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# The Colonial Museum x Anti-Museum: an approach on ethnic-racial relations from the Science Museum of the UFRGS Astronomical Observatory[+*]

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## Abstract

*The relations between museum, university and school, as part of culture, are still little studied, especially in the context of physical sciences. We analyzed, in a qualitative approach, museological elements (architecture; documentary, bibliographic and instrumental material; scientific objects; pedagogical mediation) of the Science Museum from the Federal University of Rio Grande do Sul's Astronomical Observatory (MOA-UFRGS). Supported by discussions about ethnic-racial relations, as well as by theoretical references from museology and other social and human sciences, we classify the MOA-UFRGS as a typical example of a colonial science museum. Based on historical, memory and heritage education issues, we reflect from the most current definition of museum, the role of science museums in dismantling epistemic racism and ethical commitment to other epistemologies that are historically neglected in the sciences. Supported by the idea of the anti-museum articulated by the African thinker Achille Mbembe, we present an alternative museological narrative for the MOA-UFRGS that takes into account inclusive and decolonizing perspectives of science.*

[+] Museu colonial x Antimuseu: uma abordagem sobre relações étnico-raciais a partir do Museu de Ciências do Observatório Astronômico da Universidade Federal do Rio Grande do Sul

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## I. Introduction

August, 24, 2022, at Prague, Czech Republic Capital, the International Council of Museums (ICOM) approved a new definition to these important spaces of public understanding of science and languages. In synergy with the global agenda of diverse international institutions which are articulated with the historical definition of modernity and progress, the new conception embraces ideas such as sustainability, diversity, community, and inclusion, which are connected to the contemporary challenge crossing the relations musum-university-school in their dialogue with the Brazilian communities and abroad. The new museum assignment is not only crucial for establishing guidelines and references for academic studies and research, but also dialogues with ICOM's political-operational regulations, serving as a framework for conceptualizing projects, programs, actions and the set of public policies for the museology sector. In accordance with the new understanding:

> *A museum is a permanent, nonprofit institution serving the society, which researches, collects, conserves, interprets and exhibits material and immaterial heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. Open to public, accessible and inclusive , museums foster diversity and sustainability. Museums work and communicate ethically, professionally and, with the participation of the communities, provide various experiences of education, enjoyment, reflection, and knowledge-sharing* (ICOM, 2022, p. 1).

On one side, science literacy (Silva; Sasseron, 2021) is considered by the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2013), as one of the most important categories to enhance thought development processes in societies that aim for a critical and political sense. On the other hand, there is no doubt that physical science museums, observatories and planetariums are powerful spaces for training undergraduate and graduate students in Physics/Astronomy from a critical perspective of the museum-university-school-society relationship. Although there are quite few studies and theoretical thinking about the role of these spaces in public understanding of science domain and/or in the initial and continuing training of teachers, scientists and specialized mediators, especially when taking into account the challenges of this century in the antiracist, antisexist and decolonizing activism in science (Rosa; Alves-Brito; Pinheiro, 2020; Vieira; Massoni; Alves-Brito, 2021; Pires; Peduzzi, 2021). These are urgent contemporary issues which demand the development of critical thinking to overcome social and cultural imaginaries permeated with biases, prejudice and stereotypes that cement the very construction of scientific knowledge, crossed by the interarticulations of global systems such as colonialism, capitalism and patriarchy.

As we have seen in the literature, Physics and Astronomy are complex sciences[2], fundamental for forging theoretical and experimental models about how the Universe was formed and has evolved over the last 13.8 billion years. They have been responsible for articulating basic knowledge that engages with various fields of the natural sciences, the humanities and technological areas and languages.

Despite studies focused on the education/teaching of Physics and Astronomy have established themselves in the field of science education over the last six decades (Moreira, 2021), in the case of Physics, and, in the case of Astronomy, have gained momentum in the last ten years (Slovinscki; Alves-Brito; Massoni, 2021), their interfaces with non-formal and informal teaching and learning spaces, especially with regard to the articulation of museological languages (Marandino *et al*., 2016) and heritage education (IPHAN - Instituto Nacional do Patrimônio Histórico e Artístico Nacional, 2014) are not enough. And in this sense, there are many challenges regarding the teaching and dissemination of the Physical Sciences when we expect a different arrangement between science museums and universities, schools and communities. In addition, we know that historically science museums, especially those focused on the Physical Sciences, have built and spread very well-defined perspectives of what science is and how it works, almost always with a positivist[3] bias. These tendencies are sometimes exclusionary, as they do not consider, for example, the antiracist processes of history, education and dissemination in science and, much less, the new museological perspectives that have debated ethnic issues in these powerful spaces for promoting scientific culture (Barbosa, 2018).

In fact, since the promulgation of the so-called Modern Age, scientific and museological perspectives have almost always been marked by exclusion, segregation and the recurrent practice of eugenicist ideas of classification that put black people, indigenous people and women in places of subalternization, invisibility and inferiority (Barbosa, 2018).

For Marandino (2005):

> *We consider science museums educational spaces. The experienced facts there are projected beyond fun and delight. Programs and educational projects are based on social and cultural models.Samples of produced culture are developed for the purpose to make it accessible to visitors. As in any educational organization, processes of the wider culture recontextualization happen enabling the socialization of accumulated knowledge. (*Marandino, 2005, p. 1*).*

[2] In the sense of complex or very complicated and intricate phenomena that have required new and challenging theoretical and methodological approaches in astronomy and astrophysics. Complexity as explored in depth in the studies of Ilya Prigogine (1917-2003) and Edgard Morin.

[3] Current of philosophical thought developed in France between the 19th and 20th centuries, with Auguste Comte (1798-1857) as its most illustrious figure. He had a very radical view of scientific knowledge as the only valid form of knowledge.

For Mbembe (2017), museums have been, sense the Modern Age "a powerful segregation device. The exposition of the submissive or humiliated humanities has always obeyed certain basic rules of injury and violation" (p. 226).

In this sense, creating and exposing interdisplinary and decolonizing curricula proposals for formal, non-formal and informal spaces through museological counter-narratives, becomes fundamental for science education in the country at a time when we are trying to build popularization and dissemination processes focusing on strengthening voices that have been silenced in the history of science. Regarding this, we think that the Physical Sciences museums can contribute as facilitating spaces for the growth of the new cosmological perspectives that tension oppressive narratives and endorse critical and racialized curricularization of science outreach and popularization programs and, particularly, Physics and Astronomy curricula.

