Chemicals. Within these groups there were also classes by which the different objects were distributed.

For example, within the **Agricultural Industry** group, objects were divided as follows: (1) Instruments, apparatus, and machinery of agriculture; (2) Food substances, (3) Agricultural products, crude and improved, (4) Miscellaneous vegetable and animal products and substances, (5) Samples of timber for construction, marine and carpentry, (6) Alcohol, Spirits, beer, liqueurs, wine and vinegar.

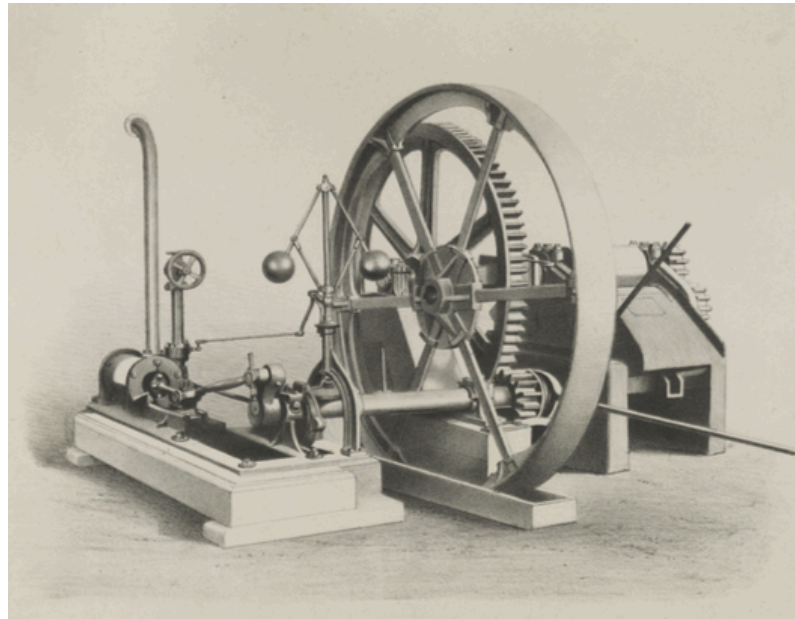
Among the products distributed in class (1) Agricultural instruments, appliances and machines were objects and products such as: axes, scythes, diggers, a set of iron grinders for sugar cane, an iron cylinder for roasting manioc flour, a flat-bottomed chair made of cast iron, a copper alembic with coils, a lid and a charcoal filter, models of sugar cane mills and steam engines, etc.

Among the food substances were exposed products such as: coffee, sugar, refined sugar, tea, mate, chocolate, wheat flour, cassava, manioc, tapioca, starch, jacatupé flour, and other various substances such as tobacco, cigars, oily substances, candles, soap, glycerin, animal charcoal, beeswax, vanilla, jacaranda, natural products, among others.

Following these subgroups were also exhibited agricultural products, raw and processed, various vegetable and animal products and substances, samples of wood for civil construction, maritime and carpentry, and the subgroup of alcohol, spirits, beers, liqueurs, wines and vinegars.

The industrial part of agriculture was best represented as a whole in the exhibition. According to the report, fans, cast-iron mills powered by fixed steam engines, cassava grating and sieving apparatus and flour roasting machines were exhibited, which showed a certain degree of improvement.

Figure 2 - Steam-powered Iron Mill for Cane, made in the Ponta d'Aréa establishment



Source: Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861, p. 39.

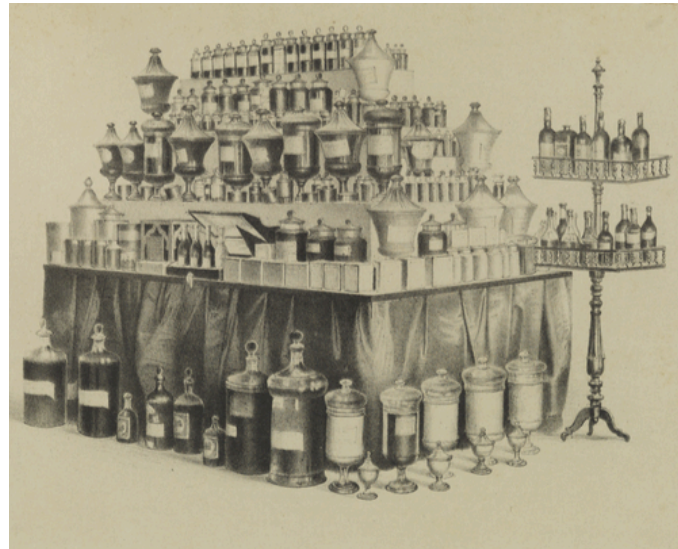
It is possible to observe the exhibition discourse in some lithographs of the exhibition available in the album *Recordações da Exposição Nacional de 1861*, which show the arrangement and organisation of the objects. This 1st group of Agricultural Industry organises its exhibitors by a typology divided by the 6 classes indicated above.

We can observe in the image above (Figure nº 2) an iron mill machine for sugarcane powered by steam exhibited. This figure shows that large machines were exhibited and that these objects needed their own space and a certain support or cable support and connection to the steam and power transmission belts close to the walls or partitions in the exhibition space. It is not clear from the jury report whether these machines were in operation and whether the public could interact with these devices.

In the figure below (figure nº 3) we can observe the display arrangement of the alcohol, brandy, beer, liqueurs, wine and vinegar subgroup. In this figure it is possible to observe an organisation based on the accumulation of objects, preventing an individual reading but showing a rich set of artifacts. This arrangement gives us a more quantitative reading than necessarily an aesthetic concern. In the figure we observe a

large distribution of jars and pots on a table laden with partitions, at the same time that the floor around the table is used, as well as another sideboard with support.

Figure 3 - Group of Bottles containing Spirits Liquids, coffee, sugar, rice and other agricultural products



Source: Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861, p. 16.

In the **Manual and Manufacturing Industry** group it was possible to find various types of cottons and derived products such as bedspreads, fabrics, samples of silk, sheep's wool, woollen covers, prepared leather, shoes of various qualities, hats made of silk and animal hair, flowers made with insect wings, and many other articles. Several Brazilian factories exhibiting their wares were awarded prizes during the exhibition.

The expository discourse of the Factory and Manual Industry group was based on the products of each province, and within each province by its producing factories, the products being distinguished and evaluated by manufacturers. Brazilian factories were awarded for their factory and manual products, where gold, silver, copper, and honourable mentions medals were distributed. One gold medal, 31 silver medals, 38 copper medals, and 72 honourable mentions were distributed.

For example, according to the report, the factory called *Todos os Santos* in the province of Bahia, was awarded the gold medal in this group for its excellent cotton fabrics exhibited¹⁴⁸. The following textile factories obtained a silver medal: *Santo Aleixa* from Rio de Janeiro; *Santo Antonio do Queimado* from Bahia; and the factory of José das Chagas Andrade and Joaquim das Chagas Andrade from the *Arraial of Passatempo* in the province of Minas Gerais¹⁴⁹. The following textile factories were awarded a copper medal: Julião Carlos Magno de Usmar's cotton spinning and weaving factory in Andarahy Pequeno, Rio de Janeiro; and F. de Oliveira Penna's factory in Brumado de Suassuhy, Minas Gerais¹⁵⁰.

Some examples of Honourable Mention medals given in fabric manufactures went to the following factories and private individuals: the Campo Grande cotton spinning and weaving factory, owned by Manoel de Almeida Costa; to Luiz de Assis Mascarenhas, who exhibited two cotton quilts made in the province of Santa Catarina; to Lieutenant Colonel Ferlisberto N.N. of Padua, from the province of Minas, who exhibited three woollen blankets; to Guilherme de Telles Ribeiro, who exhibited two dozen pairs of cotton socks, from the factory he owned in Andarahy Pequeno.

In the group of **Metallurgical Industry, Arts and Chemicals**, the objects were divided as follows: (1) Mineralogical and Metallurgical Industry, (2) Manufacturing Industry, (3) Chemical and Pharmaceutical Industry and (4) Ceramic Industry. Within the group of the Mineralogical and Metallurgical Industry, the exhibitors were made up of the different provinces. Each province had a specific collection of samples with its own characteristics, which depended on the particularities and materials existing in each location.

In the Manufacturing Industry group, the products were exhibited by the factories that produced them. The *Arsenal da Marinha* exhibited machines and shipbuilding models, such as an oscillating steam engine, shipbuilding models, and products from the Mint, where products from their workshops and artefacts were exhibited, such as scales, minting machines, and sealing presses¹⁵¹.

The *Fábrica Ponta de Arêa*, the 1st machinery and shipbuilding establishment in Rio de Janeiro, a private company from Baron of Mauá, won the silver medal in the

¹⁴⁸ Cunha, Antonio, Luiz Fernandes da. *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*, Rio de Janeiro, Typografia do Diário do Rio de Janeiro, 1862, p.316.

¹⁴⁹ *Ibidem*, p. 319.

¹⁵⁰ *Ibidem*, p. 321.

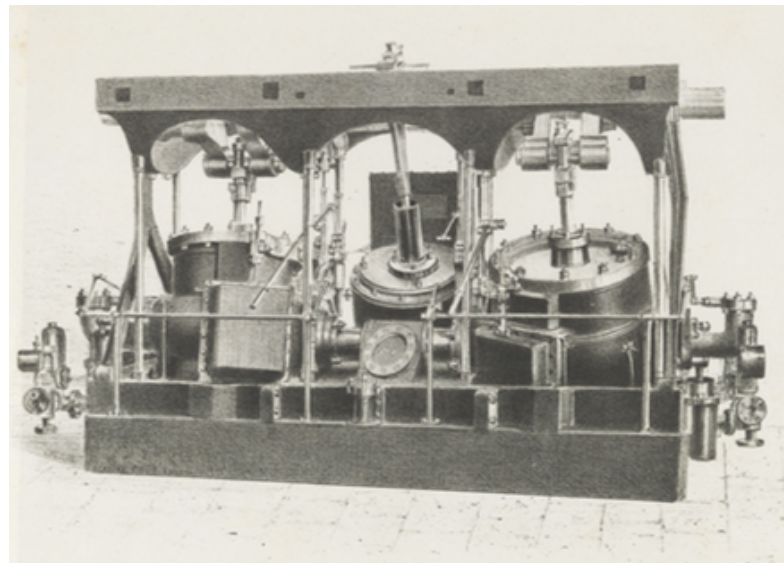
¹⁵¹ *Ibidem*, p. 404.

exhibition. This company exhibited several objects among them: a small bronze statue (the 1st to be cast in Brazil), model locomotive, centrifugal machine, steam-powered iron mill for sugarcane, steam engine, iron cylinder and cast-iron cylinder, cast-iron columns, among others¹⁵².

Another example is John Maylos' factory of constructions competed with an oscillating steam engine and 9 Naval construction models, and also received a silver medal. According to John Maylos, the machines were not specially made for the exhibition and were the same as others in his factory, having already been tried on some farms in other provinces¹⁵³.

The exhibition discourse of this Factory Industry group shows a large quantity of large objects and devices placed on a kind of support to facilitate the exhibition and support the various cables and tubes distributed in the space, as we can see in the image below (Figure nº4).

Figure 4 - Steam engine made at Arsenal da Marinha



Source: Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861, p. 62.

¹⁵² Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861.

¹⁵³ *Ibidem*, p. 401.

Among the objects exhibited by the War Arsenal it was possible to find objects such as rifle, clavina (firearm, thicker and shorter than the rifle), and pistol. Within this group there were also various devices and artifacts, such as cast-iron ornaments, scissors and razors, iron and bronze objects, the sewing needle, cast-iron ladder, and other objects.

The various chemical products of the chemical and pharmaceutical industry were exhibited from private collections. The products of the Ceramics Industry which included the manufacture of earthenware, glazed ware, common ware, fine ware, porcelain, tiles, bricks and drainage pipes were also exhibited and were organised by province and within each province by factory or manufacturer.

We have as an example of the ceramic industry display (Figure nº5) where we can also observe an accumulation of objects on the same surface, that are also divided in layers. We do not observe only one specific object, but the set of pieces and the plurality of typologies presented by manufacturers and collectors from different provinces.

Figure 5 - Clay Objects and various Glass and Crystal Objects



Source: Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861, p. 57, 64 e 61

After the 1st National Exhibition, there grew a tendency to produce exhibitions by several Brazilian provinces, and some of them organised regional exhibitions on a periodic basis. Exhibitions of a more specific character were also spread throughout the

Brazilian territory on certain branches of knowledge, such as agricultural and artistic exhibitions, among others. The provincial exhibitions became a success of public¹⁵⁴.

The exhibition of 1861 was considered as a great narrative of the Brazilian nation, where agricultural and industrial techniques, objects, and machines used in different provinces were presented. It served as a basis and guidance for the following national exhibitions and similar events.

2.2 National Exhibition of 1866

The 2nd National Exhibition took place in 1866. It preceded the Universal Exhibition of Paris in 1867 and was held by the Mint in Rio de Janeiro. Brazil, at that time, was involved in the Paraguayan War (1861-1870) and was, therefore, in great financial difficulties. The exhibition opened on 19 October and closed on 16 December 1866. It had 2,127 exhibitors from various provinces of the country, and a total exhibition of 18,391 objects¹⁵⁵. During the 57 days it was open, it was visited by 52,824 people. Emperor Pedro II paid several visits to the exhibition and presided over the closing ceremony.

Like the last exhibition the classification of the objects was divided into 5 major groups that were subdivided into 35 classes. Within these classes the products were divided into sections, which were also divided into categories, collections and provinces. For example:

1st Group
1st Class: Mining and Metallurgical Products
1st Section: Charts and Geological Collections
2nd Category: Mineralogical, Geological, and Soil-Agronomical Collections
Collection 1: Sand
Province of Amazonas: Aripuanã Beach

The 5 major groups have been divided into the following classes¹⁵⁶:

¹⁵⁴ Martins, Souza, Monica de., « O espetáculo da economia: a Primeira Exposição Nacional da Indústria no Império do Brasil, em 1861 », *Topoi (Rio J.)*, Rio de Janeiro, t. 21, nº 44, 2020, p. 505.

¹⁵⁵ *Relatório da Segunda Exposição Nacional de 1866*, Rio de Janeiro, Typografia Perseverança, 1869, p. 13-41.

¹⁵⁶ *Catálogo da Segunda Exposição Nacional 1866*, Rio de Janeiro, Typografia Perseverança, 1866. Accessed on 6 May 2021. URL: <https://books.google.pt/books?id=V5tLAQAAMAAJ&printsec=frontcover&dq=catalogo+exposi%C3>

1st Group:

- Mining, quarrying, and metallurgical products.
- Chemical and pharmaceutical products.
- Vegetable and animal substances used in industry.
- Dyeing and printing on canvas.
- Prepared hides and skins.
- Glass and Crystal and Mirrors.

2nd Group:

- Cotton industry, wool, silk, and other textiles.
- Tapestries, waxed canvas, gummed canvas.
- Lace, trimmings, embroidery, and needlework.
- Furs, hair, bristles and the like, horsehair and brushes.
- Clothes, garments, shoes, hats and artifacts of taste and fantasy.
- Printing, papers with paintings, office supplies, bookbinding.
- Tools, implements and steel trinkets.
- Suitcases, cases, boxes for jewellery and instruments, horsehair artifacts and imitations, children's toys.

3rd Group:

- Vehicles for public and private service.
- Machinery and tools for manufacturing.
- General-purpose machinery.
- Agricultural machines and instruments.
- Civil and military constructions.
- Artillery, equipment and uniforms.
- Shipbuilding.

4th Group:

- Teaching methods and materials.
- Ethnography.
- Hygiene, medicine, and surgery.
- Instruments of precision, apparatus for physics, telegraphy.
- Photography.
- Instruments of Music.

5th Group:

- Furniture and decorations.
- Metal Works.
- Goldsmithery and Jewellery.
- Ceramic Arts, Marble Works.
- Fine Arts.

In 1866 the *Typographia Nacional* published the *Catálogo da Segunda Exposição Nacional 1866*, which in 718 pages brings a list of objects and products sent

[%A7%C3%A3o+nacional+de+1866&hl=ptPT&sa=X&redir_esc=y#v=onepage&q=35%20grupos&f=false](#)

by each province separated by sections, categories, and collections. In the same year, the *Catálogo dos Nomes dos Expositores da Segunda Exposição Nacional* was also published by the *Typographia Nacional*, which is said to be a complement to the 1st catalogue that omitted the names of the exhibitors¹⁵⁷.

The *Typographia Nacional* also published the *Relatório da segunda exposição nacional de 1866* in the year 1869 in two volumes. The 1st volume contains the report of the 1st secretary, Antônio José de Souza Rego, and the 2nd contains the reports of Agostinho Victor de Borja Castro, Giacomo Raja Gabaglia, and Antônio Félix Martins. Agostinho Victor de Borja Castro wrote the 2nd part on "Manufacturing Industry", which deals with the country's textiles, such as large and small industry of hats, leather, typography, printing and binding, and foundry of types of writing inks¹⁵⁸.

As with the National Exhibition of 1861, the 1866 exhibition produced an "album" entitled *Recordação da Exposição Nacional de 1866*¹⁵⁹, consisting of an overview of the event with photographs by the photographers Antonio Araújo de Souza Lobo and Antonio Barboza de Oliveira¹⁶⁰. We will use the photographs from this album to illustrate the way of displaying the industrial collection of the 1st, 2nd, and 3rd group of the exhibition.

The *Casa da Moeda*, or coin factory, of Rio de Janeiro is today occupied by the National Archives and we can still observe in the building the remnants of the old metal smelting furnace. With the arrival of the Portuguese Royal Family in 1808, the building was occupied by the Court, and the coin factory was transferred to another building¹⁶¹. The neoclassical building has a body, extends to the sides and has an extensive patio.

Among the records, documents, and reports of the National Exhibition of 1866, we found the plan of the building and the exhibition route (Figure 6) in *Jornal do*

¹⁵⁷ *Catálogo dos Nomes dos Expositores da Segunda Exposição Nacional*, Rio de Janeiro, Typographia Nacional, 1866. Accessed on 6 May 2021. URL: <https://babel.hathitrust.org/cgi/pt?id=hvd.32044080509789&view=1up&seq=15&skin=2021>

¹⁵⁸ Castro, de Borja, Agostinho Victor, *Relatório da Segunda Exposição Nacional de 1866, Volume II*, Rio de Janeiro, Typografia Perseverança, 1869. Accessed on 6 May 2021. URL: <https://babel.hathitrust.org/cgi/pt?id=coo.31924019972011&view=1up&seq=9&skin=2021>

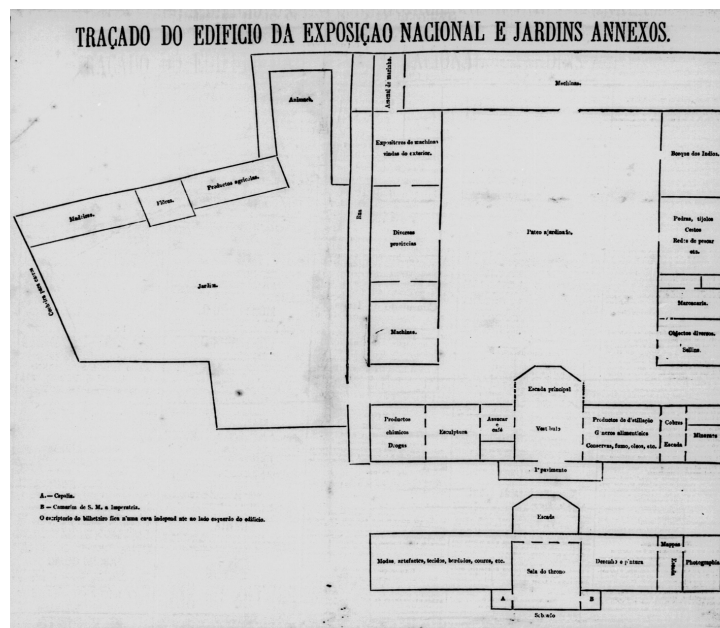
¹⁵⁹ *Recordação da Exposição Nacional de 1866*, Rio de Janeiro, 1866. Accessed on 6 May 2021. URL: http://objdigital.bn.br/acervo_digital/div_iconografia/icon326767/icon326767.pdf

¹⁶⁰ Photographers, Antônio Barboza de Oliveira and Antônio Araújo de Souza Lobo, were active in Brazil between the 1860s and 1880s and owned a studio in Rio de Janeiro. In 1866, they documented the 2nd National Exhibition, showcasin the result of this work at the General Exhibition of Fine Arts of the Imperial Academy, also in Rio de Janeiro, in 1868.

¹⁶¹ Information taken from the Ipatrimônio website. Accessed on 6 May 2021. URL: <http://www.ipatrimonio.org/rio-de-janeiro-instituto-de-filosofia-e-ciencias-sociais-ifcs-ufrj/#!/map=38329&loc=-22.905446313589696,-43.18148979169409,17>.

Commercio of the date 19 October 1866. It is possible to note the concern with the organisation of the exhibition in distinct spaces.

Figure 6 - Part of the layout of the Exhibition Building and Annexed Gardens



Source: *Jornal do Commercio*, 19 de outubro de 1866, Edição 00290. Accessed on 10 May 2021. URL: http://memoria.bn.br/docreader/DocReader.aspx?bib=364568_05&pagfis=10877.

From the analysis of the exhibition plan (Figure 6), we can observe that the 1st floor was composed of two divisions of the building, the left side occupied by the central garden with three exhibition rooms in the upper part, and the right rectangular

area occupied by a central garden patio and surrounded by 15 thematic exhibition rooms. The 2nd floor, smaller in size, was composed of 5 exhibition rooms.

The exhibition rooms on the 1st floor were divided into the following themes: Woods; Flowers; Agricultural Products; Animals; Navy Arsenal; Machines (largest room); Indian Wood; Stones, bricks and Fishing Nets, etc.; Carpentry; Various Objects, Sellins; Chemical Products, Drugs; Sculpture; Sugar and Coffee; Distillation Products, Foodstuffs, Canned food, tobacco, oils, etc.; Snakes; Minerals. The rooms on the 2nd floor were divided into the following themes: Fashions, Artefacts, Textiles, Embroidery, Leather, etc.; Throne Room; Drawing and Painting; Maps; Photography.

