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TIZIANA N. BELTRAME

A Matter of Dust, Powdery Fragments, and Insects

Object Temporalities Grounded in Social and Material Museum Life

▼ **SPECIAL ISSUE ARTICLE** in *Collections, Knowledge, and Time*, ed. by Karin Tybjerg & Martin Grünfeld

▼ **ABSTRACT** This paper aims to demonstrate how museum collection sustainability is grounded in a range of concrete care practices that are social and material. It explores the unstable nature of heritage materials, drawing on the ecological approach of infrastructure and maintenance studies in the field of art and museums. To do this, I analyse the role of mundane operations in the daily functioning of an exhibition area, presenting data from fieldwork I conducted from 2015–2016 at the Musée du quai Branly in Paris, which preserves collections of art and ethnology from outside Europe. I observed the museum's preventive conservation practices, which work to minimise the risks of material deterioration of heritage objects, focusing attention on stabilising the relationship between objects and their environments. These practices contribute to the construction of the temporalities of museum objects. In exploring the means and devices of preserving these heritage objects, the very assumption of perpetuation is destabilised. Environments continually unfold with the silent material metamorphosis of objects. The exhibition becomes a place of flows, where a multitude of entities circulate and cohabit at different scales, such as insects, dust, and powdery fragments. The daily human work of vacuuming, cleaning, trapping, and measuring provide a set of actions united with other entities engaged in the material life of the exhibited object. As we zoom in

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on the exhibition space, different timelines emerge that are inextricably linked to the different lives of the museum.

▼ **KEYWORDS** Dust, French Anthropology, Insects, Maintenance Studies, Museum Collections, Object Care Practices, Science and Technology Studies

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Introduction: Fragilities

In a museum, the objects on display are in full view of the visitor's gaze. Even if apparently static, they are not frozen. They move, ooze, come out of their bases, oxidize, lose their shine, fade, dry out…. Objects change in the inexorable process of entropy that affects all things. In this process, they can become food and shelter for insects and their larvae. The objects in ethnographic collections are often composite, organic, and fragile: wooden sculptures are attacked by woodworms, fabrics are eaten away by moth larvae, and feather ornaments are nibbled by moths. Sometimes certain heritage objects are highly perishable, for instance foodstuffs used in rituals. The modes and temporalities of these mutation processes differ according to the situations and environments where material fragilities are at stake.[1]

When an object enters the museum, its position in the collection is continually negotiated over time. Heritage professionals are constantly caring for objects in order to preserve their bodies, their legibility, and their place in an inventory. The caring takes the form of restoration and curative conservation: acting to a certain degree on the material body of the object; and preventive conservation: aiming to maintain or create a certain object–environment relationship to minimise the risks of alteration and slow down the transformation process. The upkeep and maintenance of conservation facilities and spaces are closely related to these preservation actions, even if they are managed in different departments, collections, or by technical and security devices.

Rather than understanding the temporalities of museum objects as abstract claims, the aim of this paper is to demonstrate how collection sustainability is grounded in a range of concrete care practices that are social and material.[2] I focus on how preventive conservation practices contribute to the construction of museum objects' temporalities. The museum is a sociopolitical device for the perpetuation of heritage objects, but it is constantly confronted with the instability of materials and the unpredictability of the entities that populate its environment.

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1 Selections of this chapter has been published previously in Beltrame (2017).

2 This discourse about temporality is related to the discussion about the authenticity of the object. For a fine analysis of the notion of authenticity, see the work of Siân Jones and Thomas Yarrow on the preservation of Glasgow Cathedral. They argue that authenticity is neither a subjective and discursive construct nor a latent property of historic monuments. It is "manufactured" by different forms of expertise with the material conditions of a specific heritage site: Jones & Yarrow (2013).

I explore the unstable nature of heritage materials, drawing upon the ecological approach of infrastructure studies in the field of art and museums. In particular, the sociologist of science and technology Fernando Dominguez Rubio invites us to think about museums through care and maintenance practices: "museums are not so much collection objects but collections of slowly unfolding disasters."[3] Following Rubio, there is a permanent tension between the entropy of materials and the persistence of meanings embodied in the objects and conservation practices. Furthermore, I follow Anna Tsing's advice to pay attention to the divergent and combined stories that make up different worlds, and Fiona Cameron's suggestion to reframe "the object as 'composition' to refer to its distributed performativity incorporating material, discursive, social, scientific, human and non-human, natural and cultural factors."[4]

The museum world that has emerged was made by professional attempts to perpetuate the perishable and by insects' endeavours to proliferate within collections. The preserved heritage is a living one, decomposing and composing within a museum's life. I consider the perpetuation of the perishable as a heritage oxymoron that implies a double erasure—historical and institutional—linked to the materiality of the artefacts. Certain objects were originally destined to disappear along with their historical context. Yet the museum is an institution that tries to stabilise the relationship between the material components of an object and its environment, which is constantly unfolding, even if it is not perceptible at first sight.[5] The exterior form of the museum building is itself a fragile envelope that "continually shapes its contours in accordance with the intensity and dynamics of the building's internal life."[6]

The museum can be viewed as an "object-sustaining environment" that tries to separate entities and control the relations between the matter and shape of objects.[7] However, as Rubio suggests, the hylomorphic system collapses when we observe objects as things "constantly falling out of place."[8] Analysing the conservation and maintenance of museum objects makes it possible to destabilise the assumption of a materiality that gravitates towards stable, fixed forms. My questioning unfolds from this starting point, exploring what happens within these fragilities and instabilities, such as the creation of powdery fragments and dust and the proliferation of insects in a living environment within a controlled, indoor museum climate. I show how devices, practices, and tiny entities participate, albeit in different ways, in affecting the lifespan of the museum object.