Taking the Science Museum of the Astronomical Observatory of the University of Rio Grande do Sul (MOA-UFRGS) as reference, we demonstrate, in this work, theoretical-methodological and epistemic analyses and considerations about how the hegemonic and colonial narratives, which have been told at the physical sciences museums, can help us establish alternative theoretical frameworks intending to attain other scientific popularization and dissemination models that take into account counter-histories and other perspectives of knowing and interacting to the world, other than those referenced by the scientific model of domination - European, racist, classist and sexist. This paper discusses the limitations and the possibilities of the interventions, collaborative, ethnographic exhibitions and heritage education projects that contribute to the advancement of a counter-hegemonic speech at the *colonial museums* of Physical Sciences, joining forces to conception of the idea of an *anti-museum of sciences* (Mbembe, 2017). We concentrated our discussion on the articulation of curricular practices in science education and dissemination in museums that can (re)think History, Memory and Heritage Education as axes of political mobilization in the construction of other imaginaries totally aligned to the new definition of museums interpreted in accordance with ethnic-racial issues in the country. The Physical Sciences as crucial to the historical construct of what the sciences are and how they work, and historically relevant for even breaking paradigms in various areas of knowledge, can no longer abstain from this conversation, getting the chance once again tread innovative paths and processes of science education and dissemination at all levels of training.

## II. The MOA-UFRGS

Movements to build the Astronomical Observatory (OA) of the University of Rio Grande do Sul, then called the Astronomical and Meteorological Institute (IAM) date back to the 19th century, 1889, a year after the abolition of the slavery in the country, associated with the existence of the Engineering School of Porto Alegre (EE/PoA). Inaugurated in January, 24 of 1908, having the OA as one of its centers (Vasconcellos; Bernasiuk; Bica, 2008), the IAM

has had a strong positivist[4] bias since its foundation, a striking feature of the social, political and scientific life of the state of Rio Grande do Sul in the 19th century, with peculiarities when comparing to other parts, but which accompanies us in contemporary times (Pezat, 2006). According to historical data (Bevilacqua, 2014), the IAM was divided into five sections: Astronomy (Right Time Service, Teaching Geodesy and Astronomy, Seismography and Magnetic Declination), Weather Forecasting; Climatology, Agricultural Meteorology and Administration.

With the creation of the University of Porto Alegre (UPoA), in 1934, the EE/PoA, with all its associated centers, was incorporated into the UPoA. In 1947, the UPoA was renamed University of Rio Grande do Sul (URGS)[5] and its OA became known as Astronomy Institute of the School of Engineering (IA/EE). The OA then became part of the Physics Institute (IF) at UFRGS in 1969/70 as an auxiliary body. With the University Reform of the 1960/70s, the OA became part of the Astronomy Department of the IF/ UFRGS. Until then, the OA was strictly for research and providing technical service such as determining the correct time, meteorology, the study of geodesy and observing the sky for scientific astronomical purposes.

In despite of the new national order and the displacement of the Legal Time service to others centers in the country, from the 1960/70s onwards the OA opened up to society through night sky observations, thus beginning a vibrant science popularization program. The historic building was listed in August 2002 by IPHAN (Department of National Heritage). As such, it is a document and a trace of memory; a monument.

Currently, the OA is considered be the oldest institution in its kind in Brazil, operating in its original building. The architecture (Figure 1) is in the *art nouveau*[6] style and its collection is composed of a wealth documentary, bibliographic and instrumental material and scientific objects[7]: letters, communications, diaries, lunettes, telescopes, theodolites, chronometers, pendulum clocks, planetariums, among others, which corroborates with the activities undertaken by the observatory over the last almost 115 years.

[4] This school of thought was very prominent in the state of Rio Grande do Sul during the First Republic (1889-1930), divided into the Heterodox Positivists, who actively participated in public life (PRR: Rio-grandense Republican Party), and the Orthodox Positivists, who were non-partisan and tried not to act directly in the political issues of the time.

[5] It was renamed the Federal University of Rio Grande do Sul (UFRGS) in the process of university federalization in 1950.

[6] An artistic movement that emerged at the end of the 19th century in Belgium, dislocated from the context in which the artistic avant-garde generally emerged in Europe.

[7] Check out the MOA-UFRGS inventory. Available at: https://www.ufrgs.br/observastro/website/wp-content/uploads/2014/11/Invent%C3%A1rio-MOA-2018.pdf. Accessed on: 17 Feb. 2023.


*Fig. 1 - Facade of the UFRGS Astronomical Observatory (Art Nouveau), home of the Museum under discussion. Source: UFRGS website. Available at: https://www.ufrgs.br/observastro/. Accessed on: 16/02/2023.*

On the initiative of the OA's technical, scientific and cultural staff, the MOA-UFRGS was inaugurated in 2009, 101 years after the creation of the OA[8]. The museum operates in the OA building, which has been part of the university's Museums and Collections Network (REMAM) since 2012 and is registered with the State Museums System (SEM) and the Brazilian Museums Institute (IBRAM). It is worth noting that the composition of the group of decision-makers for the creation of the MOA in 2009 was not very diverse, with five white, heterosexual, cisgender men working at UFRGS and one woman on a scholarship present in the Minutes of the Meeting for the Creation of the MOA. The historical composition of the OA

[8] With the celebration of the 100th anniversary in 2008, an exhibition of panels referencing the history of the organ was held and the display of instruments as museum objects began. Visitors now have access to the historiographical panels on display in the Museum's premises.

staff is not very diverse. Throughout its existence, the OA has had two female directors and one black director.

Focusing on scientific development, the MOA-UFRGS is part of the third generation of science museums in the country (Valente, 2014), focused on the theoretical and observational dynamics of celestial studies and their relationship with society. It was created with the aim of museumizing the OA building, as well as its documentary and instrumental collection. At present, the main objective of the OA and its associated Museum is to foster development, education and social inclusion through Astronomy and related sciences, through research, formal, non-formal and informal teaching, extension and popularization of science, rescuing and preserving the memory of Astronomy in Rio Grande do Sul and, partially, in the country.

Among the services offered to the public are workshops (Physics/Astronomy), periodic observation of the night sky and guided tours of the historical instrumental and documentary collection, available to schools by appointment and to the general public. At UFRGS, it has also served as an important space for the initial training of teachers and scientists by offering basic subjects for various undergraduate courses. In the last five years, with the exception of the Covid-2019 period (from March 2020 to January 2021), the MOA has welcomed an average audience of 3,500 people a year, the majority of whom are teachers and students from basic education. It is worth highlighting some articles in the literature whose authors analyze the school-museum relationship (Marandino *et al*., 2016; Setton; Oliveira, 2017; and references cited therein).