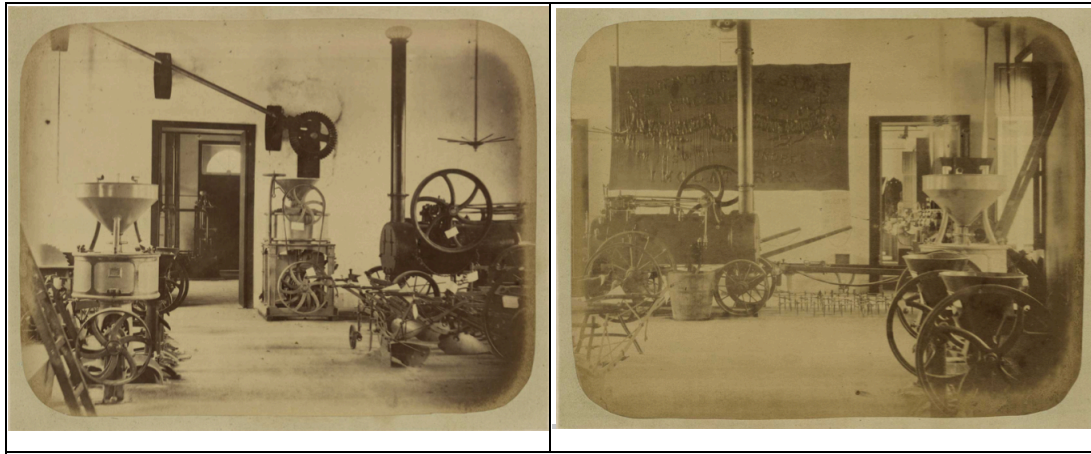
Machines and instruments for agriculture were distributed in two classes in the 3rd group, where coffee and cereal dryers, ploughs and ploughshares, weeders and machines for uprooting large logs, clod breakers, straw and grass cutters for cattle were exhibited. According to the Secretary of the Steering Committee of the exposition, Antônio José de Souza Rego¹⁶², the characteristics and functionality of the objects exhibited in the 3rd group stood out in the solidity of the constructions as well as the existence of improvements and even innovations¹⁶³.

Figure 7 - Photographs from the National Exhibition of 1866 – Machine Room



¹⁶² Antônio José de Sousa Rego, a graduate in letters and a Brazilian doctor, born on 3 April 1829, was the 1st secretary of the Steering Committee of the National Exhibition of 1866, and the author of the 1st volume of the Report of the 2nd national exhibition of 1866.

¹⁶³Exposição Nacional de 1866, *Relatório da Segunda Exposição Nacional de 1866*, Rio de Janeiro, Typografia Nacional, 1869, p. 104.



Source: *Recordação da Exposição Nacional de 1866*, Rio de Janeiro, 1866, p. 17-18.

From the records of this event, catalogues, and photo albums, we can also observe the way of displaying and organising the objects which leads us to reflections. In figure nº 7 we can observe four photographs where the two upper ones show the stand of machines in the exhibition room of the *Arsenal da Marinha* or Arsenal of the Navy and the two lower ones show the machines from England in the Machines room. In these spaces we can observe a wide space used to exhibit the machines, which are distributed along the side walls of the room, leaving a free space in the centre for the passage of visitors.

We can also observe that the machinery on display is of large proportions, with various parts, cables and tools attached, being distributed along the sides of the room to facilitate the path of the visitors; or even because of the need to connect power and cables to the walls. The machines are arranged on the floor or on support bases. The connection of some machines to power transmission wheels might presuppose that they could be set in motion. There is no impediment or a barrier between the objects and the visitors. During the day the room was well lit by the large windows and at night by lamps suspended from the ceiling, which was most likely gas-lit.

Figure 8 - Photographs of the National Exhibition of 1866



Source: *Recordação da Exposição Nacional de 1866*, Rio de Janeiro, 1866, p. 5, 6, 19.

The upper two photographs on the right and left show miscellaneous products in the "Fashions, Artifacts, Fabrics, Embroidery, Leather, etc." room. The lower left photo shows distillation products and tobacco, and the right photo shows canned products and oils, both in the room "Distillation Products, Foodstuffs, Canned Food, Tobacco, Oils, etc.". We can observe several types of objects grouped in the same room and displayed in different ways, distributed on tables, in showcases, on the walls, among others. The rooms have a form of displaying the objects as in a bazaar, where the objects are arranged in a heap despite the fact that there are several rooms, and the building is spacious. This type of exhibition shows the taste of the collectors of the time who wanted to show as many objects as possible.

We can also see in Figure n° 9 that this exhibition, unlike the previous one, had an area outside the main building. The outdoor space was used to display plants, vegetable fibres, wood, live animals, and also samples of potatoes, vegetables, corn and other cereals, mainly from the far northern provinces.

Figure 9 - Photographs of the National Exhibition of 1866



Source: *Recordação da Exposição Nacional de 1866*, Rio de Janeiro, 1866, p. 9.

We can conclude from these observations and figures that the exhibition, despite being distributed into 5 large groups and 35 different classifications, had an exhibition discourse organised according to the typology of the rooms and the exhibition route. The theme of the room determined the typology of the objects on display, which could include different types of objects from different provinces.

According to the exhibition regulations, prizes were awarded to exhibitors who stood out for the perfection of their products and for "intelligent efforts employed for the improvement of the methods followed in the production and manufacture of articles of the various industries"¹⁶⁴. This shows that the purpose was not only to sell the products, but that the exhibition sought to publicise progress in the "arts" and in industry.

The 1866 exhibition revealed greater organisation in the classifications and descriptions of the products on display, observed in the available catalogues compared to the previous exhibition. Both exhibitions sought to follow international standards by organising the exhibition into five major groups, but the National Exhibition of 1861 presented descriptive catalogues with the 5 established groups and 35 classifications and subdivisions presented, while the analysed catalogue of the National Exhibition of

¹⁶⁴ Heynemann Claudia Beatriz, Monteiro Maria Elizabeth Brêa, « Festa das Artes e da Indústria Segunda Exposição Nacional, 1866 », Website *brasilianafotografica*, 2020. Accessed on 15 May 2021. URL: <http://brasilianafotografica.bn.br/?tag=exposicao-nacional-de-1866>

1866 presented the objects sent by province with the classification established by the provincial exhibitions¹⁶⁵.

The exhibition of 1866 was held in a different building from the 1st exhibition, but the expository discourses are still very close where the objects are distributed in a piled-up way, preventing an individual reading, but showing the quantitative wealth of existing products and machines. This way of displaying was very common in the 19th century exhibitions. The photographic records in the National Exhibition of 1866 are important historical sources that illustrate this display and discourse of industrial exhibitions in Brazil in the 19th century.

2.3 National Exhibition of 1873

The 3rd National Exhibition was held in 1873, preceding the International Exhibition of Vienna in 1873, and took place in the Central School of Rio de Janeiro, the same place as the 1st National Exhibition held in 1861. It was inaugurated on January 1 and closed on February 3, 1873, remaining open for 33 days, where it was visited by 44,996 people¹⁶⁶. The event was hampered by elections held the previous year throughout the Empire, which compromised the organisation of regional preparatory exhibitions¹⁶⁷.

The 3rd National Exhibition of Brazil was called by the Imperial Decree of 1872 and its inauguration was scheduled for December 2 of the same year, but shipments of products from some provinces were delayed so that only on January 1, 1873 the exhibition could be opened¹⁶⁸.

The high commission was appointed by the imperial government and was composed of the following members: the president Duke of Saxe; the vice-presidents, Visconde de Jagury Visconde do Bom Retiro and Visconde de Souza Franco; the commendador, Joaquim Antônio de Azevedo; and the commissioners, Francisco

¹⁶⁵ *Catálogo dos produtos naturaes e industriais remetidos das províncias do Império do Brazil*, Rio de Janeiro, Typographia nacional, 1862.

¹⁶⁶ Macedo, Manoel de, Joaquim, *Exposição Nacional de 1873. Relatório do secretário geral do jury da Exposição Dr. Joaquim Manoel de Macedo*, Rio de Janeiro, Typographia da Reforma, 1875, p. 10-14.

¹⁶⁷ Freitas Filho, Almir Pita, « Tecnologia e Escravidão no Brasil: Aspectos da Modernização Agrícola nas Exposições Nacionais da Segunda Metade do Século XIX (1861-1881) », *Revista Brasileira de História*, São Paulo, t. 11, n° 22, 1991, p. 80.

¹⁶⁸ Macedo, Manoel de, Joaquim, *Exposição Nacional de 1873. Relatório do secretário geral do jury da Exposição Dr. Joaquim Manoel de Macedo*, Rio de Janeiro, Typographia da Reforma, 1875, p.9

Ignacio Marcondes Homem de Mello and Francisco Antônio Gonçalves¹⁶⁹. The higher commission was responsible for choosing the general jury for the qualification of the exhibition.

This general jury was subdivided in eleven special juries corresponding to the twenty-six groups of the classification system of the Universal Exhibition that would take place in Vienna; and yet, another special jury destined to the main Brazilian product in exhibition was coffee, which was not placed in the general classification¹⁷⁰.

We did not have access to the official catalogue of the 1873 Exhibition, but we did have access to the catalogue of the Bahia Provincial Exhibition of 1872 which used the cataloguing system of the Vienna Exhibition, also used in the Preparatory National Exhibition¹⁷¹. It is possible to note gaps in the numbering of the classifications in this document. A possible explanation could be because there were no products or no productions that fitted these classes. According to the catalogue of the Bahia provincial exhibition, 26 classification groups were used, but the objects were only catalogued in the following twenty groups¹⁷²:

- 1 - Products from the mines, stones, calcareous sands, clay pits, etc.
- 2 - Agriculture, vegetable fibres, horticulture, wood and medicinal plants.
- 3 - Chemical and pharmaceutical products.
- 4 - Industrial products, food and consumer goods.
- 5 - Industrial clothing, textiles and fabric preparations.
- 6 - Leather industry.
- 7 - Metal industry.
- 8 - Woodworking (furniture, etc.).
- 9 - Ceramic artefacts.
- 10 - Art and fantasy objects.
- 12 - Graphic arts and industrial designs.
- 13 - Machines.
- 14 - Precision instruments.
- 15 - Musical instruments.
- 16 - Military art.
- 17 - Navy.
- 18 - Architecture, Engineering Processes, Public Works and Architecture.
- 20 - Agrarian Instruments and Rural dwelling utensils.
- 25 - Fine Arts.
- 26 - Education, Instruction and teaching.

¹⁶⁹ *Ibidem*, p. 9.

¹⁷⁰ *Ibidem*.

¹⁷¹ Cunha Silva Cinthia da, Cerávolo Moraes Suely, « Para bem representar o Brasil no exterior: exposições provinciais Baianas (1866-1888) », *Museologia e Patrimônio*, t. 11, nº 1, 2018.

¹⁷² *Catálogo da Exposição Provincial da Bahia de 1872*, Bahia, Typografia de J. G. Tourinho, 1872.

The 1st section comprised Mining and Metallurgy. According to the report, the exhibition of mineral products at the 1873 National Exhibition far exceeded those of 1861 and 1865¹⁷³. There was a minerals hall where precious stones such as gold, diamonds, lead, copper, marbles of various colours, rock crystals, among others, were exhibited¹⁷⁴.

The representation of the agricultural industry was also considered insufficient due to the small number of exhibitors, mostly from Rio de Janeiro. According to Almir Pinta, despite the reduced display of mechanical objects for agriculture, significant improvements in agricultural technology could already be noted, resulting from the introduction of new instruments, machinery and cultivation processes¹⁷⁵.

Within the 13th Machinery group, we can highlight some examples of machines from the agricultural sector: sugarcane mill manufactured by Luiz Lopes Schlmeyer&Co., a cassava peeling machine invented and exhibited by the mechanic Christovão Augusto Witzleben, a wooden drum to cure cassava paste invented by Domiciano Antônio Gonçalves, and pieces that were part of the mill built by Companhia Maylor & Co¹⁷⁶.

Also, according to Almir Pinta, the exhibition sought to show the introduction of machines in Brazilian agriculture associated with factors such as agricultural and professional education and their role as modernisers in replacing obsolete jobs on the way to extinction. Another relevant theme was the concerns with the reality of slavery in the country and, in particular, in its most vulnerable issue in economic terms and in export agriculture¹⁷⁷.

Unfortunately, we did not have access to the photo album of this exhibition, and it was not possible to make a more detailed analysis of its exhibition discourse. It was also not possible to have access to the more detailed catalogue that presents the categories and divisions of the exhibition. The National Exhibition of 1873 was

¹⁷³ Macedo, Manoel de, Joaquim, *Exposição Nacional de 1873. Relatório do secretário geral do jury da Exposição Dr. Joaquim Manoel de Macedo*, Rio de Janeiro, Typographia da Reforma, 1875, p.14.

¹⁷⁴ *Ibidem*, p.15.

¹⁷⁵ Freitas Filho, Almir Pita, « Tecnologia e Escravidão no Brasil: Aspectos da Modernização Agrícola nas Exposições Nacionais da Segunda Metade do Século XIX (1861-1881) », *Revista Brasileira de História*, São Paulo, t. 11, n° 22, 1991, p. 80.

¹⁷⁶ *Ibidem*.

¹⁷⁷ *Ibidem*, p. 81.

successful, but its number of visitors was reduced in comparison to the two previous ones.

2.4 National Exhibition of 1875

The 4th National Exhibition was held on 2 December 1875, a date in honour of the Emperor's birthday. The exhibition preceded the Universal Exhibition of Philadelphia in 1876 and had 67,000 visitors in 45 days, the largest number of visitors until then. The Philadelphia International Exhibition was the 1st international exhibition to receive a Brazilian pavilion and the 1st to represent countries in this format.

The Secretary of State of the Business of Agriculture, Commerce and Public Works was the building chosen to hold the 4th Brazilian National Exposition. The building was the work of engineer Pereira Passos, designed by Ballarini and Bosisio and was located in the former Campo de Aclamation, downtown Rio de Janeiro. The building was constructed between 1871 and 1874 and was initially intended for the Post Office, but until 1891 it served the State Secretariat of the Business of Agriculture, Commerce and Public Works. As we can see in Figure N° 10, the building was composed of two faces, and two side wings, joined by a central body.

Figure 10 - Ministry of Agriculture



Source: Gutierrez, Juan. Coleção Juan Gutierrez, Brasileira Fotografia.¹⁷⁸

The Imperial Government, by determination of Decree nº 5793 of 11 November 1874, sent circulars to the provinces with the aim of gathering and preparing the largest quantity of products for the National Exhibition and which would later be sent to the Philadelphia Exhibition¹⁷⁹.

The Organising Committee of the National Exhibition of 1875 was formed by the following members: Conde d'Eu, who assumed the presidency; Visconde de Jaguaré; Visconde do Bom Retiro; Comendador Joaquim Antonio de Azevedo; the Commissioner, Conselheiro Francisco Ignacio Marcondes Homem de Mello; the Assistant Commissioner Comendador, Francisco Antonio Gonçalves; the Technical Assistant, Dr. André Rebouças; the architect Francisco Monteiro Caminhoá; and 14 other deputy members¹⁸⁰.

Saldanha da Gama¹⁸¹, deputy member of the exhibition commission, wrote a book with 14 articles about the National Exhibition of 1875 that were also published in the *Jornal do Comercio*¹⁸². The author gives a description of the objects presented in the exhibition by typologies and by provinces. According to one of his reports on the exhibition:

"The cotton fabric factory situated in Macacos, less than one kilometre from the railway station of D. Pedro II, sent to the national exhibition a great number of bales of cotton wool in crude, a lot of spun cotton, and a weaving machine which works there daily under the direction of a girl. A little further on there are dozens of pieces of cotton fabrics, similar to those commonly known as American cotton,

¹⁷⁸ Accessed on 15 April 2021. URL: <https://brasilianafotografica.bn.gov.br/brasiliana/handle/20.500.12156.1/6289>

¹⁷⁹ Exposição Nacional de 1875. Notas e observações de Rozendo Moniz Barreto. Rio de Janeiro: Typ. Nacional, 1876, p. 11.

¹⁸⁰ Barreto, Moniz, Rozendo, Exposição Nacional de 1875. *Notas e observações de Rozendo Moniz Barreto*, Rio de Janeiro, Typographia Nacional, 1876, p. 11.

¹⁸¹ José Saldanha da Gama (1839-1905) born in Rio de Janeiro, was a Botanist, biographer, professor, diplomat, founding member of the *Escola Politécnica*, member of the Brazilian Historical and Geographical Institute of the *Sociedade Auxiliadora da Indústria Nacional*, and of other various societies and orders. He was also an Interim Professor of Botany and Zoology at the Central School from 1858 to 1874.

¹⁸² Gama, José Saldanha da, *Estudos sobre a Quarta Exposição Nacional de 1875*, Rio de Janeiro, Typographia Central de Brown & Evaristo, 1876, p. 7.

English or North American cotton. They are of different patterns, with the prices following the qualities of the fabrics¹⁸³.”

According to this account we can perceive some of the objects on display by a cotton fabric factory; the existence of a person responsible for the maintenance and operation of the machine during the exhibition; and the information that the pieces of fabrics were accompanied by prices in the exhibitions.

Rozendo Moniz Barreto, adjunct member of the 1975 National Exhibition superior commission, also wrote a book with notes and observations about the exhibition¹⁸⁴. According to one of his notes, he was invited to attend the display of moving machines and national manufactures inside the annex pavilion of the 1875 Exhibition. This is another note that showed that the industrial machines were functional and that there were demonstrations of their operation to the public:

“We met, however, on the way the solicitous Mr. Commander Joaquim Antonio de Azevedo, who invited us to attend the exhibition of machineries in movement and national manufactures inside the annex pavilion¹⁸⁵.”

As for the space available for exhibition in the building, the general plan was composed of two wings, separated by an H-shaped body, occupying the two spans of gardens enclosed by iron railings and three floors. The space contained 18 halls on the three floors of the two wings and even then, it was insufficient to store and exhibit products from 18 provinces, proving necessary to build a wooden annex.¹⁸⁶ Exhibited in this annex in three halls was machinery from various industries, equipment from the

¹⁸³ *Ibidem*, 1876, p. 127-128. Original Citation: “A fabrica de tecidos de algodão situada em Macacos, a menos de um kilometro de estação da estrada de ferro de D. Pedro II, mandou para a exposição nacional grande numero do fardos de algo lã em rama, muito algodão fiado, e uma machina de tecer que trabalha allí diariamente sob a direcção de uma menina. Pouco adiante contam-se dezenas de peças de tecidos de algodão, semelhantes ao vulgarmente designado por algodão americano, nu inglez ou norte-americano. São de padrões diferentes acompanhando os preços as qualidades de tecidos.”

¹⁸⁴ Barreto, Moniz, Rozendo, *Exposição Nacional de 1875. Notas e observações de Rozendo Moniz Barreto*, Rio de Janeiro, Typ. Nacional, 1876.

¹⁸⁵ Barreto, Moniz, Rozendo, *Exposição Nacional de 1875. Notas e observações de Rozendo Moniz Barreto*, Rio de Janeiro, Typ. Nacional, 1876, p. 61. Original Citation: “Encontrámos, porém, no caminho o solícito e attrahente Sr. commendador Joaquim Antonio de Azevedo, que nos convidou para assistirmos á exposição de machinismos em movimento e manufacturas nacionaes no interior do pavilhão anexo”.

¹⁸⁶ *Ibidem*, p. 15.

Court's Navy arsenal, and wood from some provinces, with room for a zootechnical exhibition¹⁸⁷.

We can find the distribution of objects and the division of the thematic rooms in the description of the exhibition route in Augusto Emílio Zaluvar's notes and observations¹⁸⁸. According to the author, the entrance was made by some steps that gave in the vestibule that communicated with the lower floor of the palace, where the salons and the products sent by the following provinces were located: Amazonas, Pará, Ceará, Paraíba, Alagoas, Maranhão, Matogrosso, Rio Grande do Norte, Goiás, Santa Catarina and Paraná¹⁸⁹.

On the 2nd floor, going up a wooden staircase, were the artefacts of the province of Rio de Janeiro, the room of the National Museum, the zoology and botany room of the School of Medicine and Fine Arts¹⁹⁰. On the 3rd floor were the products of the provinces of São Paulo, Rio Grande do Sul, Minas Gerais, Pernambuco, and Bahia. The author also comments on the general decoration of the building for the exhibition:

"Besides this, on all the stair tops, on all the walls, one can admire various trophies, panoply, collections of miners, curious works of cabinetmaking, made both in the House of Correction, and in other public and private establishments, worthy of appreciation¹⁹¹."

Also, according to Augusto Emílio Zaluvar's accounts, the National Museum Hall was divided into three sections:

"The cabinet of the Museum is divided into three sections. The 1st comprises skeletons and specimens of ornithological fauna; the 2nd the archaeological collections; and the 3rd the Brazilian numismatic collection. As to the 1st, [...] it

¹⁸⁷ *Ibidem*, p. 16.

¹⁸⁸ Augusto Emílio Zaluvar, was a writer, poet, journalist, and Portuguese-born Brazilian who worked as a journalist in the newspaper *O Globo*, writing several articles about the National Exhibition of 1875. He made daily visits to the halls of the exposition and made a descriptive account that also became a book containing all the articles published in the newspaper.

¹⁸⁹ Zaluvar, Augusto Emílio, *Exposição Nacional brasileira de 1875*, Rio de Janeiro, Typografia do Globo, 1875, VIII, p. 15.

¹⁹⁰ *Ibidem*.

¹⁹¹ Zaluvar, Augusto Emílio, *Exposição Nacional brasileira de 1875*, Rio de Janeiro, Typografia do Globo, 1875, VIII, p.16. Original Citation: "Além disto, em todos os topes de escada, em todas as paredes, admiram-se variados trophéos, panoplias, collecções de mineraes, obras curiosas de marcineria, feitas tanto na Casa de Correção, como em outros estabelecimentos públicos e particulares, dignos de apreço".

is composed of only a small part of the beautiful specimens of this genus that exist in that important establishment, and deserve special mention among the skeletons, that of a Surucucú or water snake, a gigantic reptile which is also represented there by its own skin; and that of a large otter (*Delphinus rostratus*), both admirably prepared¹⁹².”

We can see that the National Museum selected a part of its scientific collection with different specimens. It is interesting to note that the province of Rio de Janeiro had the privileged space of the entire 2nd floor of the building, and that its rooms were divided by its institutions, the National Museum and the schools of Medicine and Fine Arts.

The products exhibited by the provinces were not sufficient to exploit all the plurality of the natural and industrial riches of the Brazilian territory. According to the report, the greatest difficulty was due to the long distances separating the various points of the Empire, and that the situation should improve with the development of communication routes¹⁹³.

The organisation of the exhibition decided to follow the classification system adopted by the jury that would be followed at the Universal Exhibition of Philadelphia to be held in 1876. According to the definitive plan, groups were formed by sections, and in certain spaces were the products of each country. According to the provisional plan the sections were subdivided into 109 groups and 1,099 classes, in the 10 sections described below, which in the definitive plan were reduced to seven¹⁹⁴.

1. Raw materials, mineral, vegetable, and animal.
2. Substances and preparations for food or arts use, results of extractive processes and components.
3. Fabrics and felts, clothing, dresses and ornaments.
4. Furniture and implements for general use in construction and housing.
5. Utensils, instruments, machines and processes.