3 Dominguez Rubio (2020, p. 15).
4 Tsing (2015); Cameron (2018, p. 350).
5 Ingold (2012).
6 Yaneva (2010, p. 44).
7 Dominguez Rubio (2016).
8 Dominguez Rubio (2016).

Method and Context: Towards Object Sustainability Within Changing Fields

To study the modalities in which object sustainability is grounded in museum life, I present some preventive conservation practices of the Musée du quai Branly in Paris, which preserves collections of art and ethnology from outside Europe.

First, however, I will briefly review how the collection of the Musée du quai Branly was created in order to elucidate the institutional policy shift and the context for my analysis. The museum inherited its collections of non-European ethnography from the ethnology laboratories of the former Musée de l'Homme and the collections of the Musée national des arts d'Afrique et d'Océanie, which closed in 2003. The unified inventory of the collections was deposited with the Service des musées de France in 2013, under the aegis of the Ministry of Culture, marking for the collections moved from the Musée de l'Homme a change in status to French heritage objects. For the Musée national des arts d'Afrique et d'Océanie, which had become a national museum in 1990, an inventory had already been deposited with the Ministry of Culture. In 2001, 100 or so objects from both museums, set up as sculptural masterpieces, made their way into the Pavillon des sessions, a branch of the Louvre. This marked an intellectual turning point associated with the transfer of the collections, with the exception of the European collections, to the future Musée du quai Branly, which opened its doors in 2006. Formerly objects of science, particularly those originating in the Musée de l'Homme, the artefacts now became "works of art and civilisation." The change was brought about by the new regime of patrimoniality regarding the combined artefacts of the two former museums, and was accompanied by a new museographic configuration and new conservation practices. In fact, this change of legal designation from scientific inventory to French cultural heritage inventory, notably for the objects from the Musée de l'Homme, is reflected in a new "poetics of display" that proposes to bring together objects by their formal qualities according to their geographical origins.[9]

In this institutional context, I take up Sharon Macdonald's proposal to go "behind the scenes" of a museum.[10] However, rather than questioning the choice of exhibition modes, I accompany the preventive conservation professionals in their ordinary practices, going literally behind the walls of the museography, or under the floor to raise insect traps, and ask: what are the modes of coexistence between objects and the sometimes-elusive entities such as dust and insects? What devices are employed on a human scale for their capture? How are collection temporalities grounded in these practices and devices? And finally, how does sustainability constitute a locus of tension between cultural heritage preservation and living decay?[11] Through conservation and maintenance practices, we will see that the exhibition plan has become a bio-infestation map.

9 Karp & Lavine (1991).
10 Macdonald (2002).
11 For an example of an interdisciplinary project questioning the heritage futures, see Harrison et al. (2020).

Attempting to answer these questions, I conducted an ethnographic fieldwork at the museum for a few months in 2015, following my interlocutors and shadowing them in their daily work.[12] I observed the activities of preventive conservation professionals as compared to those of the infestation control managers, the building's technical staff, and the cleaners, all of whom were attentive to the relationship between the collections and the conservation environments, particularly the museographic space. In this way, I noted the various manners in which people intervened in the ordinary, silent transformation of all things, trying to slow it down and to control the relational collective that comprises the exhibition. In observing their actions when caring for objects and seeing how matter matters, different entities emerged and different timelines intermingled.

Observing the institutional modalities of apprehending an environmental threat—however small and insignificant it may seem, such as a moth—leads to a change in the scale of analysis of the collection's knowledge construction. There was a time when the close relationship between the humanities and natural sciences, as regards global collection and classification practices, motivated ethnologists to hunt butterflies, as they were considered ethnographic objects.[13] The field is changing: the capture of insects now takes place in the museum's object conservation and exhibition rooms. The collector is also changing: from the ethnologist to the conservator, restorer, or preventor (preventive conservation professional), who is responsible for the physical management of the objects. The paradigm that once dedicated museums to putting the world in order and has now changed to one that devotes them to stabilising heritage, requiring the ethnographer to observe the collection of insects and dust by preventive conservation professionals who aim to learn about their lifecycles within museography, since control of the environment allows for control of the object's transformation. Therefore, sustainability of objects is at stake in museum life and conservation practices.

In the first section, I present some preventive conservation practices that make it possible focus on some vague substances that live alongside, or sometimes within, heritage objects: dust as the accelerator of decay, and powdered fragments detached from an exhibited object as environmental indicators. In the second section, I invite the reader to enter a hatch for moth-checking, trying to identify the museum zoo as we move from the insects' lifecycle towards their dwelling between their bodies and their ongoing transformation. In the third section, I zoom in on exhibition maintenance practices, infrastructure activities, and dust agglomeration; the environment to sustain objects is continuously destabilised. In the fourth section, I argue that preventive conservation practices *finally* accompany material transformations, and in the fifth and last section, my argument is that these practices make the changes visible and open up overlapping histories about objects as evidence.