In pedagogical and educational terms, the MOA-UFRGS consists of four exhibition spaces, summarized in Table 1, where the Museum's objectives (general and specific) are also listed.

Chart 1 – Description of the MOA-UFRGS exhibition spaces. Source: MOA-UFRGS Museum Plan (Bevilacqua, 2016).

| **Structure** | **Description** | **Objectives** |
|---|---|---|
| **Façade** | Sculpture of Urania (Greek), muse of astronomy[9]. Representations of planets and zodiacal constellations throughout the building. Windows. Educational and didactic use of the space in front of the north façade, currently occupied by a small lawn. | **General:**<br><br>- Preserving and disseminating the history of astronomical sciences in RS.<br><br>**Specific:** |

[9] The term "museum", according to classical etymology, is linked to a small hill, the place of the muses. In the geographer Pausanias' description of Greece, the portico in the agora of Athens was a kind of open-air museum.

| | | |
|---|---|---|
| **Ground floor** | 30,46 $m^2$. The history of the OA in its early days is presented in the form of a long-term exhibition. Display of documents and instruments. A spiral staircase leads to the second floor. From one floor to the next, people move around the building vertically. | - Safeguarding the technical, instrumental and scientific collection related to astronomy in RS.<br><br>- Researching, preserving, restoring and disseminating the instrumental, documentary and bibliographic collection.<br><br>- Bringing society closer to and interact with the field of astronomy.<br><br>- To develop non-formal teaching activities and scientific literacy through observation of the sky and interaction with the collection, stimulating inter-, multi- and transdisciplinarity.<br><br>- Communicating astronomical knowledge from its collection. |
| **First floor** | 24,22 $m^2$. Showcases with scientific instruments and objects, and graphics from the meteorological service, with a strong European culture. TV. Library. Helical staircase to the second floor. | |
| **Second floor** | 45 $m^2$. Scientific instruments and objects, reminiscent of European culture, men's names, photos of men on the wall, hourly service, TV. Painting "Cronos" (Greek). Classic photos. Joseph pendulum clock, medium time, made in 1907. Helical staircase to the third floor. | |
| **Third floor** | 30,63 $m^2$. Dome. 190 mm Gautier Equatorial Lens (French), which has been in operation for 113 years. Terrace. | |

According to the institution's Museological Plan (Bevilacqua, 2016), Temporary Exhibitions, when they take place (Ground Floor), must follow the organizational flow of the year. Long-term exhibitions should focus on the Museum's instruments and/or themes related to the institution's mission. In this way, the MOA-UFRGS seeks to be a training space that, in addition to presenting instruments, objects and collections relating to the history of astronomy in RS, seeks to work on issues inherent to the teaching, education and popularization of astronomy. At all times, the MOA-UFRGS has an intrinsic relationship with basic education and education projects.

Furthermore, in 2017, on the initiative of the management at the time, a Heritage Education project was created for the MOA-UFRGS in its relation to Science Education. The project involves mandatory internships for undergraduate students in the subject History III - Heritage Education, offered by the Faculty of Education at UFRGS.

Seeking to expand the reach of its activities, the MOA-UFRGS has recently created profiles on social media, and a virtual tour[10] of its collection and museum spaces has also become available. The museum offers numerous scheduled visits for schools and the general public, in which sky observation is its greatest asset. Since 2023, it has also hosted classes for the undergraduate course Exploring the Universe: from quarks to quasars, which is open to all undergraduate courses at the University and to the general public. The course is designed to disseminate science based on the research themes and lines of research in Astronomy that are articulated by the researchers of the Department of Astronomy at IF/UFRGS. The interaction between subjects and museums is mainly done through mediators who interact with visitors. At the moment, the key mediation activities in the field of astronomy are conducted by culture promoters (technical staff at the university) with various backgrounds (Physics, Biology, Geography, Administration), as well as scholarship students from a range of courses at the university.

## III. Theoretical and methodological references

From a qualitative perspective, using the documents, instruments, scientific objects and pedagogical practices articulated at the MOA-UFRGS as a parameter, we discuss the materialization of colonial science museums and the anti-museum (Mbembe, 2017) as their counter-narrative. We combine the theoretical and practical bases of ethnic-racial relations education (Brasil, 2004), as well as the ideas of Nila Barbosa (2018) on Museum and Ethnicity.[11] We also dialogued with Michel de Certeau's (2007) thoughts on social tactics and strategies. Stuart Hall is our reference for thinking about *imagined communities* (HALL, 1996). Finally, we also base our discussion on the categories of *history, memory and heritage education*, which we have chosen because they are considered as articulators of the concept of the *anti-science museum* based on the ideas presented by Mbembe (2017). These theoretical and methodological approaches argue that it is important to challenge the colonial perspectives present in Physical Science Museums so that we can incorporate other systems of knowledge that have been erased and inferiorized in the history of science.

In the subsequent sections, we are interested in connecting the concepts of *anti-museum* (Mbembe, 2017), *imagined communities* (Hall, 1996) and *social tactics and strategies* (Certeau, 2007).

For Stuart Hall, *imagined communities* are the narratives of a nation, constituted not only by cultural institutions (museums, for example), but by symbols and representations. In this way, there is an announced discourse, which constructs and gives meaning to the actions

[10] Available at: https://if.ufrgs.br/tour_virtual/observatorio_astronomico. Accessed on: 17 Feb 2023.

[11] Here we understand the word ethnicity beyond what it is generally used for. Not in the sense of studying the "other" who is different from the "me", and certainly not by establishing asymmetrical power relations between the "me" (superior) and the "other" (inferior). Ethnicity understood as a relationship, and how some ethnic groups (Europeans) colonize other groups (Africans, native peoples).

and conceptions that are created about ourselves, and which end up constructing the concept of identity.

According to Mbembe (2017), the concept of the anti-museum is linked to the questioning of the colonial museum that produces statues, mummies and fetishes. Based on his idea, we think of the anti-museum as a new place, with a determining role in an *imagined community* of the future, which must prepare itself to house what is to come (a different discourse on the experiences of black and indigenous people), but which is not part of the present order, in the sense that there is no point in taking black and indigenous stories to colonial museums while maintaining the folklorizing and homogenizing gaze present in exclusionary and subaltern logics. .