¹⁹² Zaluar, Augusto Emilio, *Exposição Nacional brasileira de 1875*, Rio de Janeiro, Typografia do Globo, 1875, VIII, p.261. Original Citation: “O gabinete do Museu divide-se em tres secções. A primeira compreende esqueletos E especimens da fauna ornithologica; a segunda as collecções archeologicas; e a terceira a collecção numismatica brasileira. Quanto á primeira, [...] compõe-se apenas de uma parte diminuta dos bellos exemplares que existem deste genero naquelle importante estabelecimento e merecem entre os esqueletos especial menção, o de um Surucucú ou cobra de agua, reptil gigantesco e que tambem é representando ali pela propria pelle ; e o de um grande bôto, (*Delphinus rostratus*), ambos admiravelimente preparados”.

¹⁹³ Barreto, Moniz, Rozendo, *Exposição Nacional de 1875. Notas e observações de Rozendo Moniz Barreto*, Rio de Janeiro, Typ. Nacional, 1876, p.18.

¹⁹⁴ *Ibidem*, p. 28.

6. Engines - devices for the formation and transmission of force and for raising and moving fluids.
7. Material and method for dissemination of teaching.
8. Engineering, Public Works and Architecture.
9. Graphic and plastic arts.
10. Objects to aid the improvement of man's physical, intellectual, and moral condition.

We can observe an example of the subdivisions found in the Catalogue of the National Exhibition of 1875¹⁹⁵:

- **Section One:** Raw materials: minerals, vegetable and animal products.
- **Group X:** Minerals, ores, building stones, metallurgical products.
- **Class 100:** Metallic and non-metallic minerals, except coal and oils, systematic collections of minerals and ores, geological collections.
- **Description:** collection/sample/product + Name of Exhibitors + Province.

In the analysed reports several authors have shown their concerns about the need to build a definitive building of adequate proportions to house the Exhibitions of industry and national work:

"This flattering manifestation of the industrial activity of the country, this growing impulse of our productive forces, gives substance to an idea that has already been initiated with much patriotism and criterion within the Superior Commission, and that today has become, so to speak, rooted in the public spirit: the immediate construction, in the capital of the Empire, of a permanent Exhibition Palace.¹⁹⁶"

The authors complain that with the money spent on the provisional works of the four national exhibitions, a building could have been constructed for this proposal. They also recommend the formation of "Official Collections", based on the purchase and

¹⁹⁵ *Catálogo da Exposição Nacional*, em 1875, Rio de Janeiro, Typographia e Lithographia "Carioca", 1875, 621 p. Accessed on 15 July 2021. URL: http://objdigital.bn.br/objdigital2/acervo_digital/div_obrasraras/or75591/or75591.pdf.

¹⁹⁶ Zaluar, Augusto Emilio, *Exposição Nacional brasileira de 1875*, Rio de Janeiro, Typografia do Globo, 1875, VIII, 296 p. 17. Original Citation: « Esta manifestação lisongeira da actividade industrial do paiz, este impulso crescente de nossas forças productoras, vem dar corpo a uma idéa quê já foi iniciada com muito patriotismo e critério no seio da Comissão Superior, e que boje se tornou, por assim dizer, radicada no espirito publico: — a construcção immediata, na capital do Império, de um Palacio de Exposição permanente ».

acquisition of the collections of the national exhibitions, and that an Industrial Museum should also be created in the future.

"Therefore, we also defend the cause that sustains the convenience of the government buying the best products from the exhibitors and forming official collections with them, which would have the double advantage of serving as a term of comparison, of permanent samples, which would later serve to enrich our Industrial Museum, when we have it functioning¹⁹⁷."

Comendador, Joaquim Antonio de Azevedo, transcribes his considerations on the creation of an official collection from the purchase of these collections from the National Exhibitions and the creation of a future Industrial Museum to house these collections:

"When an Industrial Museum is created, there will be a place for these collections, true synopses of everything that the country's industry produces, complete chapters of a history in which all the producers are called upon to collaborate, whether they like it or not, to the benefit of them and of the consumer¹⁹⁸."

He protests that the National Exhibitions are too exaggerated and disorganised and that they do not truly represent national industrial works and products, and that the best way to solve this problem would be to create official collections selected and collected by professionals:

"The experience of exhibitions shows that the free exhibition, whatever the aids of governments and the diligence of local commissions, is always very imperfect and incomplete in what has to be exposed, and disorderly, exaggerated, prolix in the exhibition of products, which cannot be considered as industrial works. [To end this authorized, sanctioned, and even rewarded lie, the official collections will serve.] Once the exhibition is over you can sell them, losing little or keep them in

¹⁹⁷ *Ibidem*, p. 278. Original Citation: « Advogamos, pois, também a causa que sustenta a conveniência de o governo comprar aos expositores os melhores productos e formar com elles as collecções officiaes, que teriam a dupla vantagem de servir desde já de termo de comparação, de amostras permanentes, que mais tarde serviriam para enriquecer o nosso Museu Industrial, quando o tivermos funcionando ».

¹⁹⁸ *Ibidem*, p. 278. Original Citation: « Quando se crear um Museu Industrial terão alli lugar essas collecções, verdadeiras synopses de tudo quanto produz a industria do paiz, capitados completos de uma historia em que sao chamados a colaborar, queiram ou não queiram, todos os productores, com proveito para elles e para o consumidor ».

the Industrial Museum, acquiring successively what is necessary for them to always be complete¹⁹⁹.”

Unfortunately, we also did not have access to the photo album of this exhibition, making it impossible to make a more detailed analysis of its discourse. However, we did have access to several descriptive accounts of the exhibition that illustrated the exhibition route, the objects on display and the interaction with the public. These reports also gave access to several opinions on important issues such as the need for the construction of a permanent exhibition space for National Exhibitions and an Industrial Museum in Brazil.

The impressions left about the 1875 National Exhibition by Rozendo Muniz Barreto and José Rozendo Muniz Barreto lamented the lack of representation of natural resources from some provinces. Saldanha da Gama also comments on a drop in motivation for participating and organising the exhibition when compared to those of 1861 and 1866²⁰⁰.

However, we can conclude that the 4th National Exhibition had a growing number of visitors totalizing 67,568 people, being significantly the exhibition with the largest number of visitors, having aroused greater interest in the public. This exhibition certainly served as an example for future Brazilian industrial exhibitions, being a visible and public success in several reports and memories.

2.5 National Exhibition of 1888

The Universal Exhibition of Paris of 1889 had the participation of the Brazilian Empire, despite the political and social scenario. The exhibition was commemorative

¹⁹⁹ *Ibidem*, p. 279-782. Original Citation: « A experiencia das exposições demonstra que a exposição livre, quaesquer que sejam os auxílios dos governos e as diligencias das commissões locais, é sempre muito imperfeita e muito incompleta no que importa expôr, e desordenada, exagerada, prolixa, na exhibiçoes dos productos, que nao podem ser considerados como obras industriaes. [...] Para acabar esta mentira autorizada, sancionada, e até premiada, servirão as collecções officiaes. [...] Terminada a exposição pôde vende-las, perdendo pouco ou guarda-las no Musêu Industrial adquirindo successivamente o que for necessário para que sempre estejam completas ».

²⁰⁰ Gama, José Saldanha da, *Estudos sobre a Quarta Exposição Nacional de 1875*, Rio de Janeiro, Typographia Central de Brown & Evaristo, 1876, p. 29.

of the Centenary of the French Revolution and was the last one that had the participation of Brazil under the imperial regime, where the republic was instituted on November 15th, 1889.

The 5th National Exhibition took place between 1888 and 1889, at the *Lyceu de Artes e Oficios* Building in Rio de Janeiro. The exhibition began on December 10, 1888 and lasted for 48 days, with a visitation of 60,000 people. After the beginning of the period of the Republic of Brazil in 1889, the national exhibitions in Brazil stopped being held for some time with the same purpose of preparing for the Universal Expositions.

The French-Brazilian Commission in Paris formed the Brazilian Central Commission in Rio de Janeiro to gather together all the objects destined for the Universal Exhibition of 1889 and to send them back after they had been exhibited at the National Exhibition. The objects were divided and exhibited by groups and classes, in accordance with the Regulations of the Paris Exhibition of 1889. The list of classification categories consisted of 9 groups and 83 classes. Once classified, the objects could be more easily packed and sent to Paris in time to be displayed, each volume bearing an inscription on the outside relative to the group and class to which the contents belonged.

The *Gazeta de Notícias* newspaper gives a description of the Brazilian pavilion that was being built in Paris and talks about the objects that would compose its internal space that were being exhibited at the National Exhibition in Rio de Janeiro. The National Exhibition had been inaugurated the day before and was attended by the emperor at its opening. The newspaper judges the exhibition as poor and a bad representation of the national industry:

“The exhibition is poor and, if it were not for the wooden artifacts and mosaics, the exhibition of shoes, the products of the textile factories, and a few more specimens of national industry, our much-vaunted and decanted national industry would be very poorly represented in Pariz. [...] Still in the Abilio Exhibition there is an alligator and some stuffed birds, and two pictures of insects, nailed with pins. Do not think, however, that there is nothing good in the exhibition; there is, as

there is also a lot of bad things; we will deal with some and others in subsequent articles²⁰¹.”

The footwear industry was well represented in the National Exhibition with the participation of the following three companies: Freitas, Soares & Rocha, Carvalho Andrade&C., and Ferreira Nicoláu & C. The *Luz Stearica factory*, an important national industrial establishment at the time, also occupied a significant place in the exhibition displaying stearin candles and lamps, glyserine and olein soap. Another example of a factory in the exhibition was that of *Produtos Químicos Rosina* which presented various samples of sulphuric, nitric and chlorhydric acids and copper sulphate²⁰².

The industry that represented the largest number was of fabrics, where eleven factories were present at the exhibition. We can highlight the wool and cotton fabrics factory from Rio Grande do Sul de Rheingantz&C., represented by Emilio de Barros. This factory exhibited products such as superior quality cloths, chalets, blankets, flannels, casimiras, blankets, and modern machinery of fabric production²⁰³.

According to the *Gazeta de Notícias* newspaper, there were difficulties in convincing Brazilian industrialists to take part in the exhibition for fear of being unfavourably judged in another country:

"The worthy members of the central commission and their assistants went from door to door, begging and imploring the industrialists to compete in the preparatory exhibition, and the majority of the industrialists refused, alleging that some did not want to subject their products to a confrontation that would not be

²⁰¹ *Gazeta de Notícias*, Rio de Janeiro, 11 de dezembro de 1888, Edição 00345. Accessed on 15 July 2021. URL:

http://memoria.bn.br/DocReader/DocReader.aspx?bib=103730_02&Pesq=%22exposi%3%a7%3%a3o%20preparat%3%b3ria%22&pagfis=14855. Original Citation: « A exposição é pobre e, se não fossem os artefactos e os mosaicos de madeira, a exposição de calçados, os produtos das fabricas de tecidos, e de mais alguns poucos, especimens da indústria nacional, esta nossa tão apregoada e decantada indústria nacional muito mal representada seria em Pariz. [...] Ainda na Exposição Abilio figuram um jacaré e algumas aves empalhadas, e dois quadros de insectos, pregados com alfinetes. Não se julgue, porém que na exposição não ha cousa alguma boa; ha, como também ha muita cousa má; de umas e outras nos ocuparemos em subseqüentes artigos ».

²⁰² *Gazeta de Notícias*, Rio de Janeiro, 17 de dezembro de 1888, Edição 00351. Accessed on 15 July 2021. URL:

http://memoria.bn.br/DocReader/DocReader.aspx?bib=103730_02&Pesq=%22exposi%3%a7%3%a3o%20preparat%3%b3ria%22&pagfis=14887

²⁰³ *Gazeta de Notícias*, Rio de Janeiro, 27 de dezembro de 1888, Edição 00361. Accessed on 15 July 2021. URL:

http://memoria.bn.br/DocReader/DocReader.aspx?bib=103730_02&Pesq=%22exposi%3%a7%3%a3o%20preparat%3%b3ria%22&pagfis=14941

favourable; while others presented the excuse that they did not have time to prepare for the exhibition. And so, the insane work of the commission and its assistants produced little result²⁰⁴”.

These reports show a certain concern of Brazilian manufacturers in being judged by other countries, in addition to other obstacles that prevented a better representation of the National industry. However, we still consider that there was a certain representation of some industrial activities, especially in the areas of fabrics, footwear, and furniture.

The research did not find documents and photographic records about the National and Preparatory Exhibition of 1888 in Rio de Janeiro. However, it was possible to analyse and obtain information about the exhibition from newspaper documents of the time. There is also a large number of materials and documents about the participation of Brazil in the Universal Exposition in Paris 1889, mainly about the Brazilian pavilion in the exhibition.

The preparatory exhibitions for the Universal Exhibitions influenced other industrial exhibitions held in the country, we highlight the success of regional exhibitions that were organised periodically in the late 19th century. We can put as an example of a preparatory exhibition for the participation of Brazil in an exhibition held in another country, the exhibition that took place in Brazil in 1881 in the halls of the *Typographia Nacional* and that was a preparation for the Continental Exhibition of Buenos-Aires in 1882²⁰⁵. Exhibitions of a more specific nature were also spread throughout Brazil, such as agricultural and artistic exhibitions, among others.

Besides influencing other industrial exhibitions, we can also highlight the influence on the acquisition of official collections and the creation of museums of different themes in Brazil. The preparations for the National Exhibitions were real

²⁰⁴Gazeta de Notícias, Rio de Janeiro, 17 de dezembro de 1888, Edição 00351. Accessed on 15 July 2021. URL:

http://memoria.bn.br/DocReader/DocReader.aspx?bib=103730_02&Pesq=%22exposi%3%a7%3%a3o%20preparat%3%b3ria%22&pagfis=14887. Original Citation: « Os dignos membros da comissão central e seus auxiliares andaram de porta em porta, rogando, implorando aos industriais, para que concorressem á exposição preparatoria, e a maioria dos industriaes esquivou-se, allegando uns que não queriam sujeitar os seus produtos a um confronto que não seria favoravel, apresentando outros a desculpa de que não tinham tempo de preparar-se para a exposição. E assim, o insano trabalho da comissão e seus auxiliares pequeno resultado produziu ».

²⁰⁵ Gazeta de Notícias, Rio de Janeiro, 3 de agosto de 1881, Edição 00206. Accessed on 15 July 2021. URL:

http://memoria.bn.br/DocReader/DocReader.aspx?bib=103730_02&Pesq=%22exposi%3%a7%3%a3o%20preparat%3%b3ria%22&pagfis=2440

social events that involved many people, processes, and organisations. This movement motivated the production and vulgarization of scientific and industrial education, influencing also the production of new events and the creation of scientific institutions in the country.

CHAPTER 3

Brazilian Industrial Exhibitions at the Universal Exhibitions

There was a series of structures that were built to host Universal Exhibitions, some temporary and others permanent, and this had a great impact on the chosen cities. Some examples are the pavilions of the guest countries, which showed new materials, construction forms, and architectural style of each country²⁰⁶. The circulation of scientific and technological knowledge was facilitated globally through these exhibitions and the temporary pavilions and cities built for these events²⁰⁷.

The International Bureau of Expositions (BIE) is an international intergovernmental organisation based in Paris, France, and is responsible for monitoring and enforcing the Convention relating to International Exhibitions. The BIE is responsible for the Paris Convention of 1928 which defines the duration of International Exhibitions, between 5 to 6 months, and defines them as:

“An official or officially recognised international exhibition is considered to be any event, whatever it may be called, to which foreign countries are invited through diplomatic channels, which is generally of a non-periodic character, whose main purpose is to show the progress made by different countries in one or more branches of production and where no distinction is in principle made between buyers and visitors for admission to the exhibition grounds²⁰⁸”.

The exhibitions served for the spreading of important technological inventions. For example: the telephone, the typewriter, and sewing machines (Philadelphia 1876), the lift (Paris 1878), the phonograph (Paris 1889), among others. We highlight in the

²⁰⁶ On the Portuguese pavilions see, among others, Maria Helena Souto, *Portugal nas Exposições Universais 1851-1900*, Lisboa, Ed. Colibri, 2011.

²⁰⁷ Matos Ana Cardoso de, Demeulenaere-Douyère Christiane, Souto Helena Maria, « The World Exhibitions and the display of science, technology and culture: moving boundaries », *Quaderns d'Història de l'Enginyeria*, vol 12, 2012, p.3-10.

²⁰⁸ Cunha, Carmo, Francisco, *Regulamento das Exposições Internacionais*, Lisboa, Imprensa Nacional, 1933, p. 9. Original Citation: « Considera-se exposição internacional oficial ou oficialmente reconhecida toda a manifestação, seja qual for a sua designação, para a qual são convidados países estrangeiros pelas vias diplomáticas, que tem, em geral, um carácter não periódico, cujo fim principal é mostrar os progressos realizados pelos diferentes países num ou mais ramos da produção e onde se não faz em princípio distinção alguma entre compradores e visitantes para entrada nos locais da exposição ».

19th century the use of electricity that begins to appear in the Paris exhibition of 1878, and continues to appear in future exhibitions until its consecration in the 1900 exhibition²⁰⁹. An important element of Universal Exhibitions was the importation of technologies for industries, which was used by foreign entrepreneurs and technicians, publications, catalogues, industrial espionage, among others.

Another important aspect are the advances in photography and the testimonies and perceptions left by records about these events²¹⁰. Photography enabled the representation of several countries through its capturing of their landscapes, traditions, and cultures. Today we can find a great number of iconographic sources left by these events, with testimonies of these temporary pavilions and exhibitions of several countries. Examples of Brazilian photographers who exhibited photographs include Marc Ferrez (1843 - 1923) and Joaquim Insley Pacheco (1830 - 1912) who were awarded prizes at the Exhibition of 1876.

Unfortunately, there is still no inventory of the industrial heritage left by these exhibitions. According to Mendes, this is due to the fact that these exhibitions are mostly studied by historians and not so much by industrial archaeologists, and little attention is devoted to the material sources left by these events²¹¹. However, these exhibitions left traces in the cities where they were held, such as galleries, museums, exhibition areas, train stations, bridges, parks, among others, which can still be studied today.

The Universal Expositions brought impacts on the political, economic, and technological advances of 19th century Brazil, driving the debate around modernization and new technological inventions. These debates were being held by the main institutions and civil society organisations at that time, linked to the government and industrial development. We can observe these issues mainly in the documentation of the *Sociedade Auxiliadora da Indústria Nacional* (SAIN) and the *Imperial Instituto Fluminense de Agricultura* (IIFA), which also played a major role in the organisation

²⁰⁹ Mendes, José Amado, « As exposições como “Festas da Civilização”: Portugal nas exposições internacionais (sécs.XIX-XX) », *Gestão e desenvolvimento*, Nº 7, Viseu, Universidade Católica Portuguesa, 1998, p. 260.

²¹⁰ See more about the subject in: Souto Maria Helena, Matos Ana Cardoso de, « The 19th century World Exhibitions and their Photographic Memories. Between Historicism, Exoticism and Innovation in Architecture », *Quaderns d'Història de l'Enginyeria*, vol 12, 2012, p. 57-80. Accessed on 15 July 2021. URL: <https://upcommons.upc.edu/handle/2099/12871>

²¹¹ Mendes, José Amado, « As exposições como “Festas da Civilização”: Portugal nas exposições internacionais (sécs.XIX-XX) », *Gestão e desenvolvimento*, Nº 7, Viseu, Universidade Católica Portuguesa, 1998, p. 267.

of Brazil's participation in the Universal Expositions, as already explored in the previous chapters.

Several issues were discussed about the economic advantages of Brazil's participation in the Universal Exhibitions and the exhibition of Brazilian products, and the issue of implementing the technological apparatus that would provide conditions for industrial development. The Brazilian society of the 19th century was going through several changes, where a great part of the economy was based on slavery and the elites of the time. The slave trade was the basis of the agro-export economy, where slaves were the main labour force on the country's main export products, coffee and sugar plantations.

The participation of Brazil in the Universal Expositions was connected with a certain fear of exposing the backwardness of the industry and the rudimentary techniques present in the country at that time. We can see this economic and social context in the exhibition discourses chosen. Nevertheless, the Emperor defended the country's participation at these events, insisting on the contribution and support of the Brazilian provinces. These exhibitions contributed to the artistic, agricultural, and industrial dissemination in the country, encouraging the growth and modernization of different fields of knowledge.

The exhibitions served to boost Brazil's entry into the international market, but also brought economic tensions in the context of industrial competition in the rest of the world. These events forced the country to recognize and compare itself in the context of world relations, seeing the need for its improvement in various productive sectors to compete with other countries. We can observe Brazil's participation in some of these international exhibitions in the 19th century in the table below (table n° 4).

Table 4 - Brazil's Participation in the Universal Expositions in the 19th Century

Date	City	Number of Exhibitors	Number of Brazilian Exhibitors	Brazilian Pavilions	Theme
1851	London	14.000	4	No	Industry of all Nations
1862	London	25.000	230	No	Industry and Arts
1867	Paris	52.200	1.339	No	Agriculture, Industry and Arts
1873	Vienna	53.000	Not Informed	No	Culture and Education

1876	Philadelphia	30.864	436	Yes	Arts, Manufacturers and Products of the Soil and Mine
1889	Paris	61.722	838	Yes	<u>French Revolution</u>
1893	Chicago	70.000	<i>Not Informed</i>	Yes	<u>Discovery of America</u>

Source: Table prepared by the author: Mollier Jean-Yves, Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), *Les fastes du progres: le guide des expositions universelles 1851-1992*, Paris, Flammarion, 1992.

The National Preparatory Exhibitions held in Rio de Janeiro aimed to map out and expose the productive diversity and natural wealth of the country, based on the particularity of each province in the selection and dispatch of products. The National Exhibitions were a great success, reaching more than 50 000 visitors and having an important role in the promotion of the industry and national production. Brazil's expository discourse sought not only its national industrialization, but also the promotion of its potential as a supplier of raw materials and products to the rest of the world. These national and universal exhibitions served as a place for the disclosure, dissemination, and democratization of information that contributed to the development of society and the country.

Among the diverse production left by these exhibitions, we will analyse in this chapter the iconographic records, catalogues, and reports left by the participation of Brazil in Universal Exhibitions. We selected Brazil's participation in three Universal Exhibitions: the London exhibition of 1862, the Paris exhibition of 1867, and the Philadelphia exhibition of 1876. We chose these three Expositions to make a comparative study with the National Expositions that preceded them. We found a larger amount of iconographic documents of these three National Exhibitions, which facilitates a comparative study of their expographic discourses.

The catalogues of the Brazilian pavilions in the Universal Expositions, as well as the catalogues of the national exhibitions, were composed of lists of products and producers, organized by province and respecting the classificatory categories given by the Organising Commissions of the Universal Expositions ²¹². Other types of publications found are descriptive reports that present an overview of national

²¹² Cunha, Cínthia da S., « As exposições provinciais do Império: a Bahia e as exposições universais (1866 a 1888) », Master's thesis in History, Universidade Federal da Bahia, Salvador, 2010, p.84.

characteristics, such as relief, hydrography, economic aspects, climate, among others, in order to impress external agents to invest in the country.