12 Sachs (1993).
13 Bondaz (2013).

In vacuuming, trapping, and measuring, as practices and devices, the meticulous attempts to preserve have to deal with the continuous and often invisible metamorphosis of the object in relation to the unfolding of the environment and its sometimes elusive entities.

Powdered Fragments and Dust: Powerful Almost-Nothing

This section focuses on the gestures of "object health monitoring," highlighting the dust and powdered fragments that animate exhibition spaces. From this perspective, it is a question of understanding collection conservation spaces, or exhibition areas and storage rooms, as places of "flows" where a multitude of entities circulate. The exhibition area is here conceived as a relational assemblage of heterogeneous entities.[14] It is either infrastructural, such as lighting systems, or climate-control equipment and infra-thin (a term coined by Duchamp in 1930), such as the mixture of dust particles with ambient air and insects.[15]

To identify what constitutes the living environment of the heritage object, preventive conservation professionals set up devices to capture the entities that inhabit it—insects or dust. They collect specimens by trapping them, and record environmental data to understand and monitor the storerooms or exhibition areas. They also gather powdered fragments of certain exposed objects, which are indicators of bio-infestation or hygrometric change, such as wood dust on the shelf of an exhibited Maori pirogue stern (Figure 1). According to documentary information provided by the museum database, this New Zealand pirogue stern was collected during the first voyage of Jules Sébastien Dumont d'Urville, travelling on the *Astrolabe* (1826–1829):

> The stern rises like a long-sculpted frieze and reproduces a succession of openwork spirals …. As a testimony to the long journey made by their ancestors, dugout canoes have a fundamental importance for the Maori. On the one hand, they were used for punitive expeditions, and on the other, they played a funerary role, being assimilated to the receptacle where the body of the deceased was deposited.[16]

In the early 1990s, Alfred Gell deployed the theory of the agency of art objects, analysing the capacity of Trobriand prow-boards to act through their form and materiality, in which the intentions of creators and users are inscribed.[17] In Gell's view, a Trobriand prow-board needs to be constantly repaired to maintain its robustness so as to remain a powerful object. However, as Fernando Dominguez Rubio suggests, we have to think about the relentlessness of things:

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14 Cameron (2015).

15 In a 1945 interview with Denis de Rougemont in the United States, Duchamp explained that he had been working on the infra-thin category for 10 years, roughly concurrent with the beginning of his note-taking on the subject in around 1935. For a closer examination of the notion of infra-thin, see Davila (2010).

16 Pirogue stern [Database entry] (n.d.), Inventory number 72.1985.1.2 D, Musée du quai Branly, Paris, France.

17 Gell (1992).

Figure 1. Collection of wood dust operated by a preventive conservation officer on the shelf of a Maori pirogue stern exhibited at the Musée du quai Branly. Photo by the author.

> the process whereby things, as physical processes, grow in and out of objects, sliding out of joint from their expected object-positions and creating, in so doing, a divergence between what these things actually are and what kind of objects they are supposed to be.[18]

Rubio reminds us that the transformation process is often silent and unnoticed. It is not always about the drama of a breakage. In addition, Gell's view of agency appears to the anthropologist Tim Ingold as one of closure and embodiment, whereas the mutation of things is seen as a physical and vital process that is accomplished in the correspondences between materials or the encounters between bodies, rather than in the way they act on each other.[19] Furthermore, between moments of breakage and moments of repair, there are a wide range of care scenarios from those who maintain things and who accompany them through change in the period when change is occurring.[20]

Following Rubio and Ingold, an object is a processual thing within its environment, where particulate residues emerge, allowing another perspective on the relationship between museum and objects: the agency of the almost-nothing. The French philosopher François Dagognet defined the "almost-nothing" as the vague and degraded substances that are hard to locate in space and time.[21] He restores the significance of the infra-thin, those smallnesses that act within the world, as Duchamp

18 Dominguez Rubio (2016, p. 6).
19 Ingold (2013).
20 Denis & Pontille (2019; 2022); Kreplak (2019).
21 Dagognet (2009).

and Man Ray did in the field of art with their "Dust Breeding" (1920), which displays that the thickness of time and the scale matter.[22] By observing exhibition space maintenance practices carried out in relation to work preservation practices, it is possible to approach all the infra-materials made up of worn and dissipated substances and to walk through a museum with animated life.

