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Plants and Peoples exhibit at MUHNAC: analysis of traditional and scientific medicine from the perspective of the Epistemologies of South

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Abstract

The article explores the "*Cure, Malaria, Frederic Welwitsch and the Healer*" theme of the exhibition "Plants and Peoples" from the Museum of Natural History and Science, Portugal. The study focuses on the research carried out by German naturalist F. Welwitsch on local plants in Angola as well as on history of lived colonial experience A. M. Mafumo, a healer from Mozambique, arrested for practicing "traditional medicine". Using the analytical framework of the Epistemologies of the South we analyze the relationships between traditional and scientific knowledge using documentation, as well as interviews with curators and visitors. The article questions the exhibit' dialogue between these knowledges as an expression of an ecology of knowledges.

Keywords

Representations of science and technology; Science centres and museums; Social inclusion

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Introduction: the choice of the exhibit

Objects in museums are more than just collections; the artifacts are archives of the long history of knowledges and innovations. There are also texts wich support social and spiritual practices. However, insights from what would become modern science were used to justify social and scientific control, including dispossessing colonized peoples of their land and ways of life and discounting existing knowledge systems. For many Africans, the re-appropriation of an important part of the (material) cultural heritage looted by colonial administrations and currently kept in European institutions, such as museums, is part of the process of historical reparations . The reappropriation of these cultural elements has become an important element in decolonization, as it opens up space to imagine and reinvent visions of the future, to be achieved by reflexive dialogues across cultures and knowledges.

This explains the decision by two researchers (one Brazilian and another Mozambican) to study part of the exhibit *Plants and Peoples*, on display between

2017 and 2023 at the Museum of Natural History and Science (MUHNAC), University of Lisbon, Portugal. The exposition integrated ethnobotanical and ethnographic objects, photographs and films produced by colonial scholars, currently kept at MUHNAC. In parallel, we sought to explore how these objects and the knowledge they carry has been kept and presented to a wider audience . The exhibit was structured along three thematic hubs — Transcend, Transform and Care, — appealing to visitors to think about the biodiversity and sociodiversity of our planet, with an emphasis on the relevance of plants to many aspects of human life.

Colonization is millions of human beings "to whom fear, inferiority complex, trembling, genuflection, despair and servility have been knowingly inculcated", as Aimé Césaire denounced [1972, p. 12]. This violence sought to reduce the colonized Other to an inferior being inhabiting a zone of non-being [Fanon, 2008, p. 26], a being with the potential to be human, if converted and domesticated through modern scientific education and work. From the mid-nineteenth century, the modern colonial policies in Angola and Mozambique were put at place to appropriate and transform the territory into a settler colony [Meneses, 2016]. With this came also the problem of 'local diseases', perceived both as a material and a metaphoric hurdle [Ribeiro, 1890, p. 145]. In order to work the large plantations that grew labor-intensive crops, or the building of the new urban infrastructures, large healthy African labor force was needed; for the arriving Europeans colonists it was also fundamental to overcome the 'intermittent fevers' that constantly attacked them. [Arquivo Histórico Ultramarino, 1906]. Political and scientific modern norms developed supporting colonial rules and the imposition of scientific knowledge. Over time these categories got to be presented as legitimate, credible, and even universal. This activity was followed, in colonial spaces, by the gathering of information on plants whose usefulness in the treatment of diseases that affected many Europeans had been recognized. However, the knowledge that led to the identification of these plants in most cases came to be recognized as of limited, local value, considered inferior to modern science and their producers rejected as legitimate practitioners of other medicines [Meneses, 2007]. Along this process multiple objects, part of these 'other medical expertise' become part of European museum collections.

Museums became an instrumental component of colonial policies, the point of contact between scientists and the European public, exposing their interpretations regarding the 'colonized Others'. Today, many of the collections that make up museum collections are a reflection on history and memories of the colonial past. And these collections are at the genesis and development of museums. Museums tell stories about the cultural artifacts on display, structured through interpretative narratives. These exhibitions often entail subtly colonial messages; the viewers' perceptions can be narrowed and molded by the dominant narrative at an exhibition, while the voices of the displayed marginalized cultures and peoples remain silenced and the violence at the core of the collections, ignored. In fact, museums carried out a "formidable rhetorical inversion, dissimulating the conflictive and criminal aspects of its history" and "presenting itself as a deposit of the universal, a guardian of humanity's heritage, a space to be cared for, protected and preserved from objections". Actually, "a space with sanctuary status, isolated from the disorders of the world", having its neutrality unquestionable [Vérges, 2023, p. 8]. Questioning the life story of the artifacts that compose the museum

collections can foster a critical attitude toward other knowledges, an openness to other peoples and cultures.

As one of the most visible manifestations of a people's unique identity, cultural artifacts have often been intentionally targeted to punish, or sometimes to help eradicate, the community they belonged to. In African contexts, particularly from the nineteenth century on, the massive removal of cultural artifacts from colonized territories resulted from punitive expeditions, military lootings, or war tributes, as well as from trade and unequal exchanges for collection purposes or to meet the exigencies of modern European scientific research. The colonial approach is materialized, for example, in the animals, vegetables, minerals and other environmental data that make up many of their collections and exhibits. The museums, especially of natural history, exposed the immense possibilities of modern science to produce a single, supposedly universal narrative about the world, expressions of power and control [Mackenzie, 2009, p. 1–2], ignoring differences in cultural values or worldviews. In that perspective and considering the history of museums, their collection, and specially, their exhibitions became a form of visual explanation of the intimate relationship between colonialism and modern science. In fact, this interest is at the origin of several research expeditions 'to the tropics', which gave rise to various collections of objects, plants, etc. brought to Portugal.