The pavilions sought to represent their countries based on an encyclopaedic system that wanted to show everything in the same space. The organisation of the objects and the pavilions expressed an extensive search to expose the industrial and exotic, which caused a strangeness in the exhibition discourse. This discourse was based on a large quantity of piled up objects, which did not always present a certain typological organisation. In this regard, we may refer to the comment made by an engineer belonging to the Brazilian Commission of the 1873 exhibition in Vienna who considered that the "Vienna exhibition had no civilizing character whatsoever; it was simply an immense bazaar of all the peoples of the world²¹³".

We will analyse in more detail the exhibition discourse of Brazil's participation in the three selected Universal Exhibitions.

3.1 London Universal Exhibition 1862

The Universal Exhibition of 1862, or Great London Exposition, was held between 1 May and 1 November 1862 in South Kensington, London on the site of the present-day museum complex that includes the Natural History Museum and the London Science Museum. The exhibition was organised by the Royal Society of Arts, Manufacturers and Trade, and featured over 28,000 exhibitors from 36 countries, with an audience of 6.1 million visitors.

A temporary building was constructed to house the exhibition. The design was done by Francis Fowke and the construction by Charles and Thomas Lucas and John Kelk. The building was first intended to be permanent, built of cast iron and without ornamentation, with the intention that decoration would be added later. However, after the end of the exhibition the British Parliament did not approve of the government's desire to acquire it, and the building was dismantled.

The Crystal Palace experience of 1851 showed that iron and glass buildings were not suitable for hosting exhibitions because the sun penetrated the interior,

²¹³ Hardman, Francisco Foot, *Trem fantasma: a modernidade na selva*, São Paulo, Companhia das Letras, 1988.

requiring many curtains, which made it difficult to see the objects on display. This thought shows the beginning of a concern that resulted in a requirement for the buildings to have pre-established conditions to house an exhibition space. We can find the report of the "Archivo Pittoresco" which comments on this issue.

"these light and elegant constructions, where only iron and glass can enter, have their inconveniences: in summer it is difficult to prevent the sun from penetrating the interior with great intensity, which requires a complicated system of awnings and huge curtains, ... and being closed, at certain times of the day they are too shady for the examination of certain objects of art, especially paintings" and "when it rains, no matter how well-welded the glass panes are, the infiltration of water through so many interstices is never completely avoided²¹⁴".

The exhibition building consisted of a main nave ornamented by two crystal domes, and two adjoining wings perpendicularly, intended for agricultural machinery and equipment. The presented exhibits included diverse machinery, such as Charles Babbage's analytical machine, and machines for cotton cloth factories and marine engines from Henry Maudslay's company.

Another interesting factor was the team of photographers led by William England equipped for stereoscopic photography who produced a series of 350 stereoscopic views of the Exhibition by the London Stereoscopic Company. These images are important historical records left and produced by this exhibition. We can see the interior of the building during the 1862 exhibition in the image below (Figure 11).

²¹⁴ Nova Exposição de Londres, "Archivo Pittoresco", Volume IV, nº 10, Lisboa, Typographia Castro e Irmão, 1861, p.73-74. Accessed on 15 July 2021. URL: http://hemerotecadigital.cm-lisboa.pt/Periodicos/ArquivoP/1861/TomoIV/N010/N010_master/ArquivoPitoresco1861N010.PDF.

Original Citation: « estas leves e elegantes construções, onde não entra mais que o ferro e vidro, têm inconvenientes: no verão é difficil evitar que o sol penetre no interior com grande intensidade, sendo para isso necessário um complicado systema de toldos e cortinas immensas, ... e estando corridas, n' algumas horas do dia fazem demasiada sombra para o exame de certos objectos de arte, os quadros principalmente" e "quando chove, por mais bem soldadas que estejam as vidraças, nunca se evita completamente a infiltração da água por tão grande número de interstícios ».

Figure 11 - The nave from the Eastern Dome at the 1862 Great Exhibition



Source: Photograph, London Stereoscopic and Photographic Co., 1862. ©Victoria and Albert Museum, Lo.

The Brazilian National Exhibition in preparation for the 1861 Exhibition had a total number of almost 10,000 objects exhibited, of which 1,495 were chosen and sent to the London Exhibition²¹⁵. The exhibition had a total of 3,367 exhibitors where Brazil presented a total of 230 exhibitors. We must consider that this was the first official participation of Brazil in Universal Expositions, where the presence in the previous exhibitions of 1851 and 1855 occurred in an unofficial way through representatives sent to these events.

According to the report of the national exhibition, the members of the organising committee were responsible for formulating the regulations and programs needed for the national and international exhibition²¹⁶. Among their duties they were responsible for receiving and distributing the objects brought by the exhibitors in Brazil, attending the daily exhibitions, taking part in the general jury and the special juries, organising the catalogues, packing the objects for shipment to London, and returning the objects not chosen by the exhibitors.

After the closing of the National Exhibition, the meetings of the special juries continued until the definition and choice of all the objects that were to be taken to

²¹⁵ Cunha, Antonio, Luiz Fernandes, *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*, Rio de Janeiro, Typografia do Diário do Rio de Janeiro, 1862, p.21.

²¹⁶ *Ibidem*, p. 16.

London, after the approval of the general jury, which were only finished on 22 January²¹⁷. According to the *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*, the exhibition did not represent the national industry well, and highlighted a lack of specimens and exhibitors. They did not faithfully represent the industry, with many objects being chosen for lack of options:

[...] and as much as the special jury recognized that this industry was not represented in our first Exhibition according to its great importance and perfection, because it even showed in many cases to be late, when in fact there is no such delay, still had to choose specimens, which were certainly not the faithful interpreters of the industry to which they belonged, but that were the only exposed, for not having competed those artists or industrious who could do it better for the benefit and honour of the country.²¹⁸

The London Exhibition of 1862 was organised into five major groups: Agricultural Industry; Manufacturing and Manual Industry; Metal, Arts and Chemicals; Mechanical and Liberal; and Fine Art. This organisation was also followed by the National Exhibition of 1861, and objects from all the groups were sent to London.

Objects from all the classes of the agricultural industry group described in the second chapter of this work were sent to the Universal Exhibition in London, except beer, for fear they would break during the journey, and agricultural apparatus and machinery for their large size, but photographs of these machines were sent²¹⁹.

Within the agricultural industry group, we can highlight the exhibitor, Miguel Couto dos Santos, with his collection composed of two axes, a garden hose, and two sickles, which were chosen for London because they were well made from Swedish iron and refined steel²²⁰.

Among the products sent from the factory and manual industry group were the products also described in the second chapter of this work, such as cotton and derivative

²¹⁷ *Ibidem*, p.69.

²¹⁸ *Ibidem*, p.312. Original Citation: [...] e com quanto reconhecesse o jury especial que essa industria não se achava representada na nossa primeira Exposição segundo a sua grande importancia e aperfeiçoamento, pois que denotava até em muitos casos achar-se atrasada, quando aliás tal atraso não existe, teve ainda assim de escolher specimens, que não eram certamente os fieis interpretes da industria a que pertenciam, mas que foram os únicos expostos, por não terem concorrido aquelles artistas ou industriosos que melhor o podiam fazer com proveito e honra do paiz.

²¹⁹ *Ibidem*, p.71.

²²⁰ *Ibidem*, p.94.

products, bedspreads and other fabrics, footwear and hats, books, canned food, samples of beeswax, among others. Among the objects from the production factories that were sent to London we can highlight the spinning and cotton weaving factory of Andarahy pequeno, municipality of Rio de Janeiro, belonging to the owner Julião Carlos Magno de Usmar²²¹.

In the Metallurgical Industry, Arts and Chemical Products group, several objects were sent. One example is the collection of Theodoro Peckolt²²², a pharmacist established in Cantagalo, whose collection of 146 products obtained and prepared by himself were entirely sent to London. Another example is the collection of minerals sent to London organised by Frederico Leopoldo Cesar Burlamaque, then director of the Museu Nacional, with objects from most of the same museum²²³. The glass factory Mr. Castro Paes & C., established in Rio de Janeiro, sent a collection of 65 products to London, including glass artifacts, crystals, bottles, glasses, compotes, fruit bowls²²⁴.

As with the National Exhibition, we used images from the book *Recordações da Exposição Nacional de 1861*²²⁵, by the author Marquês de Abrantes, which includes illustrations lithographed by the Fleiuss Irmão & Linde Artistic Institute. The album is from the National Exhibition of 1861, but also contains illustrations from the Brazilian exhibition in London. We can observe in figures nº 12 and 11 that the exhibition space of Brazil in the Universal Exhibition of London of 1861 was distributed in a few square meters in the format of a rectangle in the main building of the exhibition. This format of exhibition division between the invited countries in the first universal exhibitions was common, until the change for the construction of national pavilions.

²²¹ *Ibidem*, p.321.

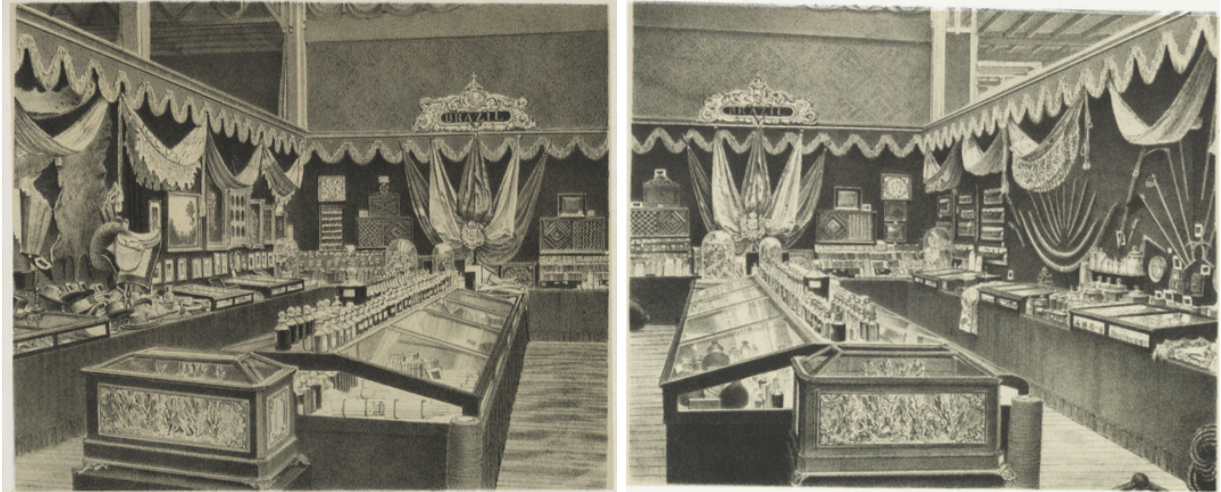
²²² Theodoro Peckolt was a German naturalist and pharmacist, who made a decisive contribution to the development of phytochemistry in Brazil. In the National Exhibition of 1861, Peckolt presented his pharmacognosy and organic chemistry collection, for which he was awarded a gold medal and decorated as an Officer of the Imperial Order of the Rose. We also highlight his work, *Catálogo explicativo da coleção farmacognosia e química orgânica* (Explanatory catalogue of the pharmacognosy and organic chemistry collection), sent to the 1866 Exhibition, in which he pointed out the need to create a Brazilian pharmacopoeia, stimulating its therapeutic uses and industrial production.

²²³ Cunha, Antonio, Luiz Fernandes, *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*, Rio de Janeiro, Typografia do Diário do Rio de Janeiro, 1862, p. 355.

²²⁴ *Ibidem*, p.421.

²²⁵ Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861.

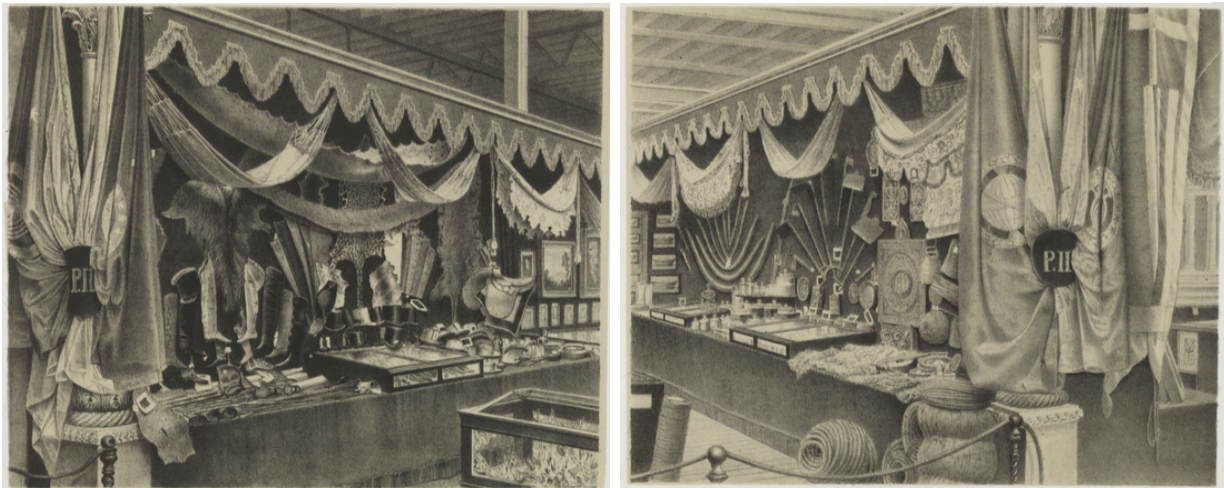
Figure 12 - Brazil at the London Exhibition 1862



Source: Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861, p. 43 and 47.

From these images we can observe the use of temporary walls set up to separate the spaces, exhibition tables, and showcases for storing the exhibition objects. The decoration is seen using voluminous fabrics with the symbol of the empire. The walls are all filled with suspended objects and various fabrics. The tables are full of dividing boxes to separate the objects, and a large display cabinet divided the space in the centre.

Figure 13 - Brazil at the London Exhibition 1862



Source: Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861, p. 44 and 45.

In the images in figure n° 13 we can observe objects like shoes, boots, and hats hanging on the walls and a large portion of objects piled up in the same space. We can observe that there is no visible criterion of separation of objects or some kind of explanatory text or visible captions.

It is important to point out the spatial difference of the two exhibitions, in that the National Preparatory Exhibition of 1861 took place in a large building with several rooms available for the separation of groups and objects, also containing large objects such as industrial machinery and apparatus. However, the organisation of the objects was very similar: both used exhibition tables, showcases, and displays with many agglomerated objects.

3.2 Paris Universal Exhibition 1867

The 1867 Paris Universal Exhibition was held between 1 April and 3 November 1867 on the Champ-de-Mars in Paris. The government of Napoleon III set up an Imperial Commission to organise the exhibition, among the commissioners were Prince Napoleon, a cousin of the Emperor, and Frédéric Le Play²²⁶, a mining engineer. The exhibition brought together some 50,000 exhibitors and 32 countries, with some 11 million visitors over its eight-month duration²²⁷.

The engineer Jean-Baptiste Krantz and the architect Léopold Hardy were responsible for the construction of the main building of the exhibition, a large oval construction in masonry and iron called the Palais Omnibus. The first Champ-de-Mars station is also built in the conception of this event, in order to facilitate the transportation of materials and visitors afterwards.

The main building, dedicated to Industry, was divided into seven thematic galleries, concentric and interspersed with radial corridors dedicated to different countries, having at the centre a garden and a museum dedicated to the history of work, as we can

²²⁶ Pierre-Guillaume-Frédéric Le Play (1806-1882) was a French mining engineer and professor of metallurgy. Napoleon III consulted Le Play frequently and made him a councillor of state in 1855 and a senator in 1867. He was part of the French organisation of the London Universal Exhibition of 1862, encouraging the presence of workers. He was also appointed commissioner-general in the Universal Exhibition of 1867 in Paris.

²²⁷ Brunet François, Talley Jessica, « Exhibiting the West at the Paris Exposition of 1867: Towards a New American Aesthetic Identity? » *Transatlantica*, t, 2, 2017, p. 1. Accessed on 17 July 2021. URL: <http://journals.openedition.org/transatlantica/11280>

reason, he rejected the architects' proposal for the exhibition, designing the elliptical project for the building capable of materialising the classification of products on the same level²²⁹. The chosen exhibition discourse allowed two options for visibility, by nation or by theme/discipline, facilitating a comparison and a certain competition between exhibitors. The 1867 exhibition was also the first to use national pavilions to represent the invited countries:

“The Exposition universelle de 1867 was the most consistent attempt ever made to literally create a world exhibition. Yet its hermetic model was characterized by manifold ruptures. The organizers’ absolute commitment to completeness meant that the 150,000m² Palais d’Exposition lacked, by a long stretch, sufficient space to house all the exhibits, a feat it had managed during the three previous forerunner exhibitions. As a rather coincidental consequence, 1867 featured the use of the first park within a Universal Exhibition and the invention of the National Pavilion as its most striking display technique. This opening up of the space coloured the perception of the visitors as much as the broader model that fundamentally informed the exhibition²³⁰”.

Author, Anne Rasmussen, refers that the Universal Exhibition of 1867 in Paris, organized by Frédéric Le Play, implied a break in the sequence of the organisation of 19th century exhibitions. From this exhibition onwards, the organisation began to follow the philosophical principle of the encyclopaedic vision, framing all human production in a single space²³¹. According to the same author, the exhibition of 1867 had for the first time a project that could be called museographic. Le Play also proposed the replacement of these exhibitions by permanent museums.

The various products on display were installed class by class, to the right and left of the circular gallery to which the special group belonged, with an inscription indicating their number²³². The Imperial Commission for the Exhibition divided the

²²⁹ Vasseur, Édouard, « L’Exposition universelle de 1867 : apothéose du Second Empire et de la génération de 1830 », Thesis for the diploma of archivist-paleographer, Modern History, École Nationale des Chartes, Paris, 2001.

²³⁰ Volker Barth, « The Micro-History of a World Event: Intention, Perception and Imagination at the Exposition universelle de 1867 », *Museum and Society*, 6, vol. 1, 2008, p. 23. Accessed on 17 July 2021. URL:

<https://www2.le.ac.uk/departments/museumstudies/museumstudies/documents/volumes/barth.pdf>

²³¹ Mollier Jean-Yves, Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), *Les fastes du progres: le guide des expositions universelles 1851-1992*, Paris, Flammarion, 1992, p.24.

²³² *Ibidem*.

objects of the exhibition into 10 Groups of Galleries, subdivided into 95 Classes, as we can see below. The nomenclature of the classes is taken from the *Bulletin des Lois*, the decree of 12 July 1805²³³.

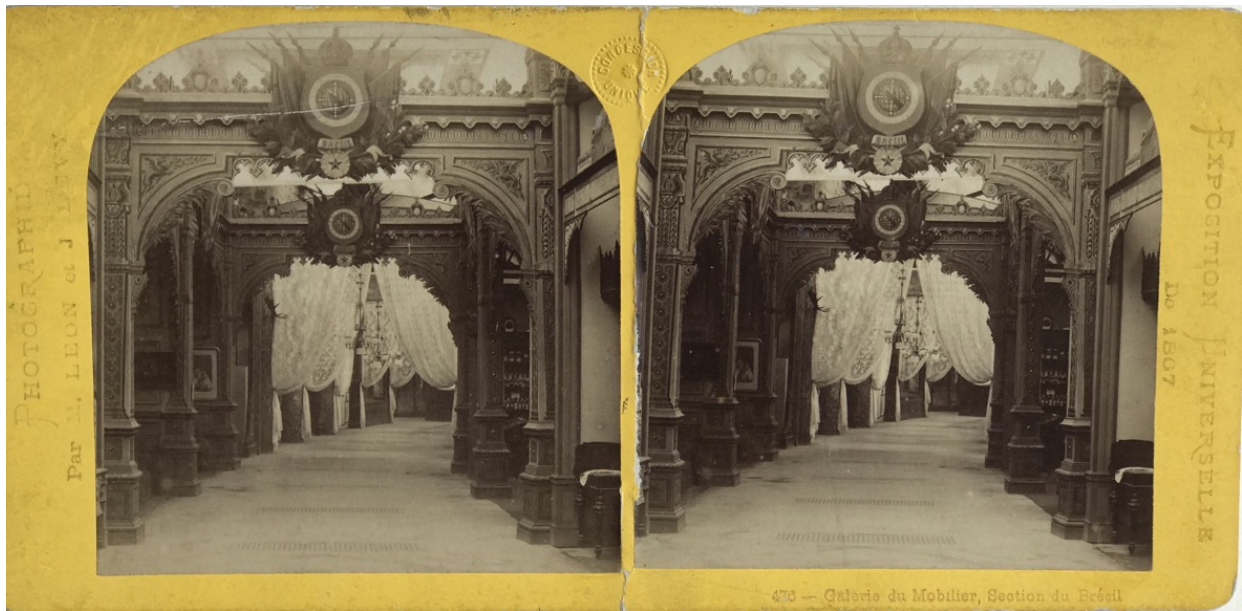
- (1) Works of Art.
- (2) Equipment and application of liberal arts.
- (3) Furniture and other objects intended for habitation.
- (4) Clothing and other objects used by people.
- (5) Products (raw and worked) of extractive industries.
- (6) Instruments and methods of arts.
- (7) Food (fresh or preserved).
- (8) Live products - Agriculture.
- (9) Live Products - Horticulture.
- (10) Objects specially exhibited for the improvement of the physical and moral conditions of the population.

Entering through the main gate of the building, one found on the left all the French products, which occupied all the circular galleries from the periphery to the central garden. The first division of the circular galleries was the Works of Art group, following the other divisions up to the seventh main division, some of which were located outside the palace grounds. The eighth and ninth division (Agriculture and Horticulture) was located on Billancourt Island²³⁴.

²³³ Exposition internationale, *Guide général ou catalogue indicateur de Paris, Indispensable aux visiteurs et aux exposants*, Paris, au siège de l'Administration, 1867, p. 109.

²³⁴ *Ibidem*, p. 13.

Figure 15 - Furniture Gallery - Brazil Section



Source: Léon M., Levy J., Exposition universelle de 1867, N° 476, « Panorama du Parc pris du cercle international », stereoscopic view on paper on card mount, 1867.

According to the guide, the park surrounding the main building had several outdoor facilities and was subdivided into surfaces corresponding to the spaces allocated in the Palace to each nation. These spaces were to be occupied by the foreign commissions, which were in charge of making a certain number of characteristic installations. The park buildings were assigned to groups 8, 9 and 10. The park was divided into 4 parts by country: France, Belgium, England, and Germany. The space also had several leisure and cultural areas, such as theatres, restaurants, libraries, etc.