At the Musée of quai Branly, during the "health-monitoring" of the collection, the people in charge of preventive conservation scrutinise the objects and their environments. They take care of the objects and their residues, as in the case of the delicate action of picking up the powdered fragments deposited on the shelf that holds the pirogue stern. These particles are moved with a brush and kept in plastic bags in a cabinet in the restoration and conservation workshop.[23] They are weighed and the variation in mass is controlled. All these practices lead to the creation of a sampling of the object–environment relationship in order to observe and manage it. But, in doing so, the apparently mundane nature of the almost-nothing, such as dust and powdered fragments, is transformed into something powerful. They are no longer part of the receptacle of the relation between human bodies, ancestors, and forces, in the form of a pirogue stern; in an ecological approach, they become a nexus of relations between objects, climate, humans, and insects.[24]

The work of preventive conservation—during the "health-monitoring" of objects in exhibition spaces—is also about removing dust with a vacuum cleaner, to separate objects and dust. Nevertheless, this is quite hard to do, because of dust's ability to be nowhere and everywhere. It proliferates continuously within other entities, both human and nonhuman. What is dust? We can let museum professionals and scientists speak for themselves:

> Dust particulates deposited on museum objects typically consist of two kinds; fibrous particulates (from the visitors and their clothing and from the objects themselves) and non-fibrous, airborne particulates (skin, soil, building dust, grit, salt, insect fragments, pollen, pollutants). The size of the dust particle will determine the rate at which it settles, smaller particles generally take longer to settle and further away from the source. Dust can be organic or inorganic, acidic, neutral or alkaline and might react with an object depending on the object material.[25]

When dust is left to settle, it can accelerate biological, chemical, and physical deterioration of objects.[26] Preventive conservation observes the different ways dust forms, circulates, and agglomerates. Conservation officers go behind the walls of the museum exhibition, beyond the design showcases and spaces, right into the raw materials of the building down to the cement floor, in order to analyse dust formation.

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22 "Dust Breeding" by Man Ray, capturing dust on glass plate purposely left by Duchamp during the preparation of his work "The Large Glass, or, The Bride Stripped Bare by Her Bachelors, Even" (1920).

23 A materials depository and archive is being created here.

24 Debaise & al. (2015); Stengers (2011, Ch. 19).

25 Shah, Hunter, Adams, Bancroft, & Blyth (2011, p. 25).

26 Brimblecombe, Thickett, & Toon (2009).

Dust often evokes abandoned spaces, which set objects in a timeless dimension. Far from this vision of fixity, from the perspective of collection care, ambient dust is treated as a nutrient substratum for fungi and insects—a transformative entity. Following Ingold, the next section examines dust as a substance and movement that, together with powdered fragments and insects, keeps ethnographic objects such as the pirogue stern "living."

The Museum Collections' Ambient Life: Insects and Dust

In this section, I invite you to enter Musée du quai Branly through an often-invisible hatch, which is opened to check moth traps in the exhibition. Behind this hatch are a mishmash of electric cables, pipes, air ducts, environmental sensors, dust, and pheromone traps for moths, all placed on a concrete floor reminiscent of a construction site—a surface that was subsequently covered with linoleum and wax in other areas. For a few days over the winter and spring of 2015, I observed the checking of moth traps in the exhibition area, performed monthly over a period of 2 years (2015–2016). I accompanied two museum professionals specialising in preventive conservation, whom I will call Lucien and Lucille, and a technician Colas from Ecolab, a company contracted by the museum to prevent, control, and combat pests.

From the outset, Lucien remarked that the trap-check was not glamorous, but was necessary! The idea was to conduct an inventory of insects in the collection. The dead insects forming the ethnographic collection are exhibited, but the living ones within the collection environment are captured and classified.[27] The astonishing presence of these tiny corpses in collection objects, for example a plait of venomous ants used for the Wayana *marake* ritual, sometimes turns into a threat when they are alive.[28] Preventive conservation actions focus on the knowledge of insect lifecycles in order to understand the museum ecosystem and find environmental ways to fight biological infestations, a process called *integrated pest management*.[29] As Lucile explains, conservation professionals carry a cart containing

> a paper map showing the location of the traps; a laptop to record what can be quickly counted, that is to say the moths; a flashlight, a suction pad to open the traps, a small magnifying glass worn on the forehead to check if there is anything other than moths and decide to analyse the trap later under a microscope; new traps to replace the traps that need to be changed; and different kind of pheromones.[30]

27 It should be remembered that, in early ethnology and early ethnographic practice (closely related to the methods and classifications of natural sciences), insects were ethnographic artefacts: Bondaz (2013).

28 Raffles (2010).

29 Entomologist David Pinninger's (2001) "Integrated Pest Management" method, originally conceived for London's Natural History Museum, was adopted by various museums in Europe, including the Musée du quai Branly, the Tropenmuseum in Amsterdam, the Dahlem in Berlin, and the National Museum of Scotland in Edinburgh.

30 Lucile (2015), remarks to the author while checking moth traps.

They have to check 54 traps placed in as many hatches in the floor, which are unnumbered to avoid disturbing the aesthetic of the exhibition space. Locating them is not a simple matter! They take advantage of the winter period to do this. The areas most at risk of infestation are those containing objects made of composite and organic materials exhibited outside showcases, such as a camel palanquin made of vegetable and animal fibres: "fur, skin, wool… all you need to make an insect happy," says Lucien.