*Social tactics and strategies* (CERTEAU, 2007), on the other hand, are treated here as practices that help us reflect on the power relations that exist, for example, in the speeches that are created in museums and how they reverberate outside. While strategies isolate people and institutions, because they operate complex relationships of social forces and produce places, tactics destabilize and re-appropriate places, causing them to move. As no place (a museum, for example) is neutral, there are effects of social games that need to be properly addressed. The anti-museum thus works with these *practices*, making it possible to reappropriate the space (museum) organized by colonial institutionality. The *anti-museum*, *imagined communities* and *practices* (*social tactics and strategies*) meet in avenues of thought to experience memories of the past, the desire to live together and the perpetuation of heritage, but without losing sight of the fact that in order to build the future (anti-museum) it is necessary to create policies for the production and occupation of places (museum), building subjects of knowledge and power (or *others*, left on the margins of the exclusionary system).

## IV. The MOA-UFRGS as an anti-museum: discussions and theoretical-analytical interpretations

Given what has been discussed above regarding the issues of race and gender in the composition of the MOA's teams and decision-makers, and the information summarized in Figure 1 and Table 1, we can conclude that the architecture of the building that houses the MOA-UFRGS (facade of the building with Greek symbols and Art Nouveau style, style of ornamental art typical of Europe and the United States), as well as its documents (photos and records mostly of white men) and instruments (of European origin), tell us a history of science that does not deviate from the standard model: a white, male, European-based (Greco-Roman) science, highly supported by colonial ties and with a positivist bias. It is therefore an internalist and colonizing perspective and narrative of science, which we refer to in this text as a colonial museum, alluding to the definition of *colonial libraries* by Congolese philosopher Valentin Ives Mudimbe. As explained by Saar (2021), the term *colonial library* refers to the idea that European explorers, anthropologists and ethnologists created a set of written texts on the African continent that contributed to fostering imaginaries associated with Africa, such as those

already discussed here from Hegel, in which he portrays Africa in a pejorative way, classifying it as intellectually incapable.

These different sets of colonial data have, over the course of the history of science, schematized African and indigenous oralities and writings as static devices of memory and thought, independently of the linear march of History and the idea of Progress embodied, for example, in the thought and reason of the German philosopher of history Hegel (1770-1831), considered fundamental to the establishment of Western History. Recently, the Senegalese thinker based in France, Professor José do Nascimento, presented a very in-depth and detailed overview of the Hegelian perspective of history to the detriment of the thought of Cheikh Anta Diop (Nascimento, 2023), one of the great epistemologists of the 20th century, who challenged European colonial logics. In Nascimento (2023), Hegel analyzed the participation of the African continent in the movement of Universal History and in the march of the spirit towards progress in a colonial and exterminatory manner. According to the researcher, Hegel ensures (i) Africa's isolation from the rest of the world; (ii) the historical immobility of the African continent; and (iii) Africa's estrangement from the phenomenon of historicity. The philosophical-historical perspective of *Western childishness*[12] attributed by Hegel to African peoples has had academic, political, doctrinal and psychological consequences for the continent and for black diasporas around the world (Nascimento, 2023). For Hegel, black Africans are intellectually unable to distinguish between the human and the natural, let alone conceive of the implications of the socio-cultural gains surrounding this distinction. Thus, there is a cultural infantility, an irrational and unlimited sensualism, which would characterize a condition of *infantility*, that is, of people who have not gained maturity, which would be analogous to children in the Western perspective of childhood. In this sense, the West would be the adults, the masters of themselves, intellectually capable, and the African continent, the children, incapable of exercising thought, prone to a permanent state of tutelage (Nascimento, 2023). These are the logics that contribute to forging the realities of African and native peoples in the world's collective social imaginary, ignoring the humanity of these peoples and their capacity to constitute themselves in a dialectical process.These imaginaries of Western subalternity and *infantilization* of black and indigenous people are reproduced in contemporary *colonial museums*. However, in the African cultural contexts connected to the African diaspora in Brazil, and without generalizing, childhoods are conceived in a different way, of the agency of intelligence and awareness of self, others and nature.

Alternatively, the processes of anti-racist education in the sciences that we have experienced in recent years invite us to recuperate the history of the colonial processes of slavery in the country and, especially in the Physical Sciences, to build other languages of education and dissemination of the Physical Sciences. We will now discuss one of these

[12] To differentiate the broad, integrative and autonomous sense of childhood articulated from Africa's own perspectives, detached from the Western world.

possible paths, the anti-museums, as *another places*, of *radical hospitality*, according to the ideas of Mbembe (2017).

For Achille Mbembe,

> *… the museum is a space for neutralizing and domesticating forces that were alive before its museification - energy flows. This remains the essence of its cult function, especially in de-Christianized societies in the West. Possibly, this function (also political and cultural) is necessary for the very survival of society, as is the function of forgetting in memory* (Mbembe, 2017, p. 227).

In short, for Mbembe, the museum is a place where the value of the object changes, with losses and gains in value. If "the museum is a space for the neutralization and domestication of forces" (Mbembe, 2017, p. 227), "the history of Atlantic slavery thus invites us to found a new institution that will be the anti-museum" (Mbembe, 2017, p. 228). It is in this sense that Eurocentrism, colonialism, and racism converge to define coloniality and modernity (Quijano, 2000). We cannot relativize the weight of each of these systems in the way contemporary museum narratives work. This is why other forms of subjectivity in science communication need to be articulated by schools, universities, and museums based on a discussion of three categories that help define an anti-museum: *history*, memory, and *heritage* education.

### IV.1 History

When the architecture, sculptures, works of art, people, documents, and instruments of the MOA-UFRGS are all taken into account, it can be seen that the stories told through the museum's *symbolic systems* are built on colonial power relations between the state of Rio Grande do Sul and the processes of European colonization that were notable in the 19th century in the state and in the country. Although the state of Rio Grande do Sul is markedly full of black African and indigenous populations, these historical and cultural perceptions are absent from the MOA-UFRGS. The main elements of science communication that make up the mediators' interaction practices with visitors and that are present in the building (the sculpture of Urania, the fresco of Chronos, the hegemonic zodiacal constellations, the French and German instruments, the photos of the OA's past technicians and directors, etc. ) are identified with cultures that have historically occupied positions of power and, through epistemic privilege, have not only had the power to speak about subalternate *others* in the history of science but also to conceptualize what science is and define how it happens in everyday life.