The exhibitors from Brazil were in the American gallery inside the main palace. This gallery was divided into four distinct parts: the United States, Brazil, the Hawaiian Islands, and the Republics of South America. We did not find a more detailed description or photographs of the Brazilian exhibit at the event; however, we can observe in the image above (figure n°15) the corridor of the Brazilian exhibit. According to one of the reports, the Brazilian exhibition involved a large number of exhibitors of different types of wood. The catalogue of the objects sent to Paris also shows a great amount of these products that were selected.

“Finally, America ends with a complete assemblage of precious woods from Brazil, displayed in a room whose walls and ceiling imitate very well, through its paintings and the half-light that barely penetrates there, the virgin forests where the trees grow, objects exposed there²³⁵”.

The products of the United States occupied the greater part of the gallery of the Americas, with numerous products of their industry. The American republics sent specimens and products of their soil arrangements and ornamentations of their vegetation, and the Hawaiian Islands exhibited a cabinet with the display of their products²³⁶. The photograph below shows the American gallery, in the United States division, Indiana. We can observe the sign informing the group of the exhibition (group II), and a larger sign informing about the nationalities present in the corridor.

Figure 16 - Universal Exhibition of Paris 1867 - American Gallery



²³⁵ Hippolyte Gautier, *Les curiosités de l'Exposition universelle de 1867*, Paris, Ch. Delagrave et Cie, 1867, p. 127. Original Citation: « Enfin l'Amérique se termine par un assemblage complet des Bois précieux du Brésil, disposés dans une salle dont les parois et le plafond imitent assez bien par leurs peintures et par le demi-jour qui y pénètre à peine, les forêts vierges où croissent les objets qui y sont exposés ».

²³⁶ *Ibidem*, p. 25.

Source: Léon M., Levy J., *Exposition universelle, 1867*, Paris, 1867. Accessed on 15 July 2021. URL: <https://doi.org/10.5479/sil.531497.39088008656530>

As for the exhibition discourse and the organisation of the objects, we found a similar arrangement to previous exhibitions, many objects distributed in small spaces, showcases, walls, and displays. However, this exhibition stands out for its organisation and for its well-distributed and previously planned exhibition route. Figure n°16 shows information boards about the groups and the different nations. The objects are distributed and indicated by groups, making comparisons easier.

The Brazilian report of the Paris Exhibition of 1867 is divided into two parts, the first is a descriptive report of a whole panorama of national characteristics, such as relief, hydrography, economic aspects, climate, etc., and the other part is the catalogue with the description of the products sent to Paris, divided according to the official classification of the exhibition²³⁷. At the beginning of the document there is a warning highlighting that the conditions for the organisation of the second national exhibition were unfavourable, due to the involvement with the Paraguayan War, preventing the country from being better represented at the Universal Exposition of Paris.

The Brazilian National Exhibition that preceded the Paris one had the participation of 2,127 exhibitors, and a total exhibition of 18,391 objects. According to the report 3,558 of these objects were chosen and sent to the Universal Exhibition belonging to 684 exhibitors. We can observe in the catalogue that Brazil sent products from all the groups, except from group 8 and 9 of agriculture and horticulture. The largest representation of objects sent was from group five, that is, the group of extractive industries.

We can refer some examples of Brazilian industries and products that were sent. We highlight in the fifth group the participation of the Imperial Ironworks of São João de Ipanema, which sent cast iron, wrought iron, bar iron, iron minerals, among other products. This factory located in Sorocaba, in the province of São Paulo, was founded in 1810, started by a small Swedish colony, had two high furnaces, and machines powered by hydraulic motors²³⁸.

²³⁷ Ferraz Couto Luiz Pereira, Ramos Sousa Ildefonso José, *O Imperio do Brasil na Exposição Universal de 1867 em Paris*, Typografia Universal de Laemmert, Rio de Janeiro, 1867.

²³⁸ *Ibidem*, p. 29.

Among the products of the forest exploitations and industries, we highlight the various types of wood sent, mainly from the Amazon Province. Within this class, other types of products were also sent such as rubber, cotton, smoke, oils, linen, dye, honey, candles, varnish, hammocks, among other chemical and pharmaceutical materials.

Within the sixth group that included the Instruments and methods of craft industry we found some machines and general mechanical devices that were sent, such as a hydraulic pump, two water graduating clocks, a pump made of carnauba trunk, and scales for railway²³⁹. Still within this group we can find machines, instruments, and processes used in various works, such as objects sent by the *Casa da Moeda*, a complete minting machine and a steam-powered circular scissors²⁴⁰.

The context with the Paraguayan War prevented greater investment in sending objects and organising the exhibition. It was not possible to obtain a more specific image of the Brazilian exhibition, but we can observe from other iconographic documents of the exhibition of other countries that the exhibition discourse continues to be like that of other industrial exhibitions in the 19th century²⁴¹. However, the Paris exhibition of 1867 represented a starting point of change in the way Universal exhibitions were organised, presenting different exhibition forms, such as national pavilions, and a museum for workers, which influenced the museographic thinking of the time and future exhibitions.

3.3 Philadelphia Universal Exhibition 1876

The Universal Exposition of 1876 took place in the United States, Philadelphia, in commemoration of the centenary of the declaration of American independence and was also known as the Centennial Exposition. It opened on May 10, 1876 and closed on November 10, 1876 at Fairmount Park, receiving about 10 million visitors. Present at the opening ceremony were Emperor Pedro II and his wife Teresa Cristina.

Two hundred buildings were constructed for the exposition, representing 26 American states and eleven other nations. The five main buildings were: the Main

²³⁹ *Ibidem*, p. 140.

²⁴⁰ *Ibidem*, p. 146.

²⁴¹ Léon M., Levy J., *Exposition universelle, 1867*, Paris, 1867. Accessed on 17 July 2021. URL: <https://doi.org/10.5479/sil.531497.39088008656530>

Exhibition Building, the Machinery Hall, the Agricultural Hall, the Memorial Hall, and the Horticultural Hall. Additionally, there were further attractions such as the Woman's Pavilion and the United States Government Building. Among the eleven foreign countries that built their pavilions were Great Britain, France, Germany, Spain, Portugal, Sweden, Canada, Brazil, Japan, Chile, and Tunisia²⁴².

Within the main exhibition building the exhibitors were organised from US interests and manufacturers. Foreign Exhibits were organised from the centre based on geographical proximity to the United States, with China and Japan at the far end. According to author Linda Gross, France and its colonies occupied the central northeast tower; England and its colonies, the northwest tower; and Germany, Austria, and Hungary, the southwest tower²⁴³. The design and placement of other foreign exhibitions thereafter was less organised²⁴⁴.

Figure 17 - Main Exhibition Building and its Nave Looking East



Source: Gross Linda P., Snyder Theresa R., *Philadelphia's 1876 Centennial Exhibition*, Arcadia Publishing, Chicago, 2005, p.56 and 58.

The Main Building contained the exhibits related to mining and metallurgy, manufacturing, education, and science, housing exhibits from 30 countries. Various types of objects were displayed here, such as furniture, books, tools, medicine, and military and naval armaments²⁴⁵. The innovations in industry and technology of the

²⁴² Gross Linda P., Snyder Theresa R., *Philadelphia's 1876 Centennial Exhibition*, Arcadia Publishing, Chicago, 2005, p. 227.

²⁴³ *Ibidem*, p 63.

²⁴⁴ *Ibidem*.

²⁴⁵ *Ibidem*, p.56.

time were presented at the exhibition in this building, such as Alexander Graham Bell's telephone, the typewriter, and the electric light.

The Machinery Hall, the second largest building in the exhibition, contained objects from various types of machinery: among them mining, chemistry, papermaking, book printing, power generation, hydraulic appliances, weaving and sewing, transportation, instruments of war, etc. This building housed the Corliss engine, which at the opening of the exhibition, President Ulysses Simpson Grant and Emperor Dom Pedro II started its engine, connecting the other machines in the exhibition hall. We point out that the machines were in operation during the exhibition, making it possible for visitors to observe how the machines worked²⁴⁶.

The Agricultural Hall housed various agricultural and forestry products, among them animals, textiles, food, machinery, implements, and processes of agricultural products. The annexes to the hall displayed agricultural machinery, wagons and carriages. The Horticultural hall displayed ornamental trees, shrubs and flowers, greenhouses, conservation units, tools and gardening²⁴⁷. Memorial Hall featured art, photography, industrial, architectural, and decorative design exhibitions²⁴⁸. Other buildings were also distributed around the exhibition space, such as restaurants, leisure areas, corporate pavilions and administrative buildings.

With the end of the Paraguayan War, the Brazilian government promptly responded to the invitation to participate in the event. At the same time it prepared its National Exhibition in 1875, it also worked with its legation in Washington to work on the exhibition of Brazilian products in Philadelphia. The Organising Committee was headed by the Count d'Eu, with the collaboration of the Viscount of Bom Retiro and the Viscount of Jaguari. Brazil was responsible for exhibiting products and activities inside the Main Palace, in a national pavilion called the Brazilian Coffee Pavilion, and agricultural products in the Agricultural Hall.

The organising committee of the 1876 exhibition decided to follow the classification system formed by groups and sections. According to the provisional plan, the sections were subdivided into 109 groups and 1,099 classes, in 10 sections, which in the definitive plan were reduced to seven. The catalogue with the objects sent to the international exhibition can be found in the report *O Imperio do Brazil na Exposição*

²⁴⁶ *Ibidem*, p.143.

²⁴⁷ *Ibidem*, p.198.

²⁴⁸ *Ibidem*, p. 211.

*Universal de 1876 em Philadelphia*²⁴⁹, and contains the division from these groups and sections (described in chapter 2). The report also contains statistics on the Empire's cotton ginneries, telegraph lines, and railroad companies in Brazil.

This classification was arranged in such a way that products should be placed lengthways according to their groups and across according to the countries to which they belong, so that the visitor could observe the progress of each industry in all countries at a glance. However, it was recognised that such a plan would be difficult to implement as many countries did not have adequate representation and space would be wasted²⁵⁰.

The Ministry of Agriculture expressed in the 1875 report that they advised the construction or acquisition of a building for the Philadelphia Universal Exhibition, which could also be used at other times and be adopted by scientific and literary associations to celebrate their sessions²⁵¹. But the 1876 exhibition pavilion was not reused after the end of the exhibition²⁵².

Inside the main pavilion, Brazil was represented by a Moorish-style building created by the American architect Frank Furness, which was called the "Brazilian Court". The building was constructed of wooden pillars with capitals and brightly ornamented arches. Its decoration had the names of the provinces on the internal partitions and on the external façade, leaving shop windows and products visible. At the main entrance there was the word "Brazil" in coloured glass tiles²⁵³. Among the objects on display were typical Brazilian foods, such as cocoa, ginger, yam, wood, furniture, fabric, and leather goods²⁵⁴.

²⁴⁹ *O Imperio do Brazil na Exposição Universal de 1876 em Philadelphia*, Typografia Nacional, Rio de Janeiro, 1875, 643 p.

²⁵⁰ *Ibidem*, p. 27.

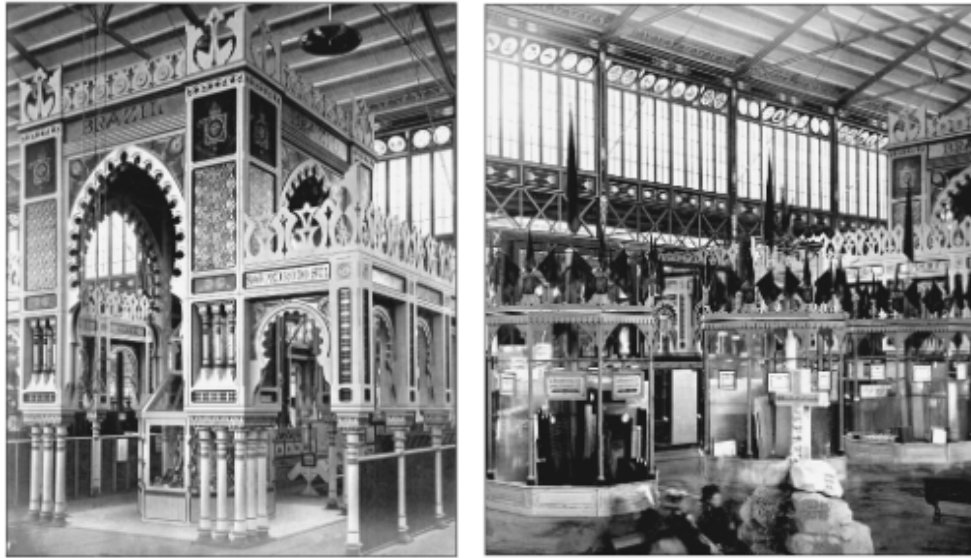
²⁵¹ *Ibidem*, 11.

²⁵² Brazil only manages to reuse a national pavilion with the Monroe Palace at the 1904 Universal Exhibition in Saint Louis, where its structure was transported to Rio de Janeiro after the exhibition. In: Lopes, Maria Margaret, França, Anna Sofia, « Monroe Palace from Saint Louis Exhibition (1904) to Rio de Janeiro (1906-1976): its project, building, travel, uses and the dispersion and transfer of its collections to Brasília (1960-1976) », *VIII AISU Congress City, travel, tourism Perception, production and processing*, 2017, Naples, 2017.

²⁵³ Gross Linda P., Snyder Theresa R., *Philadelphia's 1876 Centennial Exhibition*, Arcadia Publishing, Chicago, 2005, p.84.

²⁵⁴ *Ibidem*, p.83.

Figure 18 - Brazilian Court and Exhibition inside



Source: Gross Linda P., Snyder Theresa R., Philadelphia's 1876 Centennial Exhibition, Arcadia Publishing, Chicago, 2005, p.83 and 84.

The Brazilian national pavilion was designed by Hermann J. Schwarzmann, chief architect of the exhibition. The building was composed of two floors, American style, with bow-windows, wooden structure, and columns in the balcony, not showing a possible national architecture.²⁵⁵

²⁵⁵ Drago, Niuxa Dias, « Arquitetura e cenografia na representação do Brasil: pavilhões brasileiros de Londres a Milão », *O Percevejo Online*, Rio de Janeiro, t. 8, nº 1, 2016, p. 37. Accessed on 18 July 2021. URL: <http://www.seer.unirio.br/index.php/opercevejoonline/article/view/5758>.

Figure 19 - The Brazilian Pavilion at the Philadelphia International Exposition, 1876



Source: Notman, William, « Pavilhões do Brasil na Exposição Internacional de Filadélfia », Centennial Photographic Company, 1876, Filadélfia, Acervo Arquivo Nacional²⁵⁶.

The "Caffé do Brazil" pavilion consisted of an open space with tables for coffee and an internal exhibition space. This space served free coffee during the event to promote the 71 coffee exhibitors who came from various provinces of Brazil²⁵⁷. The internal exhibition space was composed in the centre by loom machines, where a person was teaching how to weave silk. According to records, Maria Ambrozina, a native of Sabará, Minas Gerais, was responsible for teaching how to weave the silk²⁵⁸. We can

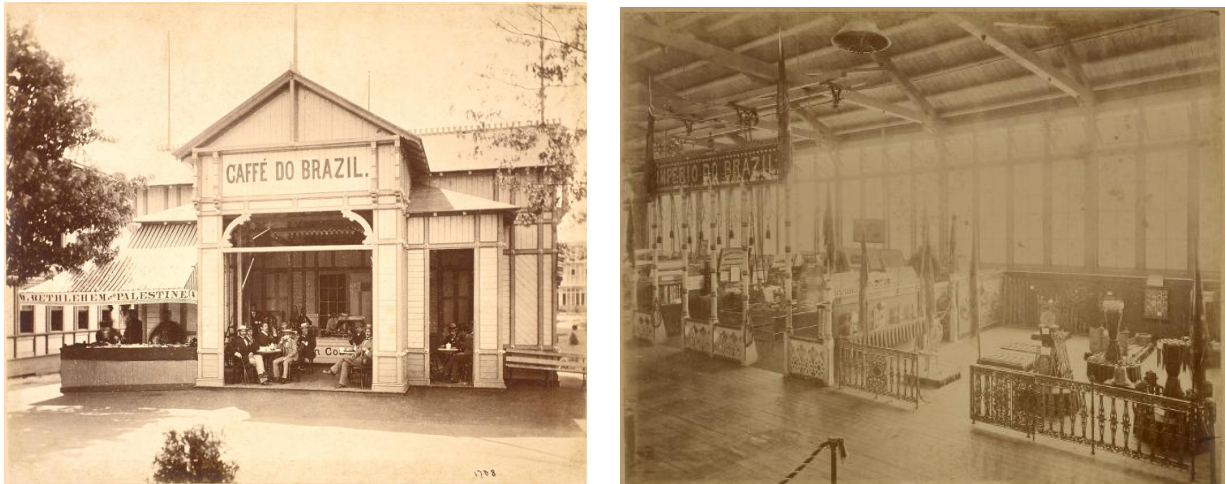
²⁵⁶ The photographic record of the entire 1876 exhibition event was authored by the Centennial Photographic Company, headed by William Notman. The company had the right to advertise and sell the catalogue of views of the exhibition, as well as holding the rights to all photographic work done at Fairmont Park.

²⁵⁷ Heynemann, Claudia, « Café Brasil: o Império na Exposição Internacional de Filadélfia », *Brasilianafotografia*, 2019. Accessed 20 July 2021. URL: <https://brasilianafotografica.bn.gov.br/?p=17283>

²⁵⁸ « Sessão da Assembleia Geral em 31 de dezembro de 1875 », *O Auxiliador da Industria Nacional : Ou Collecção de memorias e Noticias interessantes*, 1875. Accessed on 20 July 2021. URL:

highlight the company *Estabelecimento Seropédico Bananal de Itaguaí*²⁵⁹ and the *Café Luís Ribeiro de Souza Rezende*²⁶⁰ who exhibited their products.

Figure 20 - "Café do Brazil" Pavilion at the Philadelphia International Exposition, 1876



Source: Notman, William, « Pavilhões do Brasil na Exposição Internacional de Filadélfia », Centennial Photographic Company, 1876, Filadélfia, Acervo Arquivo Nacional.

Brazil also exhibited agricultural products in the Agricultural Hall, such as coffee, sugar, cotton, tobacco, and yerba mate. The Brazilian section was all decorated with cotton, as we can see in the picture below. It also exhibited tropical products, minerals, manufactured items such as furniture, clothing, handicrafts, and war material, as well as works of art and photographs²⁶¹. In the organisation of this exhibition, agricultural products and manufactured items such as furniture, clothing and war material shared space with paintings, engravings, maps, and photographs.

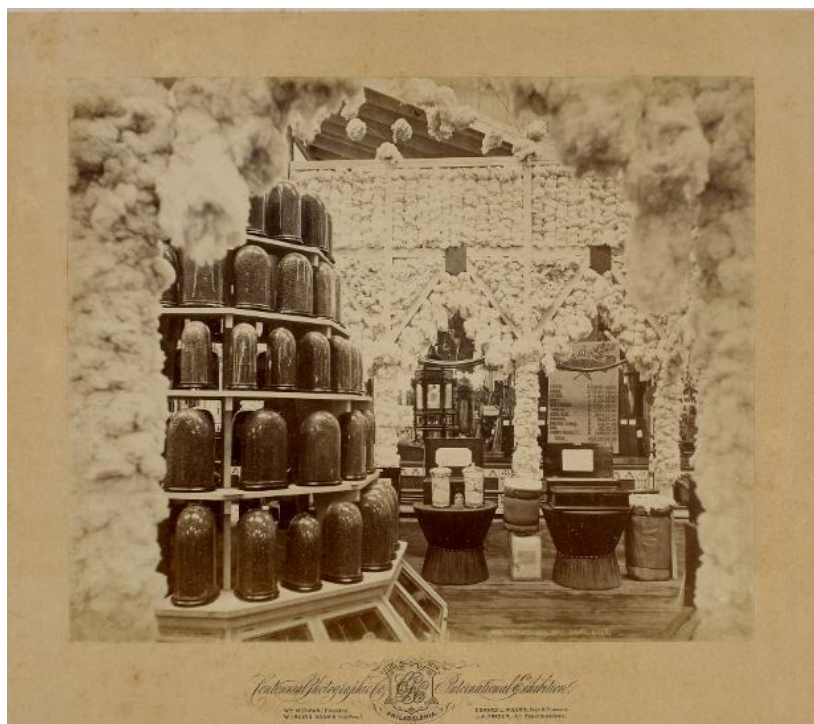
<http://memoria.bn.br/DocReader/Hotpage/HotpageBN.aspx?bib=302295&pagfis=24711>&url=<http://memoria.bn.br/docreader#>. Acesso em 20 de outubro de 2019.

²⁵⁹ The silk factory established at the end of the 1830s later became the Imperial Companhia Seropédica Fluminense, located in the region where the Federal Rural University of Rio de Janeiro is situated.

²⁶⁰ The company Café Luís Ribeiro de Souza Rezende was created in 1849 and later became Fazenda Santa Genebra, located in the municipality of Campinas in São Paulo. The farm was recognized as a model in coffee plantation for the use of advanced technologies and in the early 20th century where it became the largest producer of the grain in the state of São Paulo.

²⁶¹ Heynemann, Claudia, « Café Brasil: o Império na Exposição Internacional de Filadélfia », *Brasilianafotografia*, 2019. Accessed 20 July 2021. URL: <https://brasilianafotografica.bn.gov.br/?p=17283>

Figure 21 - Brazilian section in the Agricultural Hall at the Philadelphia International Exposition, 1876



Source: Notman, William, « Pavilhões do Brasil na Exposição Internacional de Filadélfia », Centennial Photographic Company, 1876, Filadélfia, Acervo Arquivo Nacional

According to the author Pesavento, Brazil strove to provide the most complete sample possible of its productive potential, highlighting mainly its natural wealth, such as coffee, timber, minerals and exotic plants²⁶². The national pavilion did not represent the traditions of Luso-Brazilian architecture, and the display discourse varied colours and exotic ornamentation, with artificial flowers, artefacts of bird feathers, butterflies, among others, and samples of cotton that covered the walls²⁶³. The author also highlights the presence, participation, and constant interest of Emperor Pedro II in the 1876 exhibition.

²⁶² Pesavento, Sandra Jatahy, « Imagens da nação, do progresso e da tecnologia: a Exposição Universal de Filadélfia de 1876 », *Anais do Museu Paulista: História e Cultura Material*, São Paulo, t. 2, 1994, p. 158.

²⁶³ Machado Marina Monteiro, Martins Monica de Souza Nunes, « A modernidade nas teias da floresta: o Brasil na exposição Universal da Filadélfia de 1876 », *Geosul*, Florianópolis, t. 32, n. 65, p. 68-86. Accessed on 21 July 2021. URL: <<https://periodicos.ufsc.br/index.php/geosul/article/view/2177-5230.2017v32n65p68>>.