The insects best known for being potential collection ravagers are: the keratophagous, capable of digesting keratin, which is the protein found in leather, hair, wool, fur, feathers, and so forth; the xylophagous, which eat, pierce, and gnaw on wood; and those who can eat non-lignified cellulose. Preventive conservation officers are particularly interested in keratophagous insects like moths that "attack" collections, but they also look at other categories such as "environmental indicators" that indicate if a space is, for example, humid and dusty or there are plenty of insects to eat: "There are museums where spiders are left alone. They are not bothered. Their webs can be checked to see what insects are circulating and being captured," says Lucille while checking a moth trap. A third category is called "occasional guests": insects, such as grasshoppers, that are present because the building is not hermetically sealed, and in this case is surrounded by a garden, and which do not threaten to deteriorate the objects.

Of course, capturing adults helps limit reproduction, given that it is the larvae that cause problems for these objects by feeding on their constituent material. However, in preventive conservation, trapping is a technique used to detect an emerging infestation or, as Lucien describes it, it is "determining what is unavoidable biological background noise, and determining if there is a larger infestation somewhere and seeing how it moves." Trapping is not so much an eradication method as a monitoring method that makes it possible to map the presence of these insects in the exhibition area. Background noise or ambient noise can be conceived here as a kind of inventory of coexistences. They are checked by taking samples and comparing them over time. This means establishing the ordinary parameters of ambient life that are considered unavoidable, with levels beyond this considered as an infestation. What needs to be controlled is the overflow, which also establishes the boundary line of the threat. Background noise seems to be a means of threat objectification as well as a form of cohabitation between objects and other entities. We can therefore see how preventive practices emerge as environment construction practices. They map the exhibition space with hot spots of infestation and zones particularly susceptible to biological degradation induced by living organisms, which are then identified and classified. Their mapping—conceived as image production and analysis—contributes to the objectification of the relationship between object and environment.[31] Background noise forms simultaneously with the object–environment relationship. It is not simply a matter of applying knowledge to counter threats, but also establishing a threshold for coexistence and defining the museum zoo.

31 Daston & Galison (2007).

Despite the pheromones, the traps do not just catch moths. Lucille holds a trap in her hand, and she has to check through a lot of debris and dust, and maybe find other insects in it:

> To put it simply, the heart of the matter is: we identify what we know. This means that for moths, they are fairly easy to count. However, in a trap you can have little red, black, dark, brown spots, and these are not identified as insects, but they can be identified as dust or debris, and in fact this is not easy because the average size of insects in mainland France is 2 millimetres for imago, and therefore even smaller for larvae… On a trap, you can find anything: eggs, larvae, imago, and it is not always easy to identify them with the naked eye or even to tell if they are insects. For example, among the approximately 700 species, there are very small insects that are often found in small, humid spaces. For example, when collecting dust from under the concrete floor of reserve shelving, there will almost certainly be very small, almost translucent insects and it is very difficult to detect them. I think there are many things there that are not seen.[32]

The minute size of insects makes it difficult to identify them and distinguish them from dust with the naked eye. This is why some traps are collected for later microscopic examination in the conservation-restoration workshop, for which the expert opinion of an external entomologist is sometimes sought.

During trap checks in the exhibition area, between observers, particles, insects, and objects, a muddle of bodies is created, bodies that no longer have boundaries at the dust scale. Insects can feed on dust made up of micro-fragments of insects, objects, and epithelium, supplied mostly by the humans populating the exhibition spaces. Dust enables a series of metamorphoses in which reality is captured and persists, but, at the same time, constantly changes.[33] The collection milieu is never passive, nor are there empty spaces between bodies, and "the air hangs heavy with significance" even in a climate controlled area.[34] Dust seems to be approaching an infrastructural property that is both relational and ecological, as the sociologist of science and technology Susan Leigh Star states when talking about standards, plugs, and bureaucratic forms. Dust, like infrastructure, has different meanings for different collectives and is part of the balance between practices, tools, and the built environment from which it is inseparable.[35] For Star, the difficulty with the ethnography of infrastructure is in scaling it up, whereas in the museum ethnography presented here the focus is on zooming in on the exhibition space.

32 Lucile (2015), remarks to the author while checking the moth trap.
33 Braidotti (2002); Barad (2003).
34 In the context of plant–insect articulations: Hustak & Myers (2012, p. 105).
35 Star (1999).

Zooming in on the Exhibition Space: When Collection Preservation Meets Building Maintenance

In this section, I zoom in on the opening of the hatches, the maintenance of the floors and the showcases, following dust and its aggregates, which can cause little breakdowns in the object sustaining environment. This will reveal that the lifespan of the exhibited object varies according to these ecosystem disruptions. Ambient dust is often perceived as dirt. In most Western countries, filth is viewed as a manifestation of disorder.[36] As part of museum housekeeping, exhibition spaces are cleaned, making the showcases virtually transparent and the floors shine. Visitors do not perceive the mist of particles, allowing them to enjoy clean forms of attachment to the exhibited object. Yet when hatches are opened they reveal dust aggregates that concern the museum staff, who stretch out on the floor to install or check traps. As Lucien explains: "We have to review the Multi Service Center's (MSC) cleaning procedures, to reconsider their frequency and see if they should not just clean the floor, but also open the hatches and clean inside." The practices change according to current knowledge of moth circulation and the architectural structure of the building: showcases are not sealed, and insects find their way into the open space under the false floor. There is an invisible separation of responsibilities: display areas, such as showcases and rooms, are directly managed by preventive conservation professionals, restorers, or collection managers; but floors, showcase glass, hatches, building surfaces, and interstices are cleaned by external MSC cleaners, mostly for the sake of visitors.