In this sense these museums symbolize the abyssal thinking. This concept, coined by Boaventura de Sousa Santos [2014], refers to a specific particularity of modern northcentric thinking that divides the world into what can be thought of, understood, and/or imagined and everything else. By representing a form of being in the world rooted in the categorization and representation of the colonial Other by the North, the Other's knowledges and its cultural artifacts become apprehended as local and/or inferior, thus legitimizing science as the sole valid source of valid knowledge [Santos, 2014]. The fundamental characteristic of abyssal thinking is that it does not allow for the co-presence of what is imaginable and of that which is not, as what modern northcentric thinking cannot imagine is actively produced as non-existing, irrelevant, and untrue. As several scholars have asserted, by assuming that only what can be imagined can also exist, abyssal thinking actively erases from reality and existence anything that it cannot imagine, thus generating abyssal silences.

The Epistemologies of the South (ES) focus on silenced knowledges or knowledges that are actively produced by modern science as nonexistent. They are so considered because they are not created according to acceptable, or even intelligible, methodologies of modern science, or because they are created by 'absent' subjects, subjects who are conceived of as incapable of producing valid knowledge due to their unpreparedness or even due to their not fully human condition [Santos, 2014]. The goal is to recognize that modern colonialism led to dispossession, erasure and ongoing power imbalances in how research is produced and used. Methodologically, the ES seek to produce a radical diagnosis of colonial relations, to transform the landscape generated by this diagnosis into a vast field of living, rich, and innovative social experience [Santos & Meneses, 2019, pp. xix–xx]. Thus, decolonization aims at undoing historical and ongoing systems of oppression over many generations.

A careful reading of the part of the exhibition that explores "*Cure, Malaria, Frederic Welwitsch and the Healer*" subjects at the thematic hub called Care, reveals histories of violence behind many of the exposed cultural artifacts. Further below we exemplify our approach by resourcing to the ecologies of knowledges, collective cognitive constructions led by the principles of horizontality (different knowledges recognize the differences between themselves in a nonhierarchical way) and reciprocity (differently incomplete knowledges strengthen themselves by developing relations of complementarity among one another) [Santos, 2018, p. 78]. This theoretical and methodological framework helps identifying episodes of epistemicide, linguicide and genocide, while, in parallel, support the resistances and struggles against the persistence of colonial approach — the monoculture of knowledge, — contributing to discuss the potential role of science museums in promoting social and cognitive justice. Moreover, it is increasingly recognized that the inclusion of a diversity of worldviews on museum exhibits is necessary as a pedagogic tool for a just transition to a more sustainable world.

Methods

The exhibit *Plants and Peoples* (n.d.), opened to the public between 2017–2023, being described as being formed by ethnobotanical and ethnographic objects, photographs and films that are kept at MUHNAC. The core of our analysis is part of the Care hub, integrating the following topics: Feed, Cure, Malaria, Frederic Welwitsch and the Healer. The choice to study the theme called "*Cure, Malaria, Frederic Welwitsch and the Healer*" was due to the fact that they explicitly expose the colonial hierarchical relationships established between traditional and scientific knowledge related to malaria, considered one of the most widespread diseases in the ´tropics' in the nineteenth century [Packard, 2007],

The subject chosen related to "*Cure, Malaria, Frederic Welwitsch and the Healer*" integrate expographic elements as objects in showcases, captions, texts on panels and videos about those topics. These elements were organized to give visibility, on the one hand, to the work of the Austrian naturalist Friedrich Welwitsch who carried out research on botany in Angola. Welwitsch intended to identify plants used locally to cure malaria, seeking to replace quinine, the alkaloid extracted from cinchona. On the other hand, using also expographic elements, the exhibit addressed the experience of Artur Murimo Mafumo, a well-known *nyànga* (healer) from Mozambique, arrested by Portuguese colonial authorities for practicing traditional medicine in the vicinity of the capital of the colony [Roque, 2001, p. 33]. Traditional medicine became the collective noun used by colonial authorities to address other forms of medical knowledge present in the colony, and used above all by African populations. Thus, these agents of other medical knowledges were transformed into objects simply their non-recognition by the colonial state and its institutions. Traditional medicine was only tolerated by the colonial administration in the remote rural areas, where biomedicine, the dominant form of medicine, was nonexistent [Meneses, 2010].

The instruments, props and remedies of Artur Mafumo were seized by Portuguese administration upon his detention in 1955. A team of the Anthropological Mission in Mozambique, headed by Joaquim dos Santos Junior, a Portuguese anthropologist, interviewed him while in custody in 1956, seeking to understand the functions of his instruments and the remedies he used. The notes about the *nyànga*, translated with the help of a local interpreter, revealed Mafumo's

knowledge about various pharmaceutical operations required to choose and prepare the medicines to be used depending on the purpose or ailment diagnosed [Roque, 2001], a sound example of the extractive nature of modern science. Moreover, insights from what would become Eurocentric modern medical knowledge was used to justify social and scientific control, including dispossessing colonized peoples of their land and ways of life and discounting existing knowledge systems.