In this sense, the science anti-museum proposed here should be based on counter-histories (Alves-Brito; Macedo, 2022), understood as methodologies and epistemological perspectives of resistance that are necessary for emancipatory science education projects committed to democracy. Anti-museums must be able to articulate, in their pedagogical planning, the National Curriculum Guidelines for Ethnic-Racial Relations Education (Brasil,

2004), decoding the writings, oralities, and cosmological ways of organizing the Universe that are forged and articulated in the struggles and experiences of native peoples and black and quilombola[13] communities. We need to try to interpret the international definition of a museum, recovering the historical and political meaning of what, for example, the words *sustainability*, *diversity*, *community*, and *inclusion* mean to white and non-white peoples. Ethnic-racial relations need to be deepened in these spaces, pointing out the legacy of African, Afro-Brazilian and indigenous history and culture in the country.

The anti-museum perspective is important because it recognizes that, historically, museum collections have been marked by epistemic plunder when, for example, 17th-centurytury Tupinambá cloaks, made by ancestors in northeastern Brazil more than 350 years ago, are still on display in European museums[14]. For different Indigenous and African peoples, an artifact, an art object (from our Western perspective) is not just any object. It can be an ancestor, endowed with great power. This is the case with the cloak in question. Stolen or exchanged, the cloak synthesizes the ancestral knowledge, know-how, and actions of an entire people. For European museums, the cloak may just be an exotic ornament of beauty, but for the Tupinambá peoples, there are other cosmologies (philosophies), sky-territory relationships, heritage (ancestral heritage), and memory that challenge the logic of colonial collections. In the case of the MOA-UFRGS, the stories told by the sculpture of Urania (the Greek muse of astronomy), the fresco of the god Chronos of time, and its dozens of instruments for observation and timekeeping are all European references. What's more, there is an implicit narrative in the way the objects (with European names and surnames) and people (photos of well-dressed white men) are organized, which materializes the idea of a thriving and glorious science, pure, naive, and neutral, accessible to a few educated people from the elites of the time. The positivist perspective is latent in the way the data is recorded and analyzed and also in the historical purpose of the institution (to provide the legal hour service) so that a large part of the population of RS (black and Indigenous people, women) is left out of history in the representations of museum exhibitions at the MOA-UFRGS.

Furthermore, based on the exhibitions, their objects and the analysis of the reports available from the MOA-UFRGS, we can see that most of the interactions with people are marked by the perspective of linear and vertical transmission of knowledge (astronomical) that is not very accessible. Although we are dealing here with a particular case, we can see that this is a recurring model in science museum representations in the country, which is incompatible with the construction of a project of inclusion and affirmation of diversity in science communication spaces.

When the Eurocentric paradigm of storytelling is maintained in science museums, as seen at the MOA-UFRGS, African, Afro-Brazilian, and Indigenous histories and cultures are,

[13] Quilombo is the denomination for communities of black slaves who resisted the slavery regime that prevailed in Brazil for over 300 years and was abolished in 1888.

[14] Available at: https://piaui.folha.uol.com.br/materia/longe-de-casa-2/. Accessed on: June, 10, 2023.

for example, just appendages, concentrated in sporadic exhibitions, without structural changes in the way science museums communicate with society, in other words, the idea that the history of Brazilian society is intercultural, with a marked African and indigenous contribution, is not encouraged. Ethnographic perspectives describing non-European peoples are sometimes folklorized. According to Mbembe, "In order to acquire its rightful place in the museum as it exists today, the slave should, like all primitive objects that preceded it, see its primary strength and energy unleashed" (Mbembe, 2017, p. 227).

### IV.2 Memory

At the intersection of history and the past, memory, while showing us what should be remembered, also omits what we have chosen to forget since it is a "mental tool" made by historical subjects and is therefore just as selective as history. Miranda and Araújo (2019) warn that memory is always under construction and remembering, which is a constituent part of our identity, our sense of belonging, is important in the construction of our identities. Memory, therefore, is at the forefront, linked to a set of psychic functions and organizations. The memory of the MOA-UFRGS is selective, because the scientific instruments, documents, and people who are part of the story through photographs are always those in agreement with the hegemonic memories of the history of science, almost always focused on individuals.

Through the lens of scientific racism (Munanga, 2019), we know the effect of racism on the psychic functions of black and Indigenous people when we take into account the literacy strategies given in the hegemonic narratives of (science) museums. Attempted subjugation, invisibilization, assimilation, physical and intellectual inferiorization, and folklorization are among these effects. The narratives and written and oral knowledge systems materialized in black and Indigenous cultures are not considered as historical data, much less as relevant data for museum representation. These are hallmarks of *colonial museums*. For example, Barbosa (2018) demonstrates that the *others* (blacks and indigenous people), although present and active throughout history, are neglected, and relegated to a social and museological non-place. Even when they are remembered, according to the researcher, they always appear in places of submission. In the context of the Physical Sciences, Rosa, Alves-Brito and Pinheiro (2020) discuss how black and Indigenous people are treated in the context of *non-truth* so that their existences are deprived of intelligence and epistemes. There is thus a representation - which, in cultural heritage, attributes crucial value to museum objects - that is negative of the knowledge system of peoples who have been colonized.

Hall (1996) uses the concept of "imagined communities" to help us think about how national identity was constructed in the country without the presence of *other blacks* and Indigenous people and how this issue was strongly endorsed by the idea of the museum as a place to preserve the hegemonic memory of science and who could enjoy its direct and indirect contributions. Science and power are intertwined in the sense that the former is built on the latter, from its places of imagination. The authoritarian discourse of science relates to its

exteriority without being threatened. The hegemonic scientific discourse is then legitimized within the very conceptualizations it creates. There is then the creation of a black and Indigenous community imagined by the hegemonic systems of scientific power that do not fit into the spheres of representation of scientific and technological protagonism. In the world outside museums, the imagined black and Indigenous communities are not endowed with humanity and, therefore, their inferior scientific and cultural realities are treated as natural data, independent of social, cultural, and political agents. An idealization – frozen in time and space – that is not being fulfilled in the present, nor can it be in the future. The museum's references are placed only in the desires of the (so-called thinking and cultural) economic elites, who don't racialize either, who see themselves as a race that distributes privileges through centuries-old methods of hierarchization.

The lack of references to black and Indigenous histories and cultures (Kaingang, Guarani, Charrua, Xokleng) in the state, in every corner of the cultural space, and even in the way the scientific and educational programs have been run for decades, materialize how scientific racism, as a pseudoscience, still silently reverberates in the way choices are made in the context of these spaces. To say that scientific racism is a pseudoscience is to internalize that there is no scientific evidence of the superiority, for example, of white people over black and Indigenous people. The concept of race, which determines how different people are going to be born, live, or die in Brazil, is a social and political construction and cannot be sustained from a biological point of view. The dehumanization and infantilization (in the Hegelian sense) of black and indigenous people (their histories, cultures, and cosmological perspectives) is latent in the way stories are told not only at the MOA-UFRGS, but at other university museums, and it is this sense that the hidden ideas of *scientific racism* continue to operate.