When zooming in on the exhibition space, we meet the cleaners, notably Louis, and the head of the showcase maintenance, Serge. The floor is swept by the MSC every day, as well as on the Mondays when I help set the moth traps. Louis moves slowly nearby. He sweeps along the edges of the showcases. The broom consists of a white, rectangular plate covered with a microfiber cloth that slides along the floor. The dust on the floor is not vacuumed; the broom catches it or moves it, imperceptibly on a human scale. Furthermore, because of phenomena linked to the molecular weight of the dust's constituents, their more or less hydrophilic character, it tends to have static electricity, notably the ability of micro-particles to attract each other. Depending on the level of humidity, it tends to land on objects or agglomerate behind furniture or showcases. The drier the air, the higher its dust content. On a human scale the electrostatic force seems weak, but at a smaller scale it becomes more powerful. Dust particles are almost-nothings acting within forces and energies. Jane Bennett asserts that human and non-human bodies are permeated and crossed by forces that form a web affecting situations.[37] In observing mundane cleaning practices, Dagnognet's and Bennett's claims finally come together in the material vitality of almost-nothings.

On days when it is closed to the public, the exhibition space is a busy place with lots of humans too. Serge is responsible for maintaining showcases, which is a

36 Douglas (1967).
37 Bennett (2010).

duty of the department of collection management. While doing the rounds of the exhibition area, he tells me that dust can fall during the sweeping and accumulate in the interstices of the museum, such as in the tracks of the showcases' sliding glass panels.

> The showcase glass sits in a kind of metallic carriage in the floor, so the optical effect is not one of rupture but transparency… and therefore in the rail, which the glass disappears into, you always have an interstice where there is sometimes a centimetre of dust, and this is a feast for insects… and it is very hard to reach those areas. Vacuuming it is complicated, and there are floor cleaning and maintenance techniques that cause the dirt to stick. Every 3 months, the linoleum is treated with a kind of varnish, a wax, a product that is applied with a mop, a big thing, and it inevitably drips. I've even sometimes seen the rails get stuck, and then you have to pull on them. Dirt combines with that to make dust conglomerations, and I've seen larvae and moths in them.[38]

Along with the sweeping and the interior design of the exhibition area, there is the polishing of the floor. The wax flows into the gaps and a dust conglomeration settles in it. Thus, moths find a home in materials created by the museum infra-structure, its operations, and its occupants; and not solely in the materials that make up the museum collection, such as the "camel palanquin" that is not in a showcase or the "living carpet," as Lucille recalled with reference to an episode of collection monitoring, during which larvae swarmed on white motifs against the dark background of the weave of an exhibited carpet. Transparent showcases, zooming in on where the glass of the window meets the ground, can become a dense place of life. It is no longer a matter of seeing the exhibited object better, but seeing it differently. When zooming in, as Bruno Latour suggests, the schema of space and time are not continuous and "levels of reality do not nestle one within the other like Russian dolls."[39] Zooming in allows different narratives and temporalities that form the exhibited collection's ambient and social life: insects' lifecycles, the decay of objects, dust metamorphosis, human actions to keep clean or to set ambient parameters.

To these connected actions of heterogeneous entities in the sweeping and polishing of the floor, must be added the action of the ventilation system: in areas with filtered air vents ambient dust is constantly in convection. Dust is carried by air and is sucked in by the cooling fan in the showcase's lighting system. So dust enters the showcase's protected space, "and dust sometimes wears out the fan to the point of breaking it," says Serge. The light gets hotter until it exceeds the digital light meter's threshold to protect the works from damage. The life of the dust in the exhibition area is driven by air flows that move it, absorb it, then cause it to land in the showcases or other recesses in the building, depending on its ability to adhere and accumulate. This is also dependent on its ability to derive power from "its pervious character as a collection of unstructured particles," as anthropologist Martin Holbraad has said

38 Serge (2015), remarks to the author.
39 Latour (2014, p. 121).

in relation to a context far from the museum, speaking of the powder used in Ifá divination.[40] When tracking dust one discovers that the exhibition area is a set of entities in action, which can be unpredictable and unavoidable, even regarding spirits, in the incommensurability between scales.

Embracing Material Change in Preventive Conservation Practices

From the perspective of preventive conservation, the exhibition area is a territory without any compartmentalisation of risk, where all entities are taken into consideration. Preventive conservation professionals look at this assemblage, while paying attention to details of action, such as that of a broom that moves dust into a rail; and the actual size of the entity, such as a speck of dust. This calls for an ecological approach that considers, beyond the boundaries of each department's or external maintenance service's responsibilities, the fluctuating actions of entities and matter. Thus, fragility does not reside only in the body of the object. It also lies within the hybrid networks that make up the exhibition and in the variability of the relationship between these entities: humans, objects, moths, dust, wax, showcase design, interstices, building structure, infrastructures, air conditioning, lighting, and so forth. Fragility is not a passive socio-material relationship.[41] It "is not the opposite of solidity, duration or solemnity of things, it is not at our margins, it is neither a defect to be repaired, nor a temporary state, it is our common fate."[42] Paying attention to fragility in maintenance practices means dealing with the ordinariness of these practices and the unpredictability of the entities involved in material ecologies.[43] These actions are certainly carried out within regulatory frameworks and are therefore coded, traced, documented, catalogued, and restituted. Nevertheless, the trivial and the detailed, such as powdery fragments on the base of a showcase object, play on what is perceived as fragile with hints of creativity. The entry by the material fragility thus permits us to pay attention to tiny things and not to neglect them, to give consistency to the world.[44] In doing so, the preventive conservation practices are not just actions to prevent and limit the risks of deterioration, they accompany and even anticipate the capacity of objects to mutate gradually within the museum environment.