These aspects made us consider that the theme selected represent a privileged set to analyze the presence and relationships between different types of knowledge related to diseases in colonial contexts. In this article we interrogate which is the predominant narrative of the set chosen. Additionally, we aim to evaluate if and how visitors perceived any aspects of silencing and/or devaluing other ways of perceiving, relating, organizing, using and valuing the variety of existing knowledge. With these goals in mind, we defined the following research questions: how were modern science and traditional knowledge about health and medicine presented in the "*Cure, Malaria, Frederic Welwitsch and the Healer*" theme? Which are the possibilities, challenges and controversies associated with the representation of other knowledges, besides science, in museum exhibitions, beyond the colonial narrative which is at the basis of these collections?

These questions were studied examining the presence of two forms of knowledge — traditional and scientific medicine — in the exhibition, building our analysis on the framework offered by the ES [Santos, 2018; Santos & Meneses, 2019]. By questioning abyssal silenced archives, the ES open up space for the emergence of other knowledges that have been silenced and even forgotten by a political system supported by modern science. By identifying 'absences' generated by modern science the ES, *acting both on possibilities (potentiality) and on capacities (potency)* of knowledges, aim to recognize knowledges that have been appropriated, obscured, silenced or even erased by the dominant scientific knowledge [Santos, 2014]. In the selected exhibit we aimed at understanding both the intentions of the curators and the public's perception regarding the vindication of modern science as the sole valid knowledge and the possibility (or denial) of considering the possibility of dialogues among various forms of knowledge.

The qualitative nature of this study used methods and techniques to detail the object of study in its context. It combined the analysis of the exhibit materials, available documentation, observation as well as semi-structured interviews. The interviews were carried out with museum curators and visitors. We opted for a case study perspective, an analysis which involves interrelated steps as data collection, data analysis, and report writing. It emphasizes experiential knowledge, promoting a good approximation of the specific context under analysis [Creswell, 2013]. The strategies of collection and data analysis were already applied in previous studies conducted by one of the researchers [Marandino, Pedretti & Navas Iannini, 2023; Colombo Júnior, Marandino & Scalfi, 2023].

Data collection

The data were collected between December 2022 and January 2023, using different qualitative methods: (1) recording of the exhibit through photos and videos; (2)

field notes including reflections about observation of the exhibit (including the visit duration, route taken by the participants through the exhibits, and actions they performed); (3) four in-depth interviews with museum professionals, (4) collection of documents related to the exhibition (e.g., institutional documents, brochures and educational materials, media), (5) semi-structured interviews with adult visitors, recording their perceptions about the exhibit and specially, about the selected thematic.

Regarding the interviews with visitors, they were carried out in the final stage of their visit. If the visitors agreed, the objective of the study was explained, followed by a semi-structured interview, which was tape-recorded. The selection of participants was based on previously established criteria: i) having accepted to be interviewed, ii) having visited for more than 2–3 minutes the 'Care hub'. To do that, we approach the visitor at the middle or at the final part of their visit, and iii) be fluent in Portuguese, Spanish or English.

We adopted a new strategy of data collection with the visitors: we chose a specific theme and the objects of the exhibition that specifically addressed sensitive histories and/or that functioned as anchors for narratives about colonization processes. The designation of "furry cases" was adopted to address this group of elements. This expression was used by the director of MUNHAC to refer to the objects in collections formed during Portugal's colonization process and which were handed over to this Portuguese museum.[1] Such examples illustrate controversial collections, whose objects were present in the studied exhibit. We sought to formulate 'unauthorized questions', such as: a) the impressions about the exhibition in general and specifically related to the group of elements linked to Welwitsch and the Healer Mafumo; b) how museums should/can deal with their collections, considering their trajectories as institutions that legitimize colonization processes; c) reflection upon the educational role of contemporary museums facing the above mentioned challenges.

Throughout the visit, the visitors were observed by one of the researchers. Those who had agreed to be part of the study, participated in a semi-structured interview, having signed the Informed Consent Form (ICF). The interview was recorded using portable audio recording equipment. Photographs were also taken of both the exhibits and the visitors. This data set allowed us to analyze both the exhibit narrative and the visitor perceptions regarding the different knowledges present, their value, the relationship among them within the exhibit, and the visitors' cognitive experiences about the exhibit.

Participants

The research incorporated two groups of participants. The first group consisted of four museum professionals, all of them Portuguese: director and vice-director

[1]This process occurred with the incorporation of the now extinct Instituto de Investigação Científica Tropical (IICT, in English Institute of Tropical Scientific Research), in 2015, into the University of Lisbon. The IICT brought together collections and knowledge from the former Portuguese colonies; its core mission was to provide scientific and technical support for cooperation particularly with the Community of Portuguese-Speaking Countries, including promoting access to their historical and scientific heritage kept in Portugal.So far Portugal has not contacted the African countries from which the collections originate about the possibility of their return.

(both women), and two members of the Education and Exhibition Center, namely the head of the Center (woman) and the person in charge of planning and evaluating the museum exhibits (man). The semi-structured interviews covered aspects of the history of the collection and of the museum, the sensitive and controversial legacy of collections incorporated into MUHNAC since 2015, the planning, design and evaluation of the exhibits, as well as of the educational projects and actions. We identified them using the professional position, gender and the number of the recorded archive (i.e. Director woman-72/73)

The second group of participants comprised twenty-six adult visitors. According to their own identification, 15 were women and 11 men, aged between 18 and 60 years. Information about the nationality is available at Table 1. We recorded the nationality, gender, adding a number of the recorded archive (i.e Belgian woman-59):

Table 1. Nationality of the participants.