Brazil had an outstanding presence at the Universal Exposition of 1876, where it presented several products and built three pavilions. We can observe the exhibition speech was similar to the previous exhibitions, but with the construction of pavilions that resulted in a greater availability of space for the country. We see that the organisation of the objects continues to be done with a large number of objects displayed together using all available space. We highlight mainly the use of the walls to exhibit cotton, the practical educational activities, and the display of operating industrial objects.

Analysis of the Brazilian Industrial Museography

4.1 The presentation of Brazilian industrial collections at Universal exhibitions: a specific museography?

The organisation and presentation of collections and exhibitions in the 19th century was greatly influenced by the Universal Exhibitions and the European industrial institutions that were beginning to emerge at that time. The *Conservatoire des Art et Métiers* founded in 1794 in Paris offered artisans encyclopaedic collections of machine sketches, drawings, and industrial patents which could be touched and used for study. This new way of exhibiting enabled an interaction with the object and used the collection as an aid tool in professional training. That is, these first industrial exhibitions arise with the intention of improving the industrial production, adding an interactive experience for the public in the use and operation of industrial tools and machines²⁶⁴.

The Crystal Palace used materials in its construction that represented the advance of industry and modern architecture, which also interfered in the exhibition discourse. Architectural studies in Europe and the United States began to adapt from 1840 onwards to new requirements and concerns over the hygiene and salubrity of spaces, which influenced the choice and design of exhibitions²⁶⁵. The issue of lighting, colours used, and ventilation of environments begin to be thought and studied in this context.

Besides the innovation, in the use of building construction materials the Universal Exhibition of London in 1851 started using labels to identify objects in the exhibitions²⁶⁶. In previous art exhibitions, the works were identified by numbering,

²⁶⁴ Fontanon, C., « Les origines du Conservatoire national des arts et métiers et son fonctionnement à l'époque révolutionnaire », *Les Cahiers d'Histoire du CNUM*, 1992.

²⁶⁵ Manetta, Erica, « Presenting Design: a reflection on the Museography of Industrial Objects », Master of Fine Arts in Criticism and Curatorial Practice, OCAD University, Toronto, 2016, p. 28.

²⁶⁶ *Ibidem*, p. 30.

using a list with technical data and prices. This new labelling and identification system was also adopted by large department stores²⁶⁷.

It was possible to notice from our analysis in the previous chapters that Brazil also uses these exhibition discourses in the presentation of its industrial collections in the Universal Exhibitions of the 19th century. The analysed catalogues show that the exhibition discourse followed a logic that met the interests of the producer and the merchant, being useful for trade²⁶⁸.

The exhibition discourse of the industrial collections shows a high quantity of large objects and appliances, which often needed special apparatuses and to be placed in specific positions in the exhibition space. It was also possible to note that the pre-existing building was transformed and adapted for these events, which influenced the exhibition discourse.

As for the furniture used, we can observe, in the images available, wooden displays and showcases to accommodate and protect delicate and precious objects. The exhibition regulations usually instructed that all exhibited products should be identified with an explanatory note: the name of the maker, creator, or owner of the object.

The organisation of the collections was based on the accumulation of objects, making an individual reading difficult, but showing a rich set of artifacts, arranged without necessarily having an apparent aesthetic concern. The rooms have a way of showing the objects as in a bazaar with pieces arranged in a heap. This type of exhibition shows the collectors' taste for displaying as many objects as possible.

The presentation of Brazilian industrial products was more representative in the national exhibitions, having a greater exposure of machinery and tools. The reports inform the difficulty of sending objects and machinery of large dimensions to the international exhibitions, often being sent only photographs of these objects. The use of photography was very important, not only to represent the industry, but as a record

²⁶⁷ The first department stores' called Wannamaker established in New York in 1855 adopted labels with origin and authorship information next to the object. In: Polo, Maria Violeta, « Estudos sobre Expografia Quatro Exposições Paulistas do Século XX », Master's Thesis, Instituto de Artes, Universidade Estadual Paulista, São Paulo, 2006, p. 27.

²⁶⁸ This aspect was visible in the "Panorama" pavilion of the Compañía General Transatlántica at the Universal Exhibition of 1889, which sought to promote the travels of this company. On the subject see: Matos, Ana Cardoso de, Abreu Xavier, António de, « Un paseo al Panorama transatlántico a partir de la Exposición Universal de París, 1889 », In *La Península Ibérica, el Caribe y América Latina : Diálogos a través del Comercio, la Ciencia y la Técnica (Siglos XIX – XX)*, Publicações do Cidehus, 2017. Accessed on 24 July 2021. URL: <http://books.openedition.org/cidehus/2989>.

and documentation of the representation of the country abroad. We also highlight the way of displaying the industrial objects, where the machines were also in operation during the exhibition.

The organisation of the objects is similar in all these exhibitions studied, with the use of displays and many objects agglomerated in the same spaces. This pattern shows the desire to represent a country from an encyclopaedic system, common in exhibitions in the 19th century.

We can conclude some observations and aspects that influenced the exhibition discourse of the Brazilian industrial collections in the Universal and National exhibitions of the 19th century: the idea of museological interactivity, from the interactive experience as the touch and the observation of the objects in operation; the importance of these collections and exhibitions for the transmission of knowledge, with the intention of serving as a tool in the professional training in the Brazilian industry; the classification of products, which influences the routes and the division of the rooms and spaces; the commercial intentions, which reinforce the explanations and demonstrations of the operation of the objects, as well as the comparison and self-affirmation between countries and their industries; and the labels with identification of the objects, not only for their organisation, but also for the information of the public.

We also highlight the innovative architecture of the exhibition halls and national pavilions built for these events by using new materials, paying attention to lighting and ventilation of the environments, taking notice of power sources for the machines, and the space available for the exhibition of large objects²⁶⁹.

Universal Exhibitions continue to take place in the 20th and 21st century (even with periods of instability from the 1st and 2nd World Wars), and each event presenting different innovations and exhibition forms, with a greater number of participating countries and visitors in each version. We can highlight the study of Gestalt psychology that influences the exhibition discourse at the end of the 19th century²⁷⁰. This science analysed human perception, and its perceptual relationship between contrast, figure and background.

²⁶⁹ On the subject see, among others, Ana Cardoso de Matos, « Progress on display: Universal Exhibitions in the second half of the 19th century », in Mário S. Ming Kong & Maria do Rosário Monteiro e Maria João Pereira Neto (Ed), *Progress(es), Theories and Practices*, Londres, Ed. Taylor & Francis, 2018, p.399.

²⁷⁰ Polo, Maria Violeta, « Estudos sobre Expografia Quatro Exposições Paulistas do Século XX », Master's Thesis, Instituto de Artes, Universidade Estadual Paulista, São Paulo, 2006, p. 146.

Modern expography sought strategies to annul the background to highlight the objects. That is to say, wider spaces for the exhibition, enabling observation from various angles, creation of new furniture, and the use of smooth, white walls²⁷¹. This perception stands out in comparison with the 19th century exhibition discourse that is based on the accumulation of objects in the same space. We seek next to explore this aspect in Brazil, not only analysing the industrial collections and museums that emerged out of the influence of the Universal Exhibitions of the 19th century, but to also better frame the Brazilian case by presenting some international examples.

²⁷¹ *Ibidem*, p. 28.

4.2 The museums of the 19th century in Brazil and internationally and their relationship with the Universal Exhibitions

The Renaissance brings the proliferation of museums and cabinets of curiosities, which give rise to natural history museums. With the appearance of the first museums, objects and collections started to be exhibited in a generalized way, varying the conditions and exhibition forms. From the 17th century on, with the creation of the first natural history museum, the Ashmolean Museum, several books and guides on the organisation, classification, conservation, and even curatorship of natural history collections began to appear. The consolidation of Natural History as a science in the second half of the 18th and 19th centuries resulted in the appearance of a great number of museums in Europe and the proliferation of classification systems for their collections²⁷².

The French Revolution brought ideals of democracy to museums in the 19th century, which increasingly took on an educational character. The success of encyclopaedias and the Darwinist influence marked these institutions with exhibitions presenting knowledge in an exhaustive manner. The Universal Exhibitions of the 19th century played a part in the proliferation of classification systems for collections and exhibitions. These events sought to spread science and a reform of technical education through conferences and exhibitions, and with the creation of industrial and technical Museums.

The creation of the typology of industrial and technical museums is closely related to the Universal Exhibitions movement. The Crystal Palace of 1851 was directly responsible for the creation of the Victoria and Albert Museum which later grew into the London Science Museum. Vienna's Technische Museum für Industrie und Gewerbe was provided by the Vienna exhibition of 1873, and the Philadelphia exhibition of 1876 provided subsidies for the creation of the National Museum of the United States in Washington, among other examples²⁷³.

²⁷² Lopes, Maria Margaret, « Museu: uma perspectiva de educação em geologia » Master's Thesis, Universidade de Campinas, Faculdade de Educação, 1988, p.13-28.

²⁷³ Ferguson, Eugene Shallcross, « Technical Museums and International Exhibitions », *Technology and Culture*, t. 6, n° 1, 1965, p. 30. For other studies in the field: Souto, Maria Helena, *Portugal nas exposições universais: 1851-1900*, Lisboa, Colibri, 2011 and Matos Ana Cardoso de, Gouzévitch Irina, Lourenço Marta C. (dir.), *Expositions Universelles, Musées Techniques et Société Industrielle*. Lisbon, Colibri, 2011.

After the 1851 exhibition there was an increase in the groups of people involved in the stimulation and display of machines and models of industry, organising events for product competition and training for workers in the practice of science and industry. Following these exhibitions, museums were set up to disseminate scientific, technical and industrial advances, which were intended to support the training provided by technical educational establishments.

We can see the desire to create museums from the Universal Exhibitions referred to in the Paris Exhibition of 1867, where Le Play defended the idea that universal exhibitions should be replaced by museums²⁷⁴. We have also seen in chapter 1 of this paper the importance of the first French industrial exhibitions, held at the initiative of the Government and its Minister of the Interior, Nicolas-François de Neufchâteau in 1798, taking place in several editions until the year 1849²⁷⁵. These initiatives sought to improve industrial production and development of French national wealth and influenced the Universal Exhibitions and the creation of industrial museums in the future.

The *Société d'encouragement pour l'industrie nationale* created in 1801, which organised these first French industrial exhibitions, seems to have started on its premises for a few years as an industrial museum²⁷⁶. These initiatives aimed to present the new innovations of the main producers, but with a specialised target audience aimed at manufacturers and producers and not the general public²⁷⁷.

We can consider the *Conservatoire des Arts et Métiers* (CNAM) as a predecessor of the industrial museums, being the first recognized institution to be concerned with the preservation of industrial and scientific equipment and its manufacturing processes of arts and crafts²⁷⁸. The conservatoire dates back to the 18th century with its creation in 1794, where it later became the *Musée des Arts et Metier* of Paris²⁷⁹.

²⁷⁴ This idea is present in Le Play's report (Commission Impériale, 1869). Information taken from: Matos, Ana Cardoso de, Sampaio, Maria da Luz, « Património Industrial e Museologia em Portugal », *Museologia&Interdisciplinaridade*, t. III n°5, 2014.

²⁷⁵ Colmont, M. Achille de, *Histoire des expositions des produits de l'industrie française*, Paris, 1855, 566 p. Accessed on 25 July 2021. URL : <http://catalogue.bnf.fr/ark:/12148/cb30259454z>

²⁷⁶ Mairesse, François, « Aux origines du musée d'entreprise : Musées industriels et commerciaux », *Recherches en communication*, n°45, 2018, p. 11.

²⁷⁷ *Ibidem*, p.11.

²⁷⁸ Matos, Ana Cardoso de, Sampaio, Maria da Luz, « Património Industrial e Museologia em Portugal », *Museologia&Interdisciplinaridade*, t. III, n°5, 2014.

²⁷⁹ Paris, Ministère de la Culture et de la Communication, *Muséologie et ethnologie*, Paris, Editions de la Réunion des Musées Nationaux, 1987.

CNAM was founded by a decree of the National Convention on a proposal by Abbé Grégoire to "improve national industry":

“ They will be formed in Paris, under the name of Conservatoire des arts et métiers and under the inspection of the Commission d'agriculture et des arts, a depository of machines, models, tools, drawings, descriptions, and books in all types of arts and crafts; the original of the instruments and machines invented or perfected will be deposited at the Conservatoire. The construction and use of tools and machines useful to the arts and crafts will be explained there “²⁸⁰.

The conservatory's collections in the early 1800s were mainly made up of looms, textile machines, tools, and machine cabinets of aristocratic or empire origin, confiscated during the Revolution and scattered in different repositories²⁸¹. Later, the collections continue to grow in the result of various donations and purchases. The collections are sorted in the galleries that opened their doors in 1802. Machines and tools were put into operation so that craftsmen and workers could see the technical innovations and how they worked. The institution has been concerned with conservation, teaching, and supporting of industrial activity since its foundation.

The CNAM was composed, besides the exhibition galleries, of a library open to the public, with specialised drawings and documentation. In 1819, they created 3 teaching chairs applied to the area of industrial science²⁸². The CNAM served as the basis for the constitution of a new type of institution aimed at the conservation of industrial knowledge and education, which inspired industrial museums in various parts of the world. Industrial art museums and company museums began to emerge, such as the *Musée de l'Industrie* in Brussels, founded in 1827 under the Dutch government, modelled on French standards²⁸³.

²⁸⁰ Articles 1 and 2 of the decree of 19 Vendémiaire year III, 10 October 1794. Original Citation: « Il sera formé à Paris, sous le nom de Conservatoire des arts et métiers et sous l'inspection de la Commission d'agriculture et des arts, un dépôt de machines, modèles, outils, dessins, descriptions et livres dans tous les genres d'arts et métiers ; l'original des instruments et machines inventés ou perfectionnés sera déposé au Conservatoire. On y expliquera la construction et l'emploi des outils et machines utiles aux arts et métiers ».

²⁸¹ Deléderray-Oguey, Isaline, « Les musées industriels en Suisse et le Conservatoire national des arts et métiers de Paris, un modèle parmi d'autres », *Cahiers d'histoire du Cnam*, Cnam, Paris, 2016.

²⁸² *Ibidem*.

²⁸³ Mairesse, François, « Aux origines du musée d'entreprise : Musées industriels et commerciaux », *Recherches en communication*, n°45, 2018.

We can mention the example of the creation of industrial museums in Portugal, which was also directly related to the Universal Exhibitions. After Portugal's participation in the 1851 exhibition, the decree of 31st December 1852 came into force, creating the Industrial Institute of Lisbon and the Industrial School of Porto; and foreseeing the creation of Industrial Museums next to these schools²⁸⁴. However, the lack of resources prevented the creation of these museums at that time.

With the Royal Decree of 24 December 1883, it was only in 1883 that the Commercial and Industrial Museums of Porto and Lisbon were created. The creation of these institutions reflected years of influence from international exhibitions and the exploitation of raw materials from their colonies and their industrial development²⁸⁵. Lisbon's industrial and commercial museum was housed in the Jerónimos Monastery, and the Porto museum in an annex of the Crystal Palace, built for the International Exhibition of 1865.

According to the decree that created these institutions, their museum collections should be made up of various machines, models, and drawings that were distributed in public facilities in Portugal, as well as collections bought, exchanged, or donated²⁸⁶. In the same year of the decree's creation, several commercial associations and trading houses, co-operations, and companies from Portugal and other foreign places were also contacted to gather industrial and handicraft products for the collection of these museums²⁸⁷. In 1889, these museums contributed to the Portuguese presentation at the Paris International Exhibition, and in 1890 to the Pedagogical Exhibition at the Crystal Palace.

The two museums had the objectives of exhibiting the main products of Portuguese industry to promote business and commerce, and to offer a service to manufacturers and consumers by giving explanations about the objects with indications of where they could be acquired. This enabled producers and traders a practical study of the trades that existed at that time, while also defending the national trade²⁸⁸.

²⁸⁴ Matos, Ana Cardoso de, « Les musées techniques portugais et les expositions universelles au XIXe siècle » In: Matos Ana Cardoso de, Gouzévitch Irina, Lourenço Marta C. (dir.), *Expositions Universelles, Musées Techniques et Société Industrielle*. Lisbon, Colibri, 2010, p. 76.

²⁸⁵ *Ibidem*, p. 81.

²⁸⁶ *Ibidem*, p. 89.

²⁸⁷ *Ibidem*, p. 90.

²⁸⁸ In 1899, the industrial and commercial museums of Lisbon and Porto were extinguished by the decree-law of 23 December 1899, because according to this document, the institutions were not fulfilling the objectives of their creation, in the sense that they were not giving sufficient support to auxiliary establishments as desired. *Ibidem*, p. 92.

The emergence of the first museums in Brazil also dates back to the 19th century, with the initiatives of King João VI in 1818 at the Royal Museum, now known as the National Museum. This began with a collection of natural history collections, acquiring a scientific character at the end of the 19th century²⁸⁹. These early scientific institutions stood out for their encyclopaedic pretensions and dedication to research in the natural sciences, playing an important role in the practice and production of natural science and in the organisation of Brazil's participation in the Universal Exhibitions in the 19th century.

In Brazil, encyclopaedic museums focused on various areas of knowledge predominated until the beginning of the 20th century. These institutions also dealt with national themes, contributing to symbolic constructions of the Brazilian nation. The *Conservatoire des Arts et Métiers* (CNAM) also had an influence on Brazilian scientific institutions²⁹⁰.

The National Museum selected several times its scientific collection for the Universal Expositions, having an active participation in collecting and sending objects. At the 1862 exhibition in London, Frederico Leopoldo Cesar Burlamaque, director of the Museu Nacional from 1847 to 1866, organized collections of minerals to send to the exhibition²⁹¹. It is interesting to note that the National Museum also had individual exhibition rooms at the Preparatory National Exhibitions²⁹².

The National Museum was founded by Dom João VI in 1818 under the name of Royal Museum, gathering the collection of the former House of Natural History, called "House of Birds", created in 1784, as well as other collections of mineralogy and zoology. Its collection today had important records of Brazilian memory in the field of natural sciences and anthropology, as well as collections from various regions, produced by ancient peoples and civilisations. Unfortunately, in 2018, a fire of great proportions hit the headquarters of the National Museum, destroying almost all of its collection on display.

²⁸⁹ Julião, Leticia, « Apontamentos sobre a história do museu », In: *Caderno de diretrizes Museológicas*, Brasília, nº 1, Ministério da Cultura, Instituto do Patrimônio Histórico e Artístico Nacional, Departamento de Museus e Centros Culturais, 2006.

²⁹⁰ Lopes, Maria Margaret « Cooperação científica na América Latina no final do Século XIX: os intercâmbios dos museus de ciências naturais », *Interciencia*, t. 25, nº 5, 2000, p. 228-233. Accessed on 25 July 2021. URL: <https://www.redalyc.org/articulo.oa?id=33904702>

²⁹¹ *Ibidem*, p.355.

²⁹² Zaluar, Augusto Emilio, *Exposição Nacional brasileira de 1875*, Rio de Janeiro, Typografia do Globo, 1875, VIII, p.261.

Within the national production in the 19th century of scientific instruments we can put as an example the *Oficinas e Armazém de Óptica e de instrumentos Científicos* of José Maria dos Reis and José Hermida Pazos. The workshop in Rio de Janeiro participated in 6 national, and 4 universal, exhibitions, and was decorated at the Paris Exhibition of 1889 with the Altazimute instrument invented by Emmanuel Liais²⁹³. The workshops made approximately 30 scientific instruments, in the practice of astronomy, geodesics, topography, nautics, and magnetism. The instruments were not original inventions but were outstanding for their construction and finishing. Part of these instruments can be found today at the Museum of Astronomy and Related Sciences in Rio de Janeiro (MAST)²⁹⁴.

Figure 22 - Prismatic Altazimuth - Museum of Astronomy and Related Sciences in Rio de Janeiro (MAST)



Source: Made by José Hermida Pazos, of Brazilian origin, Rio de Janeiro, 19th century, MAST collection. Museu de Astronomia e Ciências Afins, *Imagens do Progresso: Os Instrumentos Científicos e as Grandes Exposições*, Rio de Janeiro, MAST, 2001

The Universal Exhibitions influenced the gathering of official collections and the creation of museums of different themes in Brazil. We can put as an example the Museu Paraense Emilio Goeldi where the members of the organising committee of the

²⁹³ Filho, Freitas, Pita, Almir, « Oficinas e Armazém d'Óptica e instrumentos Científicos », Rio de Janeiro, MAST, 1986.

²⁹⁴ Catalogue of the exhibition *Imagens do Progresso: Os Instrumentos Científicos e as Grandes Exposições* in 2001 at the Museu de Astronomia e Ciências Afins. The exhibition presented instruments that belonged to the imperial Observatory of Rio de Janeiro and that are now part of the MAST. In: Museu de Astronomia e Ciências Afins, *Imagens do Progresso: Os Instrumentos Científicos e as Grandes Exposições*, Rio de Janeiro, MAST, 2001

provincial exhibition of Pará for the National Exhibitions had influenced the organisation of collections and spaces that constituted the museum²⁹⁵.

According to the author Maria Margaret Lopes, the Province of Pará had an outstanding participation in the International Exhibition of Vienna in 1873, and also great participation in the Exhibition of Philadelphia in 1875. José Cândido da Silva Muririci, member of the organising commissions of the local exhibitions, was already working since 1866 in the preparation of these local exhibitions, requesting donations of collections and space for the viability of the museum. The gathering of products and the need for space for these collections influenced the creation of the museum²⁹⁶.

We can also find remnants of the collections and building of the Brazilian pavilion at the 1904 Universal Exposition of Saint Louis in 1904 in the Museu do Senado Federal in Brasília. The pavilion was rebuilt in 1906 in Rio de Janeiro from the structure of the 1904 exhibition. However, this building was demolished in 1976 and part of the structures, ornaments, furniture, and works of art were transferred to the Senate House in the new capital city of Brasilia²⁹⁷.

Another example is the Imperial Iron Factory of São João de Ipanema, which sent products to the Paris Exhibition of 1867. The set of equipment of the former iron Factory is a landmark of steelmaking and national industry, site of the first iron forge and the first dam in Brazil in the 19th century. Its set is still well preserved and with rare examples of high furnaces and colonial industrial architecture of the time.

²⁹⁵ Lopes, Maria Margaret, *O Brasil descobre a pesquisa científica. Os museus e as ciências naturais no século XIX*, São Paulo, Hucitec, 1997, p. 208.

²⁹⁶ *Ibidem*, p. 209.

²⁹⁷ Lopes, Maria Margaret, França, Meyer, Anna Sofia, « Palácio Monroe from Saint Louis Exhibition (1904) to Rio de Janeiro (1906-1976): its project, building, travel, uses and the dispersion and transfer of its collections to Brasília (1960-1976) ». In: VIII AISU Congress City, travel, tourism Perception, production and processing, Naples, 2017.