Maintenance practices demonstrate that taking care of heritage objects does not mean that all the entities engaged in the museum's life can be controlled. We just act with their multiple ontologies on different scales: the ontological and material declination of dust becomes multifarious in practices of museum maintenance and collection conservation. As we have seen, dust can be food for insects. In the eyes of the cleaners, the vegetable fibre dust from wooden objects is dirt on the floor that

40 Holbraad (2007).
41 Edensor (2011).
42 Hennion & Monnin (2020, p. 1).
43 Denis & Pontille (2020).
44 Denis & Pontille (2015); Puig de la Bellacasa (2011; 2012).

should be removed, whereas preventive conservation professionals see these powdery fragments as environmental indicators of hygrometry or biological infestation, such as the wood powder of a pirogue stern from Oceania exposed in the showcase. Lucien systematically monitors the shelf it sits on, in order to check for the presence of wood dust and to take samples.

Every practice generates its own version of the material reality of residue, and these enactments do not necessarily align.[45] They can be contradictory; for instance, in this case, dust may be seen as something dirty to be removed, as opposed to dust as a scientific artefact sample to be preserved. However, as soon as they settle and become visible on a surface, these powdered fragments cannot stay where they are and also cannot be reintegrated into the collection objects because of their small size, which defines the irreversibility of this process. In air they flow freely, no longer a heritage object but rather ungraspable particles that mix with other debris and become other museum entities. Following Rubio's and Ingold's argument, through these almost-nothings we can imagine the entanglements in the collection environment and the silent becoming of the exhibited object. In Caitlin DeSilvey's words, it is about seeing heritage beyond saving it or trying to fix it in permanence. It means being involved in the processes of decay.[46]

In following this idea, a question arises: in monitoring objects and spaces, in putting the almost-nothing on a human scale, is the "change embraced rather than resisted?"[47] What if, in zooming in on preventive conservation practices, we finally see pathways for thinking about post-preservation? The acceptance of losses and transformations may be possible in looking into the ecology of practices, seeing the world that emerges giving reality to the almost-nothings in their living environment. The political and ethical question that arises here is: what opportunities should we grant to these living environments in order to *ecologically* rethink museum conservation, going beyond the perspective of threats and risks to be prevented and, in DeSilvey's terms, acknowledging vulnerability? The ontological stance in shifting perspectives towards "curated decay" and focusing on the almost-nothing entails paying attention to other forms of non-human otherness within a museum characterised by a "taste for the other."[48] In preserving the exhibited diversity in human culture, other ordinary forms of non-human existence are brought out, defining the museum ecosystem. People and insects negotiate with the materials: heritage objects are not just designed by people once and for all, they mutate within the conservation practices and the actions of matter and insects.

Adrian Van Allen, in her study of the preparation practices for bird specimens, suggests that "ways of knowing the world are archived in the materials, as well as in the ways they are used."[49] In the same vein, heritage objects are not only archives of human cultural diversity. It is within the conservation practices and devices, as

45 Mol (2002).
46 DeSilvey (2017).
47 DeSilvey (2017, p. 4).
48 DeSilvey (2017, p. 4); L'Estoile (2007).
49 Van Allen (2020, p. 146).

well as the insects' actions like eating, laying eggs, growing larvae, and making flight holes, and in the vibration of the matter that "time is folded."[50] Object sustainability depends on these folds, well-grounded in the gathering of entities and their actions, which form the museum life.

Overlapping Object Stories and Timelines

In 1937, when Paul Rivet and Georges Henri Rivière were assembling the collections of the Musée de l'Homme, an ethnographic object was defined as: "an 'evidence-object,' 'sample,' 'civilisation specimen,' 'material ideogram' or 'condensation of collective representations' that tells us something about technology; material culture for instance fishing, hunting, agriculture, foraging; beliefs or rites."[51] These "evidence objects" bore witness to the patterns of clustered human life to inventory the diversity of the world and create an archive of humanity. The evidence objects are inscribed, as suggested by Fiona Cameron, in social history collections that "advance human-centred interpretative approaches that focus on the social, the ideological and cultural construction of the human subject."[52] However, collections, as Cameron reminds us, are also the emergent effects of contingent and heterogeneous enactments, both human and non-human.[53]

Now, some 80 years later, some of these objects exhibited at the Musée du quai Branly present new evidence for their conservation status, which emerged during a tour of the exhibition space in the company of Lucille. She planned this tour with Lucien and Camille, a museum restorer, in order "to identify evidence objects, that is to say objects that we will examine in the case of a change in the environmental parameters of the exhibition space, in order to observe the effects of this change on the objects," as Lucille explained. The object becomes a kind of sentry of change in the exhibition space.[54] They are ecological witnesses that can provide information on the relationship between the objects and their museum environment. The collection objects are not seen as things independent of the place where they are conserved, but conceived as objects in relation to their living environment, which is animated and animates them. The exhibited objects are both samples of the human world, extracted from their context ,and sentries of change in the museum environment, which are inextricably linked to it. Through "evidence objects," the history of anthropology in relation to the epistemology of collecting comes together with the history of the objects and the history of their heritage conservation.