Nationality	Numbers
Portugal	7
Brazil	4
Germany	3
Poland	3
France	2
United Kingdom	2
U.S.A.	1
Belgium	1
Switzerland	1
Sweden	1
Italy	1

Data analysis

In order to answer our research questions we began by analyzing data from the selected thematic. Our findings result from analyzing the exhibit, the available materials and the interviews, by producing a thick description of the context [Geertz, 1973]. This first step used conventional content analysis [Hsieh & Shannon, 2005] of the elements from the exhibit, including images, videos, field notes, documents and transcribed interviews with the museum staff. We used an inductive approach to identify initial codes that could be collapsed into salient themes. These initial codes referred to examples of presence and/or absence of the traditional and scientific knowledges and the potential forms of relationship among them. Those themes emerged from the variety forms of communication and expositive strategies at place, including, panel texts, tags, images, glass cases, human artifacts, natural objects and so on. From these initial codes we developed key analytical themes as the types of knowledge presented and the visitor's perceptions: the contents and objects presented about scientific knowledge and traditional knowledges; and the role and status of the traditional medicine in cure process versus the role of modern scientific medicine. Those aspects are discussed below. For example, the objects on Welwitsch exhibit were described as artifacts with 'universal value to science' (glassware, measures, etc.) whereas the objects in

Mafumo's exhibit were described as 'natural artifacts', such as cowries., with limited, local value, a clear continuation of the colonial project, reaffirming unequal social, economic and ontological relations.

The second analytical stage was conducted using direct content analysis, employing a deductive approach. To this end we have articulated the themes indicated above with some of the theoretical axes within the framework of the ES. These axes were used as a support for critically analyzing the discourse of the exhibition and the visitors' perceptions. As pointed out by Creswell [2013], the spiral method of qualitative data analysis helps to describe, classify, and interpret data in a cyclical fashion. We used this type of approach by choosing axes as categories that emerged from the study of expositive discourse and visitors perceptions. Those axes were used in the interviews and addressed several forms of epistemicide, ecocide and scientific racism, the latency of colonial concepts and the limits and possibilities of an ecology of knowledge both in the expositive discourse and in the visitors' perceptions.

Results

Throughout the exhibit of the Plants and People, visitors were invited to learn about the use of plants throughout history. At the end, they were also invited to carry out a brief reflection on the conservation of plant biodiversity. According to the exhibit Plants and People Interactive Catalog (PPIC), the conception of the exhibition was centered on the idea that:

> (. . .) plants are present in virtually all mankind activities and have been decisive in many crucial moments of human history. They were fundamental for the European expansion and colonization, from the spice trade and sugar plantations to the trade of Cinchona bark (quinine) and other medicinal drugs. Presently, they still play a central role in agriculture, industry and commerce as well as in global issues such as climate change, biodiversity loss and forest destruction. [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 5]

In the catalog, as well as in the panels, the exhibition discourse aimed at addressing the various knowledges about the use of plants in different countries, as well as by diverse groups and cultures. The properties and use of plants were considered part of "erudite and popular cultures", in the past and today. The agents of this process were presented as "both men of science and physicians as well as weavers, carpenters, ship builders, healers, and others with botanic understanding handed down from generation to generation" [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 5].

The exhibition stressed the importance of plants as the main source for the production of medical drugs, especially in the early twentieth century, addressing also the impact of the introduction of industrially prepared drugs obtained by chemical synthesis. A change took place with the new ethnopharmacological experiences, and with the increasing presence of interdisciplinary approaches to the study of medicinal plants used by various peoples across the globe [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 11].

The relevance of plants and their history as part of the museum exhibit was also perceived by the visitors:

> I find the exhibit extremely interesting, as we [he and his wife] are veterinarians. We have experienced this reality in our lives. In Brazil, when we go to the countryside, there is a lot of traditional, popular culture. They use a lot of other things and we ended up bringing some of them, adapting it too. That's really nice. (Brazilian Man-58)

The interviewed visitors also expressed that they would like to know more about the objects presented at the exhibition:

> It's nice to see that the objects come from many different countries and it's a good representation for us, because we cannot go to these countries to discover their culture. This is also present in the information panel associated with the objects. (Belgian Woman-59)

Entering the "*Cure, Malaria, Frederic Welwitsch and the Healer*" theme, part of the Care hub (Figure 1), there are many examples about plants and their impact on human health. For instance, the antiseptic and antibiotic properties of *eucalyptus,* originating from Australia, and the use of *aloe vera*, from the Arabian Peninsula, North Africa and Macaronesia, in the treatment of burns, wounds and skin irritations.

The special set dedicated to malaria aimed to address it as a disease endemic to Europe until the mid-twentieth century, as well as a disease "for many centuries the main reason for excluding European settlers from Africa" [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 29]. At this point, the panel text explains that *Cinchona* bark, from Peru, was the first plant used as an efficient drug against malaria. From the seventeenth to nineteenth centuries its demand increased because of the expansion of modern settler's colonialism to Asia and Africa. Only later on did quinine, an alkaloid extract from *Cinchona* bark, became an important medicine for treating malaria.

Near the Malaria topic, the exhibition introduces the work of Frederisch Welwitsch, a naturalist who studied many Africans tree barks that could be efficient substitutes of the Cinchona. For example, as mentioned in Welwitsch notes from 1859 that are part of the panel, "Black healers administered boiling roots of this shrub in cases of intermittent fevers". Next to this panel, a showcase presented samples of plants collected by Welwitsch, preserved dry and in small bottles with liquid. They are all identified both with antique labels inside the showcase and with exhibition labels beside them (Figure 2).