### IV.3 Heritage Education

Black and indigenous movements have historically put pressure on the Brazilian state, through the creation of public hearings, the formation of collectives, the proposal of bills, etc., to promote public policies that recognize the participation of these groups in the process of building Brazilian history, while at the same time problematizing power relations to strengthen an agenda of anti-racist struggle, bring other perspectives of representation that make the existence of these peoples positive. Despite the large African and indigenous population in 19th-century Brazilian society, Gil and Meinerz (2017) point out that the expressions of popular groups were made invisible in the context of the invention of the nation project. As a result, "[...] peoples and cultures were subalternized; local knowledge, memories and histories were silenced by the coloniality of power, maintained despite the political-administrative severance of colonial ties with Portugal" (p. 23). Consequently, the authors point out, these privileged spaces for the preservation of material culture reaffirm a national memory that values a framework of references based on a white, Catholic, European model. It is against this background that we question the Eurocentric nature of museums as spaces of memory that

perform an important educational and social function and that are not neutral but portray political and ideological conceptions that influence the dynamics of what should be remembered and what should be forgotten (Barbosa, 2018). The MOA-UFRGS is therefore no exception in the reality of science museums. Heritage education, from an anti-racist perspective of science education and dissemination processes, committed to the project of education for ethnic-racial relations (Brasil, 2004), is a possible way forward. The de(s)colonization of museum spaces must be a structural process, but obviously, we need to make progress locally through educational processes.

Through cultural facilities, the state interferes in memory based on the narrative of a single history or as a policy of forgetting that is reflected in collective mentalities. The right to memory implies recognition as a subject of rights and, in this sense, it is necessary to think about memory spaces in conjunction with the demands of social movements, especially black and Indigenous movements (Barbosa, 2018). Freitas (2004) emphasizes that in recent years the demand from the black population for their experiences to be recorded through social, cultural, and educational actions has grown. The author points out that this group has long been invisible in museums or has been represented through a slave-owning past. Since their inception, these cultural institutions have carried an image of cultural representation from the perspective of the elites and following a European model. In this respect, the MOA-UFRGS, through its narratives (material and immaterial), has not yet detached itself from the memory connected to the modern scientific project that denies the existence of black and Indigenous people, based on a universalist European ideal of progress and scientific development.

Cunha (2017) emphasizes that the right to memory is included in the list of Diffuse Rights, which have the principle of reaching all the individuals who make up society, even if it is not claimed. However, the author points out that there is a conflict operating within the scope of official memory policies in the Brazilian state, in which almost always what is chosen to remember and be remembered does not manifest the totality of national memories, such as what happens with Afro-Brazilian heritage, which has been manipulated, made invisible and folklorized in many museum spaces as part of the processes of domination. It is in this sense that we dialog with the field of heritage education around counter-hegemonic narratives that collaborate in the construction of other educational projects that consider an intercultural dialog with diversity. It is from this perspective that the proposal for an anti-museum, such as the one we propose for the MOA-UFRGS, opens up possibilities for the construction of epistemologies that break with Eurocentric paradigms, recognizing the need to read a diverse reality, in which black and Indigenous people are co-participants in the production of scientific knowledge that is projected in these spaces. With this, we want to reflect on museums such as the MOA-UFRGS and the educational implications of the stories that circulate in these places as a possibility for expanding representations about different social and ethnic-racial groups (Gil; Meinerz, 2017). We believe that the training of education professionals and educational processes, in general, should involve experiences and re-significations of the relationship between black/indigenous

history and memories as an important element in strengthening ethnic identities and building counter-hegemonic educational perspectives and epistemological reorientations with implications for actions to combat racism (Nunes; Luz, 2022). The MOA-UFRGS is a promising place for the history of Rio Grande do Sul to be told in another way, beyond the little more than 250 years of the city of Porto Alegre, which has solemnly erased the ancient history of Indigenous peoples before the European presence in these lands.

According to IPHAN (2014), Heritage Education refers to a wide variety of actions and projects that point to different conceptions, methods, practices and pedagogical objectives carried out in formal and non-formal educational processes aimed at recognizing and valuing cultural heritage as a resource for socio-historical understanding of cultural references in all their manifestations. Heritage education must take as its principle the participation and collective construction of knowledge, recognizing the community as a producer of knowledge whose identities and histories are part of a context of meanings associated with the social memory of the place. Based on this definition, we can say that the MOA-UFRGS falls short of these expectations.

As such, in building new pedagogies for the field of heritage, there is a need for interdisciplinary, collaborative, emancipatory, and inclusive educational actions that break with the Eurocentric perspective of heritage by problematizing what has already been established, promoting the exercise of citizenship, the formation of critical awareness and positive coexistence with diversity. Therefore, we cannot restrict the idea of heritage to listed or protected assets, but as a support for action, memory, and identity of the different groups that make up Brazilian society (Scifoni, 2022). This reflection points to the need for a conceptual deepening of the foundations of heritage education that recognizes the participation of the different subjects involved in the process and dialogue with contemporary demands. In these terms, Scifoni (2022, p. 11) from the perspective of heritage pedagogy: "... understands educational action as a dialogical process, which is carried out with respect for the diversity of views, knowledge and possible narratives of the different subjects". It also states that educational action must be a critical activity; therefore, its essential function is to problematize cultural heritage, understanding its political meaning and the disputes surrounding the construction of an official memory. Finally, it understands education as a process of producing knowledge, not merely an informative activity or a simple reproduction of ready-made content.

It is necessary to reflect on the new definition of the museum (ICOM, 2022) from this critical perspective of heritage education which, in the context of the anti-museum, can be a powerful strategy for thinking up solutions to the (uncritical) colonial museum that are not simple. Mbembe himself reflects on this, as he points out that, for example, the mere inclusion of objects from the history of slavery in new or existing museums does not solve the problem. From the point of view of education, we need to deepen the power of becoming. In the context of exhibitions and museum practices, the reproduction of scenarios and ways of being and living of native peoples, as well as the exhibition of their objects, would not be enough. That's why

counter-histories and revisiting memory are so crucial to building a different perspective on (science) museums, which must be aligned with anti-racist heritage education. In the case of the MOA-UFRGS and other science museum spaces, taking into account what Mbembe (2017) brings us, an important step for the institutions involved at different scales (management, training, mediation) is to recognize the need to tell other stories and create strategies to pierce the boundaries of the colonial abyss that scientific institutions insist on operating. Sky-territory relations, in the context of the MOA-UFRGS, can be rethought and shared in dialog with black and indigenous communities from Porto Alegre and other parts of the state. The effective participation of these communities is crucial, such as the great example of the Museum of Archaeology and Ethnology at the University of São Paulo (Guimaraes *et al*., 2018).