During the tour, we entered the "Bringing Out the Dogon Masks" section. Standing in front of the spectacle of the masks hung on the wall, Lucille says that at the outset the question we should be asking is: "what do we consider deterioration?"

50 Van Allen (2020, p. 146).
51 Coquet (1999, p. 16).
52 Cameron (2018, p. 349).
53 Cameron (2018, p. 349).
54 Keck (2016).

> You see, if we looked at the lower part of the headdress and noticed that the lacunas were getting bigger, we would be right to speak of a deterioration, but without taking very, very precise photos and doing photogrammetry, we are incapable of seeing it! At a timescale of 5 years we wouldn't see it… we would really have to come across an old, very clear photo to grasp it because we get used to the state of deterioration. (Lucille, 2015).

In this extract, deterioration is something that you can get used to. But it is also a transformation that can be measured, something that has led Lucille and Camille to adopt technology that makes it possible to perceive at a human scale the infinitely small transformations of the objects' bodies.

The exhibited objects are evidence of collected cultures and of museum preservation environments and practices. They change silently in the course of their material life, which depends on the arrangements between material entropy, environmental conditions, institutional policies of acquiring devices for observing "almost imperceptible" changes, and exhibition poetics. As Rubio suggests, the transformation process is often unnoticed. In what is argued here, it is a matter of bringing out what the naked eye does not notice over a short period of time. The heritage sustainability has to negotiate concretely with these material arrangements that form the lifespan of the exhibited object. These material arrangements participate in the collection knowledge construction *within* its living environment, and not only *across* the cultural and historical museum life.

Concluding Remarks

The exhibition space is swarming with life and matter that preventive conservation professionals would like to monitor in order to preserve objects. These attempts sometimes give way to the fluctuating inseparability between the objects, dust, powdery fragments, insects, and humans, both professionals and visitors, that animate conservation spaces. In the ever-changing collection realities, the historical and aesthetic values of ethnographic objects, such as an Oceania pirogue stern or a Dogon mask, have to negotiate with their material bodies, often made of wood or even of fibres, and with a bunch of entities living in them or within the exhibition environment. Aesthetic and scientific dimensions intermingle in this material fragility made up of powerful almost-nothings, like dust and fragments.

In an ecological approach, the object is continuously deploying within the conservation environment. Zooming in on the exhibition space, we see that object sustainability is grounded in social and material museum life. Durability is a place of tension between different temporalities: heritage preservation attempts, material transformations, future scenarios created by technological devices such as photogrammetry, objects' lifespans, and insects' lifecycles. Pasts and futures meet in object conservation and building maintenance devices and practices that bring out the unnoticed and silent process of material transformation. Preventive conservation professionals carefully accompany these bodies and the metamorphoses of materials, which are

constantly unfolding with their environments. The entropy of matter cannot be stopped, dust is continually produced, and insects proliferate! First, following preventive conservation practices, we can see that the entities invisible to the human eye, because of their microscopic size or their ordinary and insignificant character, contribute to defining the lifespan of an object, inseparable from the environment they share. Second, the anthropological analysis of the modalities of stabilisation of the relation between the object and environment makes visible that these preservation attempts allow the heritage object to give shape to institutional time, rather than pass through it. Trapping provides a device for capturing and inventorying the minute worlds of the museum. The trapped insects are no longer exhibited as ethnographic artefacts. At one time, insects were captured as samples of material culture and inventoried in laboratories of ethnology. Now, in the new museum environment, the collected insects constitute indicators of bio-infestation and their presence is mapped in order to manage it. The collected samples of insects and powdery fragments are put in test-tubes or plastic bags, and stored in cabinets of the conservation laboratory. The attention once paid to the ordering of the human and social worlds is now giving way to attempts to sort out uncertain worlds and to create collections within collections.

Far from being a mere cultural container in terms of its human heritage collection, the museum emerges as a living ecosystem inhabited by heterogeneous entanglements of entities acting at different scales. Preventive conservation professionals, curators, and cleaners try to bring order to the various scales of different worlds, but not without some difficulty. Humans cannot reduce themselves to the scale of dust, so they create devices to bring dust to the human scale—in order to see it, measure it, capture it, and vacuum it. However, we cannot simply control it. The conservation and maintenance practices show how dust contributes to the disordered socio-material lives of the museum. Following this epistemic thread, the vision of the permanence of a museum collection is troubled by the observation of its ordinary and material life. This opens up the possibility of a heritage sustainability that acknowledges fragilities and mutation as ways of existence.

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