The next panel was dedicated to Frederisch Welwitsch himself. The text added information about the starring role of his research as a naturalist. Welwitsch's interest was the taxonomic study of tropical plants but he suffered from several tropical diseases during his stay in Angola. Thus, "it is not surprising that he gave voice to many of the local uses of the plants he studied". Indeed, Welwitsch recorded about a hundred references to the medicinal use of plants in his book *Sinopse Explicativa* (Lisbon, 1862) and these references were grouped according to four main disease categories: "1) gastrointestinal disorders, diarrhea and dysentery; 2) wounds, ulcers and snake bites; 3) malaria and 4) tonics, stomachics, and stimulants" [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 33].

Figure 1. View of the introductory section of Plants and People exhibition at MUHNAC (photo by the authors).

Figure 2. Image from the Museu de História Natural e Ciências da Universidade de Lisboa [2017, p. 30] of the Cinchona (Label: Quina — Red cinchona, Quina. Cinchona pubescens Vahl (Cinchona succirubra Pav.), São Tomé e Príncipe, Ilha de S. Tomé; Antimalarial properties. Nicolau José da Costa [collector] MUHNAC — JB12G15.

The next expositive panel is dedicated to the "Healer", a panel that reinforced the colonial abyssal distinction between science and other knowledges. As described in Museu de História Natural e Ciências da Universidade de Lisboa [2017], healers play a key role in traditional African societies, collaborating in maintaining the

balance and cohesion of local communities. They are responsible for the practice of diagnosis based on magic and religious concepts.

> Invested with extraordinary powers, reinforced by the protection of ancestral spirits, healers can also restore social order. [...] Part of the healer's wisdom is based on direct transmission of knowledge between elders and apprentices and it is in constant evolution. This practice, in the domain of the Sacred, uses instruments derived from natural resources, namely local fauna and flora [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 35].

According to the panel, healers represent "a distinct and separate world regarding cultural, conceptual and social backgrounds", underlying that "they have always been a privileged source of information for Western science", clearly reproducing the extractivist nature of modern science, vis a vis the 'other' local knowledges. It is noteworthy that the exhibition itinerary insists on the idea of Portugal (and Europe) as the initiators of the globalization process, completely erasing other genealogies of contacts that shape the history of contacts among knowledge in the world.

> The European expansion, initiated by the Portuguese in the fifteenth century, paved the way for the interaction between European medicine and the knowledge of peoples from Africa, Asia and America. In the nineteenth and twentieth centuries the development of a legal and economic order based on the market led to the alienation of these communities from the industrial results, which were obtained from the knowledge initially transmitted by themselves to Europeans [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 23].

The history of the healer Artur Murimo Mafumo, *nyànga* from Matola in Mozambique, is highlighted at this part of the exhibition (Figure 3). It included a text, video and photographs, and also by the instruments used by him in healing rituals, apprehended by the Portuguese colonial administration and never returned (Figure 4).

As explained in the panel:

> These materials are related to complex forms of vocabulary and meanings that only healers, with exceptional experience and knowledge, can 'read' and decode. Thus, they act as mediators between the healer and the patient, seeking to reverse, through healing, situations of disorder such as illness, death, bad luck, misery, infertility or impotence. [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 37].

The Anthropological Mission in Mozambique produced various documents, reports, photographs and assembled various collections of natural objects and cultural artifacts. These elements represent a sensitive and controversial collection, as pointed out by the museum Directress:

> (...) there are two million objects, including photographs, archives, herbaria, zoological species, ethnographic and archaeological material, everything that you can imagine, cartographic, everything that was for the purpose of scientific exploration, let's say, technical and scientific soil collections of soils, all its exploration, isn't it? (Directress — 72/73)

Figure 3. View of the "*Cure, Malaria, Frederic Welwitsch and the Healer*" theme at Plants and People exhibition at MUHNAC (photo by the authors).

It is very important to consider the origin and the nature of part of the collections that currently belong to MUNHAC. As it is the case of the Mafumo' instruments, most of the cultural and natural elements at the exhibition came from the scientific missions carried out in the colonies of Mozambique, Angola, Cabo Verde, São Tomé and Principe [Roque, 2014]. The origin of most of these collections is rather obscure, expressing, as in the case of Artur Mafumo, a case of violent suppression of one' knowledge, while also seeking to extract its value for modern science. The sensitive nature of these collections, now part of the museum, are clearly acknowledged by the staff of MUHNAC. As the Directress of the museum pointed out:

> (. . .) I close my eyes and I see them. It's an absolutely horrible thing. This is clearly not scientific at all. It was oppression like the most undignified thing you can imagine (Directress — 72/73)

However, although MUNHAC staff seemed to be aware of the controversial, sensitive and violent origin of many objects at the Plants and People exhibition, at least the ones which are at the topic studied, the production of the exhibitions involves choices, selections and orientations that can highlight a variety of aspects related to the collections. In fact, in Plants and People exhibition, the controversial aspects were not explicitly mentioned in the labels and panel texts. Information was available about Joaquim dos Santos Júnior, who was the head of the Mission, and who had met Mafumo when the latter was in detention. And the panel even underlined that Santos Júnior was authorized to collect "not only his instruments

Figure 4. Detail of the showcase with Mafumo's objects collected by Joaquim Santos Júnior, head of the Anthropological Mission of Mozambique in 1956. (photo by the authors).

and herbal blends but also his prescriptions" [Museu de História Natural e Ciências da Universidade de Lisboa, 2017, p. 37]. Understandably, the authorization came from local Portuguese colonial authorities, but no critical evaluation was made.