4.3 From International exhibitions to Contemporary Industrial Exhibitions and Museums: what is new in presentation of industrial objects?

When we talk about the industrial exhibitions and museums nowadays, it is important to define also the concept of Industrial Heritage today. This concept was defined in the Nizhny Charter in 2003 by the International Committee for the Conservation of the Industrial Heritage (TICCIH).

“Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education”²⁹⁸.

The movement for understanding the industrial heritage occurred in the second half of the 20th century. Industrial heritage is a field of historical knowledge with a multidisciplinary approach that encompasses buildings, geographical and human territory, production processes, working conditions, knowledge and social and cultural relationships, among others. The decline of industry and the abandonment and destruction of symbolic buildings of the industrial revolution have triggered a mobilisation to safeguard testimonies, such as buildings and objects and industrial landscapes of exceptional historical and cultural value.

The industrial museums in the 20th century present new museological proposals, especially in the 50s and 60s. These museums are mainly characterised by their large dimensions and relate to industrial equipment and designated spaces. Industrial heritage was being recognised at that time as a new territory for study and for the reuse of abandoned spaces. The new museology movement²⁹⁹ and the Ecomuseum concept were also being explored and were important in the creation of these museums.

²⁹⁸ International Committee for the Conservation of the Industrial Heritage (TICCIH), *The Nizhny Tagil Charter for the Industrial Heritage* Moscow, Russia, 2003.

²⁹⁹ New Museology is a wide-ranging theoretical and methodological movement for an effective renewal of museums in the 21st century.

The Ecomuseum, or the territory museum model with direct contact with its community, was widely used in the rehabilitation of old abandoned industries and company towns in experiments in Europe.

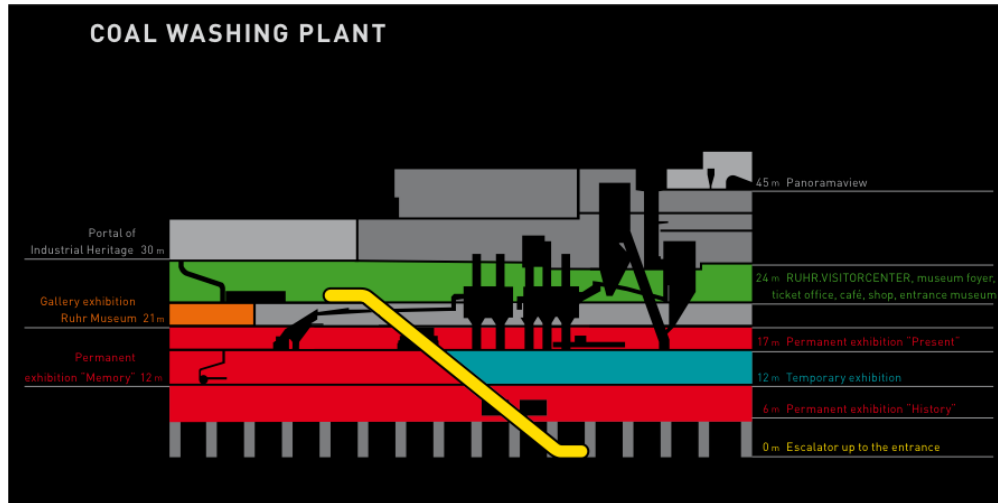
We can give some international examples of the concepts of ecomuseums of industrial areas, such as the Völklingen Steel Complex and the Zollverein Coal Mine Industrial Complex, both in Germany. These museums sought a conservation and revitalization of the industrial heritage of the region associated with the cultural and social life of the place.

The Ruhr Museum within the Zollverein Coal Mine Industrial Complex is a great example of the possibilities of expanding museum proposals based on industrial heritage. The museum contains a variety of possibilities, solutions to problems, new museographic and interpretative options for decommissioned industrial buildings and their complexes of machinery, large objects, and industrial and social equipment involved.

The Ruhr Museum building, the former Coal Washer, is the largest building in the Zollverein Coal Mine Industrial Complex. When it was still in operation, it was used as a large machine for separating, sorting, storing, and distributing coal; and its design was entirely subordinated to these functions. The building underwent retrofitting and renovation in line with its original production flow. An escalator was built to transport visitors to the different levels of the museum³⁰⁰.

³⁰⁰ All information about the Ruhr Museum and its exhibitions were taken from the official website of the Ruhr Museum. Official website of the Ruhr Museum. Accessed 27 July 2021. In: <https://www.ruhrmuseum.de/startseite/>.

Figure 23 - Coal Washing Plant with the Functional Floor Plan of the Museum: the distribution of space according to the different types of activities hosted by the museum



Source: Official website of the Ruhr Museum. In: <https://www.ruhrmuseum.de/startseite/>.

The Ruhr Museum has a gallery, a temporary exhibition, and a permanent exhibition. The permanent exhibition was planned by the architectural firm HG Merz in Stuttgart, where they took into consideration the former coal washing plant at the Zollverein coal mine to create the exhibition rooms. He was able to connect the building with the contextual spectre of the exhibition.

The permanent exhibition presents the concept of the history of the industrial region of the Ruhr area. The architecture and museography combine industrial, modern, and popular designs with natural and cultural history. The museography is displayed in the form of a former industrial platform with a variety of thematic plans. Objects selected to illustrate these concepts include photographs, symbolic objects of local people's experiences, and geological representations.

The museum also follows a narrative in its route, it has a well elaborated storyboard, which is divided between the Present, Memory, and History³⁰¹. The selection of the collection of objects for the exhibition makes use of the variety of different typologies and materials, as well as different types of exhibits that incorporate the building's structures.

³⁰¹ Bänfer Grütter und Philipp, Heinrich Theodor, *Museum and Permanent Exhibition*, Ruhr Museum Official Website. Accessed on 24 July 2021. URL: <https://www.ruhrmuseum.de/en/museum/> and <https://www.ruhrmuseum.de/en/permanent-exhibition/>.

The visual identity of the exhibition is very well constructed, where the content, colour, shapes, typography, and lighting integrate and complement each other on the different levels of the exhibition and also incorporates the structures of the building. The exhibition uses darker dramatic lighting and focuses lighting on the walls or focal lighting of the collection. The exhibition also makes use of different types of media, which offer advantages such as textual, video, and audio presentations that dialogue with the exhibition content, objects, and artefacts.

The exhibition leaves the structures and machines of the old industry visible on the exhibition route. The iron structures are in their original colours, and the exhibition support objects (displays, totems, etc.) use the colours white (Present) and black (Memory and History), incorporating the original building structures such as pipes and iron. Each room in the exhibition attempts to make visible the original purpose of the room in the industrial context of Coal Washing activities.

Figure 24 - Pictures of the permanent exhibition “History” exhibited in the 6 metres level of the Coal Washing Plant in the Ruhr Museum



Source: Official website of the Ruhr Museum. Accessed on 25 July 2021. URL: <https://www.ruhrmuseum.de>

The Ruhr Museum is a good example of the possibilities of expanding museum proposals based on industrial heritage. There are several examples that show expographic possibilities of reusing disused industrial buildings and their objects and equipment. The reuse of these industrial areas also aims to establish a revitalization of the memory and identity of these regions in a participatory manner.

We can emphasise the participation and involvement of society and groups from the surrounding area of the Zollverein Coal Mine in the museum project. The museum collection and exhibition present a contemporary collective memory of the living population of the Ruhr region. The narrative and the exhibition collection show that the experiences and opinions of the population of the Ruhr region are linked to their history. The narrative also exercises a critical language rather than simply exposing content.

We can analyse another example at the Electricity Museum, now called MAAT - Museum of Art, Architecture and Technology, in Lisbon, Portugal³⁰². The Tejo Power Station is an old thermoelectric power station consisting of a group of buildings located on the riverside in the historic area of Belém. It was inaugurated in 1990 under the administration of the EDP Foundation³⁰³. The museum is a good example of requalification of the workspace, inherent to the industrial world. It occupies the old building of the city power station, inaugurated in 1908 and deactivated in 1975.

The conceptual core of the Museum is the production of electricity, which is developed through the evolution of the energy production process of the old Tejo Central Power Station, from the implantation of coal to the production of high voltage cabling. It also includes the history of the plant, the expansion and construction phases of the buildings, the technological changes of the machines and raw materials, the role of the workers, the different types of renewable energy, the everyday objects that used (and still use) these energy sources, and environmental issues.

The permanent exhibition is called *Circuito Central Eléctrico* (Power Plant Circuit) and is divided into the High-Pressure Boiler Room, the High Pressure Boiler Ashtrays Room, the Generator Room, the High Pressure Auxiliary Room and the Condenser Room. In addition to the rooms that are part of the tours, there are also other spaces that are essential for the museum's operation, such as the EDP Foundation Reserve and the Documentation Centre³⁰⁴.

³⁰² On industrial museums in Portugal see, among others, Sampaio, Maria Luz, *Reconversão e Musealização de Espaços Industriais*, Portugal, 2003, and Mendes, José Amado, « O património industrial na museologia contemporânea: o caso Português », *Ubimuseum – Revista online do Museu de Lanifícios da Universidade da Beira Interior*, nº 1, 2012, p. 89-104.

³⁰³ Fundação EDP, Central, 2017. Accessed on 24 July 2021. URL: <https://www.fundacaoedp.pt/pt/conteudo/central>

³⁰⁴ Rodriguez, C. M., « Central Tejo de Lisboa, un ejemplo de industria termoeléctrica reconvertida en museo de la electricidad », *Energía, Infraestructuras y Patrimonio Industrial*, Actas del III Seminario del Aula G+I PAI. Accessed on 24 July 2021. URL: https://www.academia.edu/38655368/Central_Tejo_de_Lisboa._Un_ejemplo_de_industria_termoele%C3%A9ctrica_reconvertida_en_Museo_de_la_Electricidad

Allied to the machines, the main form of transmission of information are the text panels (in Portuguese and English), which can be found on the walls or in the form of totems. They are composed of red letters on a white background or white letters on a red background, which are the main colours of the museum's visual identity³⁰⁵. As a visual support component, in order to better understand the relationship between machines and texts, photographs of workers and environments from past times are used. There is also the use of models and actors personifying the activities employed by former workers (Figure nº25).

Figure 25 - Tejo Power Station High Pressure Boiler Ashtrays Room



Source: Fundação EDP, Museus da Energia, MAAT- Museu de Arte Arquitetura e Tecnologia, 2021, Accessed on 24 July 2021. URL: <https://museusdaenergia.org/patrimonios/3-maat-museu-de-arte-arquitetura-e-tecnologia>

The permanent exhibition also includes interactive technological means, in which users learn through simple and intuitive games, such as: experiments related to energy, like water vapour and ashes, concepts connected to physics in general, and to electromagnetism and thermodynamics³⁰⁶. This strategy configures the creation of a museum space, of a science and industrial base, and caters to the younger public. The route of the permanent exhibition then moves on to the interior of the building, whose first stop is the aforementioned room. It is an environment of monumental proportions where there are four high-pressure boilers with their respective control panels.

³⁰⁵ *Ibidem*, 397.

³⁰⁶ *Ibidem*, 398.

It can be concluded that the Lisbon Electricity Museum has a solid definition of its exhibition route, which is reflected in the organisation of the spaces, its courses, storytelling, and forms of communication with the public, which is quite multiple. Furthermore, the museum plays a vital role in preserving the memory and vestiges linked to the industrial heritage geared towards energy production, which is due to the EDP Foundation's deep interest and work.

In the possibilities of Brazilian museums in this field of industrial heritage we can find several examples in the book "*Centros e Museus de Ciências do Brasil*"³⁰⁷, published by the Brazilian Association of Science Centres and Museums (ABCMC), Casa da Ciência (Cultural Centre of Science and Technology of UFRJ), and Museu da Vida (House of Oswaldo Cruz/Fiocruz). We can highlight among these museums the Museum of Industry, Commerce and Technology of the State of São Paulo, and the network of Energy Museums of the state of São Paulo.

These Brazilian experiences show initiatives in the expansion of the concept of cultural heritage related to the preservation of industrial heritage, integrating environment, nature and history. We can analyse the example of the experience of the Imperial Ironworks of São João de Ipanema. The Ipanema National Forest where the factory is located has more than 400 years of history, was the site of the first attempts of iron exploration in the American continent, and was studied by naturalists and travellers of the 19th century.

The area of the old factory is located in the urbanized portion of the Conservation Unit, called Vila São João de Ipanema, and is occupied by a structured area with buildings, a leisure area on the banks of the Hedberg Dam Lake, and monuments from the history of the steel industry in Brazil, protected by the National Historic and Artistic Heritage Institute - IPHAN. Its facilities operated until the end of the 19th century, producing agricultural equipment and white weapons.

The history of the old factory articulates experiences that helped form the cultural landscape of its surroundings. It is a space that housed various technical expertise from different traditions that boosted the country's steel industry, being present in different economic, political, and cultural stages of Brazil.

³⁰⁷ ABCMC, FIOCRUZ, *Centros e Museus de Ciências do Brasil*, Rio de Janeiro, 2015.

Figure 26 - Satellite image of the São João de Ipanema steel mill complex



Source : CONDEPHAAT / SP – IPHAN, website Ipatrimonio. Accessed on 27 July 2021.
URL: <http://www.ipatrimonio.org/?p=490#!/map=1460&loc=-23.425597000000014,-47.59790254,17>

The factory closed its activities around 1822, where it was abandoned for many years and turned into ruins. Today it is preserved by the National Historic and Artistic Heritage Institute (IPHAN) as a historical testimony of the steel industry and is a landmark of industrial heritage. We can still see the vestiges of the constructions, some stone walls, and colonial industrial architecture. The historic site brings together works of art of authentic historical monuments of the Brazilian steel industry, built at various times in history with the landmark of the initial constructions of 1810.

Several monuments that make up this space have undergone, throughout the historical process, architectural changes and different uses. The oldest monuments date back to 1811, with the construction of the Hedberg ovens. The monuments are generally in precarious conditions of conservation, where some have undergone restoration interventions over the years. The landscape consists of the Ipanema lake and the Hedberg Dam, the historic site facilities, and the natural landscape of the Araçoiaba hill and Ipanema Forest.³⁰⁸

³⁰⁸ Information was taken from the management and management plan (volume I and II) of the Ipanema National Forest Environmental Reserve and the historical insert of the Ipanema National Forest (2019).

The remnants of the blast furnaces are only a small part of what was built or would have existed. The old administrative headquarters building has also been restored and houses the Ipanema National Forest Memory Centre. The old white gun house is used to house cultural artistic events. The expography of the space seeks to preserve the industrial aspects of the time, leaving the walls and ruins exposed, together with the remaining machinery and ovens.

To study the museography and collections that exist today, it is important to know their histories and how these objects came to be in these institutions. This network of transfers and histories helps us to understand the functioning of these museums and the importance of industrial heritage and its different collections.

The awareness of industrial heritage and the selection of heritage elements should involve, together, the work of its multiple actors. It is a process that involves several stages, with actors ranging from raising awareness of the heritage to its valorisation, going through stages of selection, justification, conservation, and exhibition.

There are several difficulties involving the rehabilitation of industrial spaces, especially taking into account the use of their former spaces and equipment that are very specific and of large proportions. It is difficult to create a museography that talks with the architecture without harming the building and its industrial specificities. It is a great challenge to work with this type of collection and is, therefore, important that this process is accompanied by professionals in the area, together with the community and its territory.

In the globality of this heritage we can observe the exhibition forms in the 19th century and the new ways of presenting industrial objects in contemporary institutions. The museums and industrial exhibitions analysed show possibilities and extensions of museological proposals for the treatment of this type of collection.

We use two international examples, the Ruhr Museum in Germany and the Electricity Museum in Portugal. The buildings housing these exhibitions underwent re-adaptation and renovation according to their original production flow, taking into account their former industrial uses to create the exhibition rooms. The architecture and museography combined industrial, modern, and popular designs with the exhibition discourse, including diverse objects to illustrate these concepts.

The visual identity of these exhibitions is also important and well-constructed, where this content integrates and complements each other and incorporates the

structures of the building. We use the Brazilian example of the former Iron Factory of São João de Ipanema to illustrate the rehabilitation and use of industrial space in conjunction with the environment, creating an ecological pathway.

All these examples show ways of presenting industrial objects within institutions specific to these areas. We have seen that in the 19th century the presentation of this typology of object was limited to a quantitative demonstration, restricted by exhibitors and small spaces. Today we have new exhibition possibilities that integrate the whole context and industrial buildings, with new communication possibilities through technological devices, besides the integration together with the community and region involved.

We can compare some aspects that influenced the exhibition discourse of the industrial collections in the Universal and National Exhibitions of the 19th century that have influenced the modern exhibitions. We highlight the idea of museological interactivity, from the interactive experience as the touch and observation of objects in operation. This aspect is still very much used today in industrial museums, often being recognized as interactive museums, using various tools accompanied by digital apparatus that facilitate communication and intensify the interactive experience with the public.

We can observe that the first industrial museums of the 19th century functioned almost like an exhibition shop, showing things that could be bought and giving information of merchants, prices, and locations of where to acquire these products. The commercial intentions reinforced the explanations and demonstrations of how the objects worked, as well as the comparison and self-affirmation between countries and their industries. Nowadays, this aspect is no longer evident, and there are other forms of events and commercial centres for the dissemination and commercialisation of these products. Museums and industrial institutions today have, as a function, the conservation and communication of this heritage, not having a specific commercial purpose³⁰⁹.

The aspect of knowledge transmission and professional training of the industry used in the 19th century exhibitions continues to be an important factor used by the

³⁰⁹ Corporate and Commercial Museums can have functions to publicise their images, with possible commercial benefits. More information about commercial museums, In: Borges, Maria Eliza Linhares, « L'exposition universelle de 1867 et le musée commercial de Rio de Janeiro », In: Carré, Anne-Laure (Coord.), *Les expositions universelles à Paris au XIXe siècle: techniques, publics, patrimoines*, Paris, CNRS, 2012. p. 379-385.

industrial museums nowadays. However, today the training is more aimed at the young public and children, having an important role in informal education and in the familiarization of science and technique for the population. At the same time as they are important agents in the preservation and dissemination of this heritage, they can also serve as a strategic factor in regional identities and in the promotion of the industry.

The classification of products and collections, as in the 19th century, still continues to influence the routes and the division of the rooms and spaces in some museums. However, modern expography has sought strategies to highlight the objects with wider exhibition spaces, creating new furniture and the use of visual identities with choices of colours and specific fonts. This perception stands out in comparison with the 19th century exhibition discourse, which was based on the accumulation of objects in the same space. Labels identifying the objects, not only for their organisation, but also for informing the public, are still an important aspect used today by these institutions and industrial collections.

CONCLUSION

We conclude this work with a partial review of the content explored in all chapters. In the first chapter, we analysed the first national and regional industrial exhibitions that played several roles in the advances of industry and agriculture in European countries, also influencing the countries of Latin America. Besides presenting their own advances in industry and agriculture, they showed the quality of national production and encouraged its consumption.

We highlight the educational function of these exhibitions, which valued industry, technique, and progress in general. These events generated, besides the exhibitions and published materials, several conferences and cultural activities in parallel. We can enhance the importance of catalogues and publications, not only their importance today as historical sources, but at the time as dissemination of knowledge to the general population in that period.

The associations and societies created in the early 19th century were of great importance in the development of industry, in the beginning of the production of industrial exhibitions in European countries, and also in the Brazilian historical and political context. These associations were often responsible for organising and producing the national and regional exhibitions, and in the future responsible for the participation of countries in the Universal Exhibitions. We highlight the role of the *Sociedade Auxiliadora da Indústria Nacional* (SAIN) in several aspects related to the industrial production of the country and in the organisation of industrial exhibitions.

We analysed in the second chapter several catalogues of Brazilian exhibitions and iconographic documents such as 19th century photo albums, available online in several archival institutions. The catalogues of national exhibitions found are of two very different types. Some catalogues present a detailed description of the country with general information, the other type of catalogue available is composed only of the classifications into which the products were divided.

The organisational structure of the classificatory catalogues was usually divided into: groups, classes, sections, categories within sections, and the so-called "collections". It was possible to notice voids or gaps of categories and classifications when analysing the extensive list of international and national categories, which end up causing difficulty to the researcher when they intend to compare these documents. A

possible explanation for these gaps could be that there are no products or productions that fit these classes³¹⁰. In the third chapter we made a selection to analyse three Universal Exhibitions, the London exhibition of 1862, the Paris exhibition of 1867, and the Philadelphia exhibition of 1876. These exhibitions had a great impact in their presentation internationally, bringing technological and exhibitory innovation that influenced several future events.

The London exhibition of 1862 was the first to have an official participation of Brazil, its presentation was organized in a single building with exhibitors from several countries. The Paris exhibition of 1867 had a great impact on the organisation and planning of exhibitions, also introducing the first national pavilions. Brazil also participated in this exhibition in a more simplified form with exhibitors in the main gallery. The Philadelphia exhibition of 1876 represents another great change where several countries are invited to build representative pavilions. Brazil participates for the first time with the construction of a national pavilion, but still without a representation of the Brazilian architectural style.

In the fourth chapter we concluded that the organisation of the objects is similar in all these exhibitions studied, with the use of displays and many objects agglomerated in the same spaces, based on an encyclopaedic system common in exhibitions in the 19th century. We also observed some aspects that influenced the expository discourse of the Brazilian industrial collections in the 19th century exhibitions, such as the idea of museological interactivity, the transmission of knowledge, the classification of products, the commercial intentions, and the labels with identification of the objects.

We have seen in this chapter that the Universal Exhibitions influenced the creation of museums and collections in Brazil, as was the case of the *Museu Paraense Emilio Goeldi*. Within the possibility of locating Brazilian collections present at the Universal Exhibitions, we have seen the existence of the scientific instruments from the Optical Workshops and Warehouse of José Maria dos Reis and José Hermida Pazos that are today in the Museum of Astronomy and Related Sciences in Rio de Janeiro (MAST). The National Museum had intense participation in sending and assembling collections for the Universal Exhibition, but unfortunately much of this collection was destroyed in the fire of 2018. We also saw that the remnants of the collections of the Brazil pavilion building at the Universal Exhibition of Saint Louis in 1904 are today in

³¹⁰ *Ibidem*, p. 89.

the Federal Senate Museum in Brasilia and the Imperial Ironworks of São João de Ipanema, which also sent products to the Universal Exhibitions.

From an extensive analysis we conclude that the scientific institutions of the 19th century had a participation in the sending of collections and in the organisation of Brazil's participation in the 19th century Expositions. These institutions formed collections and museums that can be found today in various regions of Brazil. Unfortunately, there is no inventory of the industrial heritage left by these exhibitions. However, we found some remnants and records of these events from collections, galleries, museums, buildings, among others. We end this work presenting examples of new possibilities and presentations of industrial objects and collections, which had direct influence from universal exhibitions to contemporary international and national industrial exhibitions.