### IV.4 An anti-museum proposal

Based on what we have presented and discussed previously, we have summarized in Table 2 the main elements of a *colonial museum* that we have identified in the MOA-UFRGS which, ultimately, expresses what Rio Grande do Sul society has chosen to preserve. It carries with it the meanings that have been attributed to it over time. Alternatively, as a proposal, we have listed some elements that, in our view, are crucial for composing the anti-museum project in contemporary times for this and other institutions, understanding that the anti-museum, as Mbembe says, "is not an institution at all, but the figure of an another place, that of radical hospitality" (Mbembe, 2017, p. 228). We believe that not only the training of mediators but also museum curricula will be highly impacted by the anti-museum bias. The proposed design is based on the critical analysis of Chart 1 and the ideas discussed in this text. It is also based on our recent research results and on anti-racist science education and dissemination policies. In this way, we hope to broaden the perspectives of the relationship between culture promoters, teachers, scientists, and students at the MOA-UFRGS and the communities that visit and share the museum's learning spaces and cultural and scientific experiences. The museological approach is also an important step towards dismantling epistemic and institutional racism (Almeida, 2018; Rosa; Alves-Brito; Pinheiro, 2020; Alves-Brito; Macedo, 2022), two of the cruelest aspects of racism in Brazil when we look at intercultural relations in the country.

From Chart 2, it is worth mentioning that, although the MOA-UFRGS building follows the country's rule that the great buildings taken as heritage by official bodies are almost entirely from its elites, this does not diminish the power that the beautiful MOA-UFRGS building has to present the past-present relations of social groups that have been excluded from the history of science and, in parts, from the history of Rio Grande do Sul. The scientific documents and objects on display at the MOA-UFRGS (and in other science museums) need to be aesthetically and intellectually accessible to communities that are taught from an early age that museums, and particularly science museums, are *another places* for them.

Chart 2 – MOA-UFRGS: Colonial Science Museum versus Science Anti-museum.

| **Structure** | **Comments** | |
|---|---|---|
| | **Colonial Museum Perspective** | **Anti-museum Perspective** |
| **Conception** | - Priority given to the positivist conception and internalist aspects of modern science.<br><br>- European hegemonic cosmology. Neutrality.<br><br>- Linear history of progress. | - Priority given to intercultural conception, taking into account sociocultural aspects of the sciences.<br><br>- Racialized cosmologies. Cosmopolitics.<br><br>- Counter-history |
| **Facade** | - Urania, in Greek mythology, is one of the nine muses, daughters of Zeus and Mnemosyne, daughter of Uranus and Gaia.<br><br>- Greco-Roman zodiacal constellations. | - Where are the African, Afro-Brazilian and indigenous references for telling stories about the sky? Where are the black African and indigenous gods?<br><br>- Where are the constellations and narratives about the sky from indigenous (Mbya Guarani, Kaingang, Charrua, Xokleng) and black African (Bantu, Yoruba) cultures? |
| **Ground and First floors** | - A linear perspective of history, with illustrated hegemonic "voices" and "faces" and colonizing architectures.<br><br>- The protagonists of official history and the objects of imaginary representation are always Europeans or their descendants.<br><br>- Most museum objects are of European origin. | - Counter-histories. Voices, faces and architectures excluded from hegemonic history.<br><br>- Making local and national indigenous and Afro-Brazilian peoples visible.<br><br>- Artifacts from local cultures should be part of the collection. |
| **Second floor** | - Most museum objects and instruments have European origins. | - Where are the African, Afro-Brazilian and indigenous references for the construction of sky observation instruments? |

| | | |
|---|---|---|
| | - The Chronos fresco also shows the personification of time according to Greek mythology. | - Where are the African, Afro-Brazilian, and indigenous references to time? |
| **Third floor** | - The main bezel is French. | - Stories and interpretations about the sky must be counter-hegemonic. |
| **All floors** | - Light pollution.<br><br>- Heaven as a colonial library and archive.<br><br>- The building's accessibility, in every sense, is very compromised.<br><br>- Social and ethnic-racial segregation.<br><br>- Sustainability.<br><br>- Epistemic racism.<br><br>- Occupation.<br><br>- National Identity: the place of the European. | - Clean skies, everyone's rights..<br><br>- The sky is treated as humanity's historical, cultural, natural and landscape heritage, based on the experiences of counter-hegemonic peoples.<br><br>- There can be no inclusion and equity without accessibility at all levels..<br><br>- Diversity, inclusion.<br><br>- Good living.<br><br>- Counter-hegemonic epistemologies. The danger of single epistemologies.<br><br>- Recovery.<br><br>- National identity: the place of black people, people of terreiro, Indigenous people, quilombolas, poor people, gypsies and other people. |

As shown in Chart 2, it is worth highlighting the importance of investing in the training of mediators and educators capable of entering the cultural world of black, indigenous and peripheral[15] populations, who increasingly need to be present in the MOA-UFRGS and other science museums. The mediator-public relationship, in this case, needs to be *differentiated*, in which mediators need to review and reinterpret, in their way, the semiotics of each of the objects, their histories, epistemic weights, and counterweights. Chart 2 points to the need for humanistic training for MOA-UFRGS mediators within the scope of current legislation to understand the education of ethnic-racial relations (Brasil, 2004) in its intersectional dynamics (ethnicity, race, class, gender, generation, territory, people with disabilities, among other categories). We understand that mediators need to be able to articulate the meaning of scientific

[15] Understood here as a powerful place for the achievement and articulation of knowledge.

racism (Munanga, 2019), as pseudoscience, implicit in the hegemonic narratives of the *colonial museum*.