To Roque [2001, p. 34], as the healer was detained with no rights, the Mission got all his objects seized by the Portuguese authorities: "powders, small bottles, necklaces, bundles of leaves, chopsticks, baskets, cloths". His prescription notes, translated into Portuguese with the help of a local interpreter, were also appropriated. This part of the exhibit exposes systemic inequalities that persist in contemporary museums (epistemic, of race, access and opportunity) but this is not an historic inevitability and can be changed.

The relation between the different knowledges presented in the exhibition is very complex and hard to analyze. Even so, it was a subject of discussion in the interviews. The opinions of the participants were diverse, sometimes affirming a difference and a hierarchical relation among them, or highlighting the importance of giving more detailed information to the visitors:

> Most people who live in the city, and even those who live in rural areas, do not know the reality of these peoples [hesitation]. I didn't want to say more primitive.… It is interesting to get to know through these exhibitions how they work, what they wear, what they use, how they apply it, what they do to stay alive, after all. (Portuguese Man-48).

Figure 5. Image at the Museu de História Natural e Ciências da Universidade de Lisboa [2017, p. 36]. Label of the image: Material of the healer Artur Murimo Mafumo, it was used as an instrument of the spirit Vandau, a ethno-linguistic group from central Mozambique — Anthropological Mission at Moçambique, 6ª Campanha IICT — MAM-607/132.

> The backstory about it is really bad. This is a story of a real healer in prison because he used his medicine. I think it's good to have both stories, to get to know where the medicine comes from and how it evolved to be what we know today… People can adapt, but it's nice to have the origin of it and to know about that. (Belgian Woman-59)

The opinion of the Portuguese Man interviewed reinforced the idea of an exotic and unknown dimension of the healer's objects, as well as of the information produced by healers and the role of the museum to grant audience access to it. In his opinion, the healer' knowledge was of lesser value, occupying an inferior place in the hierarchy of knowledge. This opinion clearly expresses a point identified by Vérges [2023, p. 12]: "the structural inequalities of race, class and gender that exist in the museum are a reflection of the global structural inequalities created by slavery, colonization, racial capitalism and imperialism". In fact, this author claims for restitutions of objects, a form of reparation related to a profound and violent expropriation which is linked to the extractivism as the core of the colonial-capitalism system.

Along the interviews others perspectives emerged, with interviewees trying to combine both knowledges (scientific and the healer's traditional knowledge) or treating both of them as valorous.

> It was a Portuguese expedition, and they seized his objects. So here are the objects he [healer] used. (…) In essence, the exhibition is about the materials he was using for treating malaria, and other diseases of this kind. In other words, the exhibition was intended to put science and other forms of knowledge into dialogue (Brazilian Woman-61)

> These knowledges are complementary, right? I think they go together and blend together. (Brazilian Woman-58)

Visitors have different opinions about the origin of the objects, the reasons that led them to be integrated into the museum nowadays as well as the objective of exposing them to the public.

> Yeah, it was unethical, the colonization. I mean, it was tragic. I guess because it's so far away from us, we think that now it's fine. And because it belongs to a museum it's ok. But if you think where it's coming from, then you think how much harm was done by the Portuguese or the Spanish to the populations in South America (Swedish Woman-53).
>
> It is nice to see where they are from, but when you think about it carefully, you understand that often the process of obtaining these objects is intertwined with violence and deforestation, for example. (…) It could be good to have the background history on how the objects came to be part of the exhibit, how it was taken. But for me, now it's a good representation. It's also something that we would not do any more like, I hope so. So, I think it's good to keep them also as a memory of what happened. I saw the exhibit as a memory. (Belgian Woman-59)

During the interviews, the participants were stimulated to express their opinions about subjects such as who owns the artifacts, natural objects and knowledges associated with the exhibition. The goal was to stimulate discussion and reflection about the repatriation or restitution of objects illicitly taken during colonization. Those questions were proposed considering the fact that the artifacts at the showcase once belonged to a healer, Artur Murimo Mafumo. Also, the researchers commented on the fact that some of the MUHNAC collections were obtained during the colonization period, from expeditions carried out during that period, and that were exposed at the museum. Some of the participants expressed their discomfort or became aware of how sensitive the subject was during the interview.

> I don't know how to answer […] it's a very tricky question, because like… it's educating. But they were taken during a period that was very different from today's ethics. (Italian man-53)
>
> So, I think that what you are asking is on the top of the controversy about those things. (U.S.A. man-51)

This part of MUHNAC's exhibit expresses how the notion of private property in Western law justifies and legitimizes the theft and looting of museum objects. As Vérges [2023, p. 13] points out, when an object becomes the property of a nation by being part of a public museum (in this case, Portugal), in order to be returned to the previous owners a specific judicial measure has to be taken, as the object is now perceived as belonging to the national heritage. Through colonialism, by attempting to erase the contribution of other knowledges and other histories to our common sense of humanity, modern science attempts to provide a single, legal perspective regarding the origin and function of the museum objects.

In that perspective, the participants tend to consider the collections from Angola and Moçambique as a property of MUHNAC and University of Lisbon and

logically, of Portugal and of Portuguese population. For them, rationally it becomes very difficult to consider other possibilities or places where the object could be. The participants expressed different opinions about those subjects and some of them affirmed that the museum had to keep the items because MUHNAC had the best conditions to protect the collections, much better than the original owners or territories from where they were taken.