There is still a gap of studies and a great dispersion of documentation about Brazilian industrial exhibitions and the representation of Brazilian industrial collections and exhibitions in the 19th century exhibitions. Therefore, this work sought to investigate the documentation left by these events, proving the connection between the Brazilian industrial exhibitions and Brazil's participation in the universal exhibitions of the 19th century.

We also saw the existence of a specific museography to present Brazilian industrial products and how it evolves from these events. It was not possible to locate more specifically the industrial products that were presented at these exhibitions, but we had records of the Brazilian institutions that participated in sending and collecting these objects that still exist in museums and contemporary collections. We conclude with a reflection on the circulation and exchange of knowledge that influenced the configuration and organisation of Brazilian museums and industrial collections today.

This work points to a continuity research set, both in the study of museography of industrial collections and exhibitions, and in the investigation of object collections. There is still much to be explored in the documentation and representation of Brazilian industrial exhibitions and collections in the 19th century. This is a beginning of a deeper research to have a greater projection of these collections and of new possibilities of museography, industrial museums, and Brazilian industrial heritage.

BIBLIOGRAPHICAL REFERENCES

Bibliography

ABCMC, FIOCRUZ, *Centros e Museus de Ciências do Brasil*, Rio de Janeiro, 2015.

Abrantes, Marquês de, *Recordações da Exposição Nacional de 1861*, Rio de Janeiro, Confraria dos amigos do livro, 1861.

Aguiar Civeira Inmaculada, *Demetrio Ribes, arquitecto (1875-1921)*, Valencia, Generalitat Valenciana, Conselleria d'Infraestructures i transports, 2004.

Alberti, Samuel, « Objects and the Museum », *Isis*, n° 96, 2005, p. 559–571.

Arthur, « L'exposition de modèles de machines à Paris, en 1683 », *Revue d'histoire des sciences et de leurs applications*, t. 20, n°2, 1967, p. 141-158.

Azevedo, Moreira de, *O Rio de Janeiro. Sua história, monumentos, homens notáveis, usos e curiosidades*, Rio de Janeiro, B.L. Garnier, 1877.

Barbosa, Vilhena I. de « Fragmentos de um roteiro de Lisboa (Inédito), Arrabalde de Lisboa. Paço d'Arcos, Oeiras e Carcavellos », *Arquivo Pittoresco*, vol. VI, 1863.

Barbuy, Heloisa, « Resenha de Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), Les fastes du progres: le guide des expositions universelles 1851-1992, Paris,

_____ « O Brasil vai a Paris em 1889: um lugar na Exposição Universal », *Anais do Museu Paulista*, t. 4, n° 1, 1996, p. 211-261

Barbuy, Heloisa, *A Exposição Universal de Paris: visão e representação na sociedade industrial*, São Paulo, Série Teses/ Edições Loyola, 1999.

Barreto, Corrêa, Patrícia Regina, « Sociedade Auxiliadora da Indústria Nacional: Oficina de Homens », XIII Encontro de História Anpuh-Rio-Identities, 2008.

Barreto, Moniz, Rozendo, *Exposição Nacional de 1875. Notas e observações de Rozendo Moniz Barreto*, Rio de Janeiro, Typographia Nacional, 1876.

Brunet François, Talley Jessica, « Exhibiting the West at the Paris Exposition of 1867: Towards a New American Aesthetic Identity? » *Transatlantica*, t. 2, 2017.

Capel Sáez, Horacio, « Las Exosiciones Nacionales y locales em la España del siglo XIX: médio local, redes sociales y difusión de innovaciones », In Silva Suárez, Manuel (ed.), *Técnica e Engenharia em Espanha IV: El Ochocientos, Pensamiento, profesiones y sociedade*, Aragón, Real Academia de Ingeniería Institución “Fernando el Catílico” Prensas Universitarias de Zaragoza, 2009. p. 151-213

Carpenter, Kenneth (1972), « European Industrial Exhibition before 1851 and their Publications », *Technology and Culture*, t. 13, n° 3, p. 466.

Carré, Anne-Laure (Coord.), *Les expositions universelles à Paris au XIXe siècle: techniques, publics, patrimoines*, Paris, CNRS, 2012. p. 379-385.

Castro, de Borja, Agostinho Victor, *Relatório da Segunda Exposição Nacional de 1866, Volume II*, Rio de Janeiro, Typografia Perseverança, 1869.

Catálogo da Exposição Nacional, em 1875, Rio de Janeiro, Typographia e Lithographia "Carioca", 1875, 621 p. Accessed on 15 July 2021. URL: http://objdigital.bn.br/objdigital2/acervo_digital/div_obrasraras/or75591/or75591.pdf.

Catálogo da Exposição Provincial da Bahia de 1872, Bahia, Typografia de J. G. Tourinho, 1872.

Catálogo dos Nomes dos Expositores da Segunda Exposição Nacional, Rio de Janeiro, Typographia Nacional, 1866.

Catálogo da Segunda Exposição Nacional 1866, Rio de Janeiro, Typografia Perseverança, 1866.

Catálogo dos produtos naturaes e industriais remetidos das províncias do Império do Brazil. Rio de Janeiro, Typographia Nacional, 1862.

Chandler, Arthur, « L'Exposition publique des produits de l'industrie française Paris, 1798 », *World's Fair*, t. X, n°1, 1990. Accessed on 10 April 2021. URL: <http://www.arthurchandler.com/1798-exposition>.

Colmont, M. Achille de, *Histoire des expositions des produits de l'industrie française*, Paris, 1855, 566 p.

Corrêa, Barreto, Patrícia Regina. « Sociedade Auxiliadora da Indústria Nacional: Oficina de Homens », *XIII Encontros de História Anpuh-Rio*, Rio de Janeiro, Identidades, 2008.

Costaz, Claude Anthelme, *Histoire de l'administration en France de l'agriculture, des arts utiles, du commerce, des manufactures, des subsistances, des mines et des usines*, Paris, Huzard, 1832.

Cribelli, Teresa, « O mais útil de todos os instrumentos: o arado e a valorização da terra no Brasil no século XIX », In Motta, Márcia e Secreto, Verônica (Orgs.). *O Direito às avessas: por uma História Social da Propriedade*. Guarapuava: Unicentro, Niterói Eduff, 2011, p. 291-312.

Cunha Silva Cinthia da, Cerávolo Moraes Suely, « Para bem representar o Brasil no exterior: exposições provinciais Baianas (1866-1888) », *Museologia e Patrimônio*, t. 11, n° 1, 2018.

Cunha, Antonio, Luiz Fernandes da. *Relatório geral da Exposição Nacional de 1861 e Relatório dos Jurys Especiais*, Rio de Janeiro, Typografia do Diário do Rio de Janeiro, 1862.

Cunha, Carmo, Francisco, *Regulamento das Exposições Internacionais*, Lisboa, Imprensa Nacional, 1933.

Cunha, Cínthia da S., « As exposições provinciais do Império: a Bahia e as exposições universais (1866 a 1888) », Master's thesis in History, Universidade Federal da Bahia, Salvador, 2010.

Deléderray-Oguey, Isaline, « Les musées industriels en Suisse et le Conservatoire national des arts et métiers de Paris, un modèle parmi d'autres », *Cahiers d'histoire du Cnam*, Cnam, Paris, 2016.

Drago, Niuxa Dias, « Arquitetura e cenografia na representação do Brasil: pavilhões brasileiros de Londres a Milão », *O Percevejo Online*, Rio de Janeiro, t. 8, nº 1, 2016.

Exposition internationale, *Guide général ou catalogue indicateur de Paris, Indispensable aux visiteurs et aux exposants*, Paris, siège de l'Administration, 1867.

Exposition internationale, *Guide général ou catalogue indicateur de Paris, Indispensable aux visiteurs et aux exposants*, Paris, au siège de l'Administration, 1867.
Ferguson, Eugene Shallcross, « Technical Museums and International Exhibitions », *Technology and Culture*, t. 6, nº 1, 1965.

Ferraz Couto Luiz Pereira, Ramos Sousa Ildefonso José, *O Imperio do Brasil na Exposição Universal de 1867 em Paris*, Typografia Universal de Laemmert, Rio de Janeiro, 1867.

Ferreira, Cristina Araripe, « Difusão do conhecimento científico e tecnológico no Brasil na segunda metade do século XIX: a circulação do progresso nas exposições Universais e Internacionais. », Master's thesis in History of Science and Health, Fundação Oswaldo Cruz, 2011.

Figueiras, Carlos A. L., « Origens da ciência no Brasil », *Química Nova*, t. 3, nº 13, 1990, p. 227.

Filho, Freitas, Pita, Almir, « Officinas e Armazém d'Óptica e instrumentos Scientificos », Rio de Janeiro, MAST, 1986.

Fontanon, C., « Les origines du Conservatoire national des arts et métiers et son fonctionnement a l'époque révolutionnaire », *Les Cahiers d'Histoire du CNUM*, 1992.

Freitas Filho, Almir Pita, « Tecnologia e Escravidão no Brasil: Aspectos da Modernização Agrícola nas Exposições Nacionais da Segunda Metade do Século XIX (1861-1881) », *Revista Brasileira de História*, São Paulo, t. 11, nº 22, 1991, p. 71-92.

Flammarion, 1992 », *Anais do Museu Paulista Nova Série*, nº 1, 1993, p. 297-304.

Gama, José Saldanha da, *Estudos sobre a Quarta Exposição Nacional de 1875*, Rio de Janeiro, Typographia Central de Brown & Evaristo, 1876.

Gross Linda P., Snyder Theresa R., *Philadelphia's 1876 Centennial Exhibition*, Arcadia Publishing, Chicago, 2005.

Haftner, Daryl M, « The Business of Invention in the Paris Industrial Exposition of 1806 », *The Business History Review*, t. 58, n° 3, 1984, p. 317-335.

Hamon, Françoise, « Le Musée Industriel entre l'Exposition des Produits de l'industrie et le Musée Technologique », In Georgette Chantal, *La Jeunesse des Musées: les musées de France au XIX siècle*, Paris, Musée d'Orsay - Réunion des Musées Nationaux, 1994, p. 91- 99.

Hardmann, Francisco Foot, *O trem fantasma*, São Paulo, Companhia das Letras, 1988.

Heizer, Alda Lúcia, « Observar o Céu e Medir a Terra. Instrumentos científicos e a participação do Império do Brasil na Exposição de Paris de 1889 », Doctoral thesis, Universidade Estadual de Campinas, Instituto de Geociências, 2005.

Henry, Trueman Wood, *A History of the Royal Society of Arts*, Cambridge, Cambridge University Press, 1913.

Hippolyte Gautier, *Les curiosités de l'Exposition universelle de 1867*, Ch. Delagrave et Cie, Paris, 1867.

Hobsbawm, John, Eric, *A era das revoluções*, São Paulo, Paz e Terra, 1996, p. 418.

Iglésias, Francisco, *Política Econômica do Governo Provincial Mineiro (1835-1889)*, Rio de Janeiro, Ministério da Cultura/Instituto Nacional do Livro, 1958.

Julião, Letícia, « Apontamentos sobre a história do museu », In: *Caderno de diretrizes* Lacerda, João Baptista de, *Fastos do Museu Nacional*, Rio de Janeiro, Imprensa Nacional, 1905.

Léon M., Levy J., *Exposition universelle, 1867*, Paris, 1867.

Lopes, Maria Margaret, *O Brasil descobre a pesquisa científica. Os museus e as ciências naturais no século XIX*, São Paulo, Hucitec, 1997.

_____, « Museu: uma perspectiva de educação em geologia » Master's Thesis, Universidade de Campinas, Faculdade de Educação, 1988.

_____, « Cooperação científica na América Latina no final do Século XIX: os intercâmbios dos museus de ciências naturais », *Interciencia*, t. 25, n° 5, 2000.

_____, « Latin American Museums: comparative studies and links », *Scientific Instruments and Museums*, t. XVI, n°59, 2002, p. 221-236.

Lopes Maria Margaret, Matos Ana Cardoso de, « O que visitar em Paris durante a Exposição Universal de 1878: um guia turístico para geólogos », *Revista Iberoamericana de Turismo – RITUR*, t. 5, Número Especial, 2015, p. 48-62.

Lopes Maria Margaret, França Anna Sofia, « Monroe Palace from Saint Louis Exhibition (1904) to Rio de Janeiro (1906-1976): its project, building, travel, uses and the dispersion and transfer of its collections to Brasília (1960-1976) », *VIII AISU Congress City, travel, tourism Perception, production and processing*, 2017, Naples, 2017.

Loureiro, Carlos, « O museu Industria e Comercial do Porto (1883-1899) », In Semedo Alice, Silva Ferreiro da. Armando (dir.), *Coleções de Ciências Físicas e Tecnológicas em Museus Universitários: Homenagem a Fernando Bragança gil*, Porto, Faculdade de Letras da Universidade de Porto, 2005, p. 185-201.

Macedo, Manoel de, Joaquim, *Exposição Nacional de 1873. Relatório do secretário geral do jury da Exposição Dr. Joaquim Manoel de Macedo*, Rio de Janeiro, Typographia da Reforma, 1875.

Machado Marina Monteiro, Martins Monica de Souza Nunes, « A modernidade nas teias da floresta: o Brasil na exposição Universal da Filadélfia de 1876 », *Geosul*, Florianópolis, t. 32, n. 65, p. 68-86.

Mairesse, François, « Aux origines du musée d'entreprise : Musées industriels et commerciaux », *Recherches en communication*, n°45, 2018.

Manetta, Erica, « Presenting Design: a reflection on the Museography of Industrial Objects », Master of Fine Arts in Criticism and Curatorial Practice, OCAD University, Toronto, 2016.

Martins, Monica, « O impacto das Exposições Universais do século XIX para as relações econômicas brasileiras e o avanço tecnológico: uma análise sobre a participação das províncias », *XII Congresso Brasileiro de História Econômica & 13a Conferência Internacional de História de Empresas*, Niterói, 2017.

Mathieu, Caroline, *Les Expositions universelles à Paris : architectures réelles ou utopiques* [catalogue d'exposition], Paris-Milan, Cinq continents éditions, Musée d'Orsay, 2007.

Matos Ana Cardoso de, Demeulenaere-Douyère Christiane, Souto Helena Maria, « The World Exhibitions and the display of science, technology and culture: moving boundaries », *Quaderns d'Història de l'Enginyeria*, vol 12, 2012.

Matos Ana Cardoso de, Gouzévitch Irina, Lourenço Marta C. (dir.), *Expositions Universelles, Musées Techniques et Société Industrielle*, Lisboa, Colibri, 2011.

Matos Ana Cardoso de, Sampaio Maria da Luz, « Património Industrial e Museologia em Portugal », *Museologia&Interdisciplinaridade*, t. III, n° 5, 2014, p.97.

Matos, Ana Cardoso de, « Les musées techniques portugais et les expositions universelles au XIXe siècle » In Matos Ana Cardoso de, Gouzevitch Irina, Lourenço Marta C., *Expositions universelles, musées techniques et société industrielle/World Exhibitions, Technical Museums and Industrial Society*, Lisboa, Colibri, 2010, p. 72.

Matos, Ana Cardoso de, « Sociedades e associações industriais oitocentistas: projectos e acções de divulgação técnica e incentivos à actividade empresarial », *Análise Social*, t. xxxi, nº 2, 1996.

Matos, Ana Cardoso de, Abreu Xavier, António de, « Un paseo al Panorama transatlántico a partir de la Exposición Universal de París, 1889 », In *La Península Ibérica, el Caribe y América Latina : Diálogos a través del Comercio, la Ciencia y la Técnica (Siglos XIX – XX)*, Publicações do Cidehus, 2017.

Mendes, José Amado, « Exposições Industriais em Coimbra na segunda metade do século XIX (1) », *O Instituto. Revista Científica e Literária*, Coimbra, Instituto de Coimbra, 1979, vol. CXXXIX, p. 252.

Mendes, José Amado, « As exposições como “Festas da Civilização”: Portugal nas exposições internacionais (sécs.XIX-XX) », *Gestão e desenvolvimento*, Nº 7, Viseu, Universidade Católica Portuguesa, 1998.

Mendes, José Amado, « O património industrial na museologia contemporânea: o caso Português », *Ubimuseum – Revista online do Museu de Lanifícios da Universidade da Beira Interior*, nº 1, 2012, p. 89-104.

Mollier Jean-Yves, Schroeder-Gudehus Brigitte, Rasmussen Anne (dis.), *Les fastes du progres: le guide des expositions universelles 1851-1992*, Paris, Flammarion, 1992.

Momesso, Beatriz Piva, « Indústria e trabalho no século XIX: o estabelecimento de fundação e máquinas de Ponta d'Areia. », Master's thesis in History, Universidade Federal Fluminense, 2007, p. 44.

Nacional, Departamento de Museus e Centros Culturais, 2006.

Neves, Margarida de Souza, *As Vitrines do Progresso*, Rio de Janeiro, Relatório de pesquisa, PUC- RJ, Departamento de História, FINEP, 1986.

O Imperio do Brazil na Exposição Universal de 1876 em Philadelphia, Typografia Nacional, Rio de Janeiro, 1875, 643 p.

Olender, Marcos, « No Livro do Futuro. Das Primeiras Tentativas de Exposições Industriais no Império do Brasil no Século XX e a sua Primeira Participação em uma Exposição Universal e Internacional: Londres, 1862 », Master's thesis, Universidade Federal do Rio de Janeiro, 1992.

Ory, Pascal, *Les expositions universelles de Paris: Panorama raisonné, avec des aperçus nouveaux et des illustrations par les meilleurs auteurs* (Collection "Les Nostalgies"), Paris, Editions Ramsay, 1982.

Pereira, Campos da Silva M., « Participação do Brasil nas Exposições Universais: Uma arqueologia da modernidade brasileira », *Revista Projeto*, São paulo, n° 139, 1992.

Pesavento, Sandra Jatahy, « Imagens da nação, do progresso e da tecnologia: a Exposição Universal de Filadélfia de 1876 », *Anais do Museu Paulista: História e Cultura Material*, São Paulo, t. 2, 1994, p.67-151.

Plum, Werner, *Exposições Mundiais no Século XIX: espetáculos da transformação sócio-cultural*, Bonn, Friedrich Ebert Stiftung, 1979.

Polo, Maria Violeta, « Estudos sobre Expografia Quatro Exposições Paulistas do Século XX », Master's Thesis, Instituto de Artes, Universidade Estadual Paulista, São Paulo, 2006.

Recordação da Exposição Nacional de 1866, Rio de Janeiro, 1866.

Relatório da Segunda Exposição Nacional de 1866, Rio de Janeiro, Typografia Perseverança, 1869.

René, Tresse, « Le Conservatoire des Arts et Métiers et la Société d'Encouragement pour l'Industrie nationale au début du XIXe siècle. », *Revue d'histoire des sciences et de leurs applications*, t. 5, no 3, 1952, p. 246-264.

Rodriguez, C. M., « Central Tejo de Lisboa, un ejemplo de industria termoeléctrica reconvertida en museo de la electricidad », *Energía, Infraestructuras y Patrimonio Industrial*, Actas del III Seminario del Aula G+I PAI.

Sampaio, Maria Luz, *Reconversão e Musealização de Espaços Industriais*, Portugal, 2003.

Santos, Paulo Coelho Mesquita, « O Brasil nas exposições universais (1862 a 1911): mineração, negócio e publicações », Master's thesis, Universidade Estadual de Campinas, Instituto de Geociências, 2009, 276 p.

Schwartzman, Simon, *A ciência no império. In: Um espaço para a ciência: a formação da comunidade científica no Brasil*, Brasília, Ministério da Ciência e Tecnologia, 2001, p. 54.

Souto Maria Helena, Matos Ana Cardoso de, « The 19th century World Exhibitions and their Photographic Memories. Between Historicism, Exoticism, and Innovation in Architecture », *Quaderns d'Història de l'Enginyeria*, t. 12, 2012, p.57-80.

Souto, Maria Helena, *Portugal nas exposições universais: 1851-1900*, Lisboa, Colibri, 2011.

Turazzi, Maria Inez, *Poses e Trejeitos: a fotografia e as exposições na era do espetáculo*, Rio de Janeiro, Rocco/ Funarte - Ministério da Cultura, 1995.

Vasseur, Édouard, « L'Exposition universelle de 1867 : apothéose du Second Empire et de la génération de 1830 », Thesis for the diploma of archivist-paleographer, Modern History, École Nationale des Chartes, Paris, 2001.

Vervynck d., Dubois E., *Histoire des Expositions Industrielles*, Paris, L. Grollier Editeur, 1867.

Volker Barth, « The Micro-History of a World Event: Intention, Perception and Imagination at the Exposition universelle de 1867 », *Museum and Society*, 6, vol. 1, 2008.

Walter, G. Endrei, « The First Technical Exhibition », *Technology and Culture*, t. 9, n° 2, 1968, p. 181-83.

Werneck, da silva, José Luiz, « Isto é o que me parece. A Sociedade Auxiliadora da Indústria Nacional (1827-1904) na formação social brasileira. A conjuntura de 1871 até 1877 », Master's thesis, Universidade Federal Fluminense, Instituto de Ciências Humanas e Filosofia, v. 2, 1979, p. 61.

Zaluar, Augusto Emilio, *Exposição Nacional brasileira de 1875*, Rio de Janeiro, Typografia do Globo, 1875, VIII, 296 p.

Websites

Britannica Official Website. Posted online on 15 October 2018. Accessed on 9 April 2021. URL: <https://www.britannica.com/topic/worlds-fair>.

Archives nationales de France Official Website, « Expositions publiques des produits de l'industrie française avant 1850 », Accessed on 10 April 2021. URL : archivesnationales.culture.gouv.fr.

Ipatrimônio website. Accessed on 6 May 2021. URL: <http://www.ipatrimonio.org/rio-de-janeiro-instituto-de-filosofia-e-ciencias-sociais-ifcs-ufrj/#!/map=38329&loc=-22.905446313589696,-43.18148979169409,17>.

Website Brazilianafotografica, Heynemann Claudia Beatriz, Monteiro Maria Elizabeth Brêa, « Festa das Artes e da Indústria Segunda Exposição Nacional, 1866 », 2020. Accessed on 15 May 2021. URL: <http://brasilianafotografica.bn.br/?tag=exposicao-nacional-de-1866>

Website brasilianafotografica, Heynemann, Claudia, « Café Brasil: o Império na Exposição Internacional de Filadélfia », 2019. Accessed 20 July 2021. URL: <https://brasilianafotografica.bn.gov.br/?p=17283>

Official website of the Ruhn Museum. Accessed 27 July 2021. In: <https://www.ruhmuseum.de/startseite/>.

Fundação EDP Official Website, Central, 2017. Accessed on 24 July 2021. URL:
<https://www.fundacaoedp.pt/pt/conteudo/central>