Guided by Stuart Hall's ideas on imagined communities, we argue that it is essential for mediators and educators to appropriate the objects and documents of the MOA-UFRGS, identifying their different possibilities for reading the past-present, based on the idea that it is the national discourse that constructs meanings and influences and organizes the actions and conceptions we have of ourselves and other people. This is fundamental for visitors to rework their concepts and preconceptions about the world they already (mis)know. The sense of ethnicity developed by Barbosa (2018) is fundamental for helping mediators working in science museums rethink the concept of nation, identifying the perverse relationships between colonialism, capitalism, and the processes of racialization in the construction of the contemporary concept of science. It is in these processes that colonial museums emerge, failing to recognize pre-existing societies, before the process of dispossession of certain humanities (black, indigenous, among others). Hence, based on Certeau's (2007) ideas, there is a need to recover the heterologous sense of history, in which mediations will be able to characterize knowledge that wants to apprehend otherness, linked to its own possibility of being. In Certeau's (2007) tactics and strategies, and also in the basic postulates of science education and dissemination from an anti-racist perspective, there is no room for absolute rational bases or any kind of essentialism. Based on Certeau's (2007) propositions, the museum space is a practiced place that is neither univocal nor stable in terms of its proper place. Mediators need to research the daily tactics and strategies articulated in the territories of *other* peoples.

Based on Mbembe's (2017) ideas, the training of mediators to meet the concept of the anti-museum presented in Chart 2 must draw on the historical, political, social, and cultural perspectives of the people involved in order to ensure that mediation enables museum objects to deconstruct the world and the repertoire previously known, expanding scientific, cultural and ideas horizons critically. In this process, it is necessary to recover and construct imaginaries that present themselves as new scientific models, in which the classic notions of subject and object in scientific narratives are undone. Each object in the museum comes to be seen and interpreted as a cultural asset capable of allowing visitors to rework the historical meaning of the hegemonic narrative. This opens up, at the interface of the *mediator-visitor* interaction, other aesthetics based on cosmoperceptions that help us explain and feel the world we live in. We thus break with preconceptions and demystify biased narratives and memories that have been told to us or kept, naturalizing situations of oppression. Science comes to be understood as a material cultural asset, marked by presences and absences. The mediator begins to access multiple languages in the framework of distinct cosmological perspectives that are activated by breaking unilateral synapses of thought.

The summary in Chart 2 also alerts us to the importance of developing a museum language that takes African and indigenous languages and aesthetics into account when preparing dialogues between visitors and exhibitions of any kind. The thinkers Krenak and

Campos (2021) offer a very exemplary idea of a resource that can, in all proportions, help us to think about the different ways in which relations between worlds (*the colonial world versus the disruptive world of the anti-museum*) are established when the anti-museum collection is used.

> *The resource is what you enjoy in life, it's like changing landscapes and experiencing the breeze, the wind, the smell, the well-being of a healthy place, and discovering that the other place you came from was polluted, dirty, and unhealthy. Once you experience the well-being of enjoying a resource, [everything changes]. It's not an available resource, [because] you're not aware of it, you don't know that on the other side of the mountain you can breathe clean air; you're on this side of the mountain, and if you cross over you'll breathe clean air, drink clean water. You'll enjoy a resource. It's different from the idea of having a collection. In this concept of a collection, you are here on this side of the mountain, but you know that on the other side of the mountain, there is a set of goods available, of things that you can come into contact with* (Krenak; Campos, 2021, p. 25-26).

According to these ideas by Krenak and Campos (2021) for us to build other museum narratives, we need to know what is on the other side; but so far, many people have not dared to observe this *another place*. The anti-museum perspective breaks with the idea that narratives are neutral, naive, objective, ahistorical, and atheoretical. Alternatively, comparing the *anti-museum* perspective with that expressed by the *colonial museum*, it is easy to see that there are asymmetrical power relations between them at all times, which will require mediators (interpreters) to use tactics and strategies to (un)bury (in)comfortable perspectives on the past. It is, therefore, necessary to question the strategies that the *colonial museum* has used - through history, memory, and heritage - to choose epistemes and stories that will be treated as cultural assets and chosen to make up the set of narratives about the past. Colonial genocidal practices materialize necropolitics (Mbembe, 2016) within (science) museums and render meaningless the current conception of what a museum is (ICOM, 2022).

## V. Final Considerations

Although we have advanced in recent years towards an unprecedented debate in society about the dynamics of *racism in Brazil* (Munanga, 2019), we see that museums have become increasingly concerned with state policies about ethnic-racial issues (Barbosa, 2018; ICOM, 2022), science museums are still struggling to make progress in this direction. In the areas of Physics and Astronomy, in particular, it is difficult to understand the role of scientific racism as a pseudoscience that articulates educational and museological narratives (Alves-Brito, 2021). In this respect, the MOA-UFRGS is no exception, as the material and symbolic boundaries of how racism is played out in everyday life are still wide. There is resistance to incorporating cosmological perspectives other than those endorsed by the Modern and Contemporary Science Project, which has been exclusionary from the point of view of

embracing diversity and the intercultural narratives in force in the country, into the collections and didactic and pedagogical interventions that take place in science museums. These difficulties are certainly due to the complex way in which science museums, especially in universities, are managed, often without minimum resources, as is the case with the MOA-UFRGS.

This is not about proposing a naïve historical revisionism, swapping names, or revising narratives without any alignment with the historical struggles of black and indigenous peoples in the country. Instead, it's about how we can resize structures to confront a hegemonic narrative of erasure, silencing, and systemic exclusion of other ways of thinking about the world and the universe. The anti-museum, as we defend it in this text, is a possible way of taking a political and cosmopolitical stance to enforce, in practice and critically, the new international definition of what a *museum* is, particularly a *science museum*.

Finally, we believe that science museums, especially those focused on the physical sciences, are spaces of memory and culture and therefore need to forge other projects for education and society by retelling the history of science and understanding it as cultural heritage. It will be necessary to challenge the current discourse in museum institutions that African and indigenous Brazilian peoples did not build scientific knowledge or cosmologies (in the sense of philosophies). It will be necessary to de-folklorize these spaces, to combat their paralyzing colonial vices and epistemic genocides so that we can begin to say that, in part, science is a *human* and collective construction and its ethnicity is politically demarcated at all times.

Who are the people who feel part of (science) museum narratives? What stories are told? What knowledge and experiences are legitimized? Which values are dignified? Which emotions are acceptable? Which bodies are treated comfortably? There will be no democracy, in all its power, in Brazil without the democratization of knowledge. There is, implicitly, a history of material and symbolic violence behind the objects, documents, and instruments displayed in science museums. Anti-museums, on the other hand, can be powerful and strategic places to strengthen initial and continuing training programs for teachers, science communicators, and cultural promoters, understanding that the dynamics of ethnic-racial relations in Brazil, marked by institutional and epistemic racism, are a fundamental part of training processes.

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