> I've seen many cases, especially artwork, when some of the artwork has been kind of, say, not stolen, but moved from the colonies to European museum. (…) For me, the original country must have the capability to have a museum and to show it to the public. [hesitation] I'm not sure about that. So, between nothing and having an exhibit somewhere else, I would prefer to have it somewhere else. Having these objects here, means that we at least give a chance for them to be shown to the public. If they are, maybe sent back or something like this to the original country, probably they're never going to be shown or studied as they should. I think if the objects are natural like in this exhibit, we don't really need to send it back to the [former] colonies. (French man-60)

Many of the participants mentioned that they never seriously considered the possibility of returning these objects, even though they knew that the repatriation of objects from European museums is an ongoing process. In fact, some of them began to reflect on this issue while the interview was taking place, and they expressed many aspects that involve this controversial subject.

> Today a lot of objects are kept in England. We have been to several of the places of origin of the artifacts and there is nothing there. I think these people should claim the return of their objects; after all, one took away their heritage. Today if you can preserve it, it should be in local museums. (Brazilian woman-58)
>
> I think it's fantastic for the general public to see and I think these objects should be returned from where they were taken, but only if they have conditions to keep and exhibit them. I don't know under what conditions these objects were removed. Some objects that, let's say, are more precious, here or anywhere else, they should go back to the origin. (Portuguese man-48)

Some of the interviewees even proposed different practices of restitution, depending on the nature of the object, considering if they are from nature or artifacts produced by a cultural group:

> In Brazil you have stuffed specimens that can be visited there. Only when we are talking about unique objects we must talk about their return. (Brazilian woman-58)
>
> There are also many collections kept in private hands around the world, and I think they should also be returned. But I also think they should be exhibited. Regarding African objects on display, people probably won't even know about them. There are objects and objects, right? For example, there are king's masks, that kind of thing that might belong to a country. However, more mundane objects from everyday life, for example, a hoe that they use traditionally, I wouldn't have a problem with it being exhibited. This part here about the healer, for example, it's so interesting to see this and to know that a lot of our culture in Brazil came from Africa, right? We can identify ourselves a little bit more with those pieces, can't we? (Brazilian man-61)

Considering the data presented and some of the aspects pointed out, we´ll discuss them, in the next topic, by problematizing it using the theoretical framework of the Epistemologies of South.

Discussion: beyond cognitive injustices?

Epistemicide in the discourse and visitors' perceptions

In this article we sought to analyze the structural inequalities forged by colonialism on which the Western museum are based. In various languages and contexts, words and conceptions corresponding to Western hegemonic notions of health, illness and disease do not find a direct translation [Meneses, 2007]. What we call health may be expressed as 'good life', but it will not be thought of as a domain with a privileged relation to biology and subject to specialized human intervention which can be separated from other aspects of life. In Southern Africa, in the Portuguese colonies of Angola and Mozambique, the search for better treatments of malaria was associated with the consolidation of Portuguese presence. It led to research on the origin and propagation of malarial disease [Dias, 1981; Schwalbach & Maza, 1985; Sequeira, 2017], a task carried out by naturalists integrating research expeditions, a defining aspect of the modern colonial project [Packard, 1984, 2007]

By mid-nineteenth century, the reliance on expert modern knowledge and advice in treating malaria led to a significant rise in the power of medical science, together with a growth in the importance of renowned specialists such as naturalists and physicians, especially from Europe, capable of influencing policy makers in defining the strategies to use to control malaria. Among them, the appropriation of local knowledge about plants to synthesize into new medications. This included knowing how traditional healers' dealt with tropical diseases, knowledge that was perceived as information for modern science [Colónia de Moçambique, 1934]. Gradually, the differing medical traditions and practices present in Mozambique, grounded in divergent epistemological positions and on distinctive worldviews (represented by the healer and the naturalist) were being pushed aside by biomedicine, sound examples of epistemicide, present today at MUNHAC exhibit.

The exhibition, instead of recognizing a context of medical diversity, enforces hierarchized dichotomy of medical values, where biomedicine occupies the place of reference for medical care, subordinating, co-opting and limiting the activities of other medical practitioners, a sound example of an abyssal separation between forms of medical care [Meneses, 2010]. The analysis of the data collected for this article indicates, as in the case of Welwitsch, that some colonial naturalists and physicians were sympathetic to some African pharmaceutical practices. Closer extractivist dialogues with African healers were put to practice to search for 'new paths' to combat diseases such as malaria, paths that would make the presence of European settlers possible. Traditional healers, as in the case of the *nyànga* Mafumo, were very familiar with the signs and symptoms relating to malaria, as defined by biomedicine. Nonetheless, the colonial abyssal thinking insists in imposing a universal monopoly to modern science of what is true or false, and inherently divided into dilemmas of two universes: the metropolitan side of the line, and the colonial side of the line. As a result, only the norms and knowledge from the metropolitan side had global value; the other spaces, because they were different, were defined as 'indigenous', of local value or even as a symbol of backwardness.

The peripheral co-existence of healers was allowed in colonial Mozambique, when and where they did not pose a threat to modern therapeutics. As the exhibition displayed, by defining Mafumo's knowledge as local, with a strong reference to its symbolic content, invested this nyànga with an exotic aura, relevant for colonial anthropological research. The activity and knowledge of local healers became, from the perspective of biomedicine, local knowledge used to treat African populations. Their knowledge would enter the scientific realm only as raw data, to be tested and verified according to modern experiments.

By identifying a healer's knowledge as 'local' diverts the focus of action from its creators, while continuously reinforcing the barriers between the Self and the Other, thus sustaining modern scientific knowledge as colonization. As underlined by some of the interviewees, the two forms of medical knowledge are important; however, the presence of 'modern' knowledge as identified by the expedition of Friedrich Welwitsch, privileges the laboratory as the crucial linchpin for realizing a scientific explanation of disease, sustained by a 'epistemic community' enabling modern scientific knowledge about disease causation to be developed, learned, and shared. Curing and civilizing became interrelated goals that grounded the colonial dynamics of tropical medicine.

As the exhibition displayed, the political, economic and scientific appropriation of the African continent by the modern colonial machine, of which the history of Mozambique and Angola are an example, was based on the degradation of the ontological and epistemological diversity of the continent. The topic studied in the exhibition were still filled with colonial references, a sound example of the European colonial imaginary, which constructed the African as an indigenous subject eternally situated on a temporal plane prior to the reach of modern, scientific knowledge. Indeed, examples from the subject studied were at the origin of the research that was carried out with the aim of questioning the unlawful appropriation of knowledge and the denial of the epistemological plurality of knowledge about the natural world still presents in many contemporary exhibitions in science museums.

Decolonization as Ecology of knowledges

Thus the question: can we decolonize the MUNHAC exhibition, present in a museum that expressed a colonial and hierarchical structure of knowledge and accepted the extractivist nature of modern medicine? MUNHAC, as most of the natural history museums, is an institution based on the idea of superiority of western scientific knowledge, a power structure that insists in reproducing a trail of disqualification, suppression, invisibilization or appropriation of other knowledges and practices, and sometimes even the physical elimination of those who held those experiences. Recognizing expropriations and epistemic devastations has to be at the core of the decolonization project, a revolutionary project advanced by Frantz Fanon [1963, p. 36], for whom: "decolonization, which sets out to change the order of the world, is a program of complete disorder." It is about changing the world order established by the colonizer.

Thus, we need to think about a new institution that completely detaches itself from the structures of colonialism and capitalism towards an emancipatory utopia that

would awaken the senses, where we could be thrilled by collective or individual creations, gestures and rituals that offer different ways of apprehending the world. This project is at the core of the Epistemologies of the South [Santos, 2018], a political and epistemological proposal aimed at facilitating and promoting the possibility of ecologies of knowledge(s) as alternative modes of thinking and acting against the dominant monoculture of scientific knowledge. This South is not (or not just) a geographical space or place. The South is a metaphor for all the experiences, forms of knowledge and agency emerging from bodies, communities, places and realities silenced, ignored, excluded or suppressed from the epistemic core of the North.

Our study has called attention to a very small part of the extensive systems of medical knowledge, illustrating that even expositions that aim to produce a more progressive perspective, as the one analyzed, if do not engage with other knowledges in a more dialogical base, risk repeating cases of epistemicide. The study of MUNHAC exhibition features challenges and opportunities posed by the ES. First, to render visible the persistence of colonial power relations that continue to shape research concepts and studies. Second, to reconstitute research practices to uncover other genealogies of knowledge production, at the core of other epistemic communities, deepening the possibility of dialogues across contact zones among knowledge. This approach will give room for other knowledge and histories to be articulated, the true experience of the ES expressed in ecologies of knowledge, a goal to be attained in the future. As addressed above, non-Western knowledge has often been regarded as local, indigenous or backward, and thereby marginalized; modern science has attempted to suppress contributions to an ecology of knowledge, by imposing a monocultural approach supported by modern scientific worldview. The exhibit demonstrates not a lack of knowledge itself but rather that, for many scientists raised in the West, lack of sensitivity concerning experiences of systemic oppression.

From the perspective of the ES we are challenged, as underline by some of the interviewees, to recognize that theories, concepts and frameworks within MUNHAC are shaped by, and were constitutive of colonial modernity, and this requires us to critically evaluate our own suppositions, as a process of self-decolonization. For instance, it is important to recognize the central role of traditional healers in advancing worldly medical knowledge. Another important way to acknowledge the intertwined nature of our knowledge is to ensure that deep listening to colleagues, students and community representatives takes place. Deep listening entails listening respectfully and responsibly in ways that build community and reciprocity. It requires taking time to build trust and incorporates multiple ways of knowing in order to ensure that whatever research is done is grounded in scientific curiosities, understandings of local contexts and needs, and awareness of ongoing extractive systems that may shape decisions [Trisos, Auerbach & Katti, 2021, p. 1208]. Additionally, knowledge holders, such as the healer Mafumo, can only speak in their own language to accurately describe medical concepts and classifications. Ignoring non-imperial languages contributes to deepening the abyssal rift between scientific knowledge and other knowledge, increasing extractivism and episodes of epistemicide. In short, it is fundamental to (re)connect and (re)learn from other narratives, agents and knowledge, moving beyond systems of colonial and ongoing violence that continue to shape the experience of many museums today. In fact, the visitor has their conceptions,

beliefs and values which may (or may not) be problematized during a visit. It is not a simple task to challenge these ideas in a visiting experience. For this reason, it is essential to promote educational programs that encourage dialogue and contribute to the process of decolonization of these spaces.

By listening and learn from an active engagement with the struggles against abyssal and non-abyssal exclusions, expressed by several interviewees, it becomes evident that the struggle for cognitive and social justice and for human dignity and respect for life in all its forms, whatever the idiom of these struggles is becoming a significant force.

Embodied and lay knowledge, oral narratives and artistic expressions, therapeutic activism and citizens' collective movements and interventions, among other sources of experience, information, experimentation, and agency, can challenge Western science, a knowledge among others, to learn from the diversity of the World in a non-extractive dialogue, creating a common but diverse ontological and epistemological landscape, less fragmented but growingly plural, a key condition to create critical and emancipatory knowledge in the Global South

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