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Sense-able Hauntings: Ethics and Narratives in Ornithological Specimen Preservation at Yale's Peabody Museum

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Acknowledgments

for the birds, as it tends to be.

with bone-deep gratitude for joanna radin's necessary and earnest work to cultivate a more caring, rest-filled world— one garden at a time. there is too much to thank you for. to siobhan angus, who burns with the truth and puts it to paper. for your steadfast faith and impossible magic. with true appreciation for the thoughtful conversations and collection access generously provided by those at the peabody, particularly kristof, rick, and liam. thanks to akio tamura-ho for a thousand citations; jes springer and regina logan for nourishing me in every way; kalindi vora, ina heumann, and mareike vennen for their gentle guidance and sharp insight. to hero magnus and cori valois for the portals they brought me through, and to donasia gray, whose bright love could germinate any (earth)seed of change.

and for decay, which will remake us all anyways.

"Collections upon which great researches have been made are the veritable foundation of our understanding of the physical world around us; we hold them in trust for generations yet unborn; certainly, their preservation is a solemn obligation."
Peabody Museum Director's Report, 1945-46[1]

Introduction

Until I was standing in between the rows of towering metal specimen cabinets, I didn't understand how many birds the Yale Peabody Museum holds.[2] Like most people, I had only experienced the display side of museums: its dioramas and glass cases. These displays, while made to embody a certain set of interests, priorities, and values, still serve an obscuring function—they vastly underrepresent the museum's total collections. In their ornithology collection alone, the Peabody currently holds more than 152,000 bird skins, bones, eggs, nests, and other avian fragments.[3] The Peabody staff members who maintain the ornithology specimen collections are distinct from those who create the displays; as a result, the knowledge produced through museum-based research is shaped by the interests and imaginations of who has collection access.[4] This thesis seeps into, around, and under the locked spaces of museums' death-rich collections. I consider how institutional actors experience complex emotions about life and death, nature and culture, as they labor to maintain what is—on one level—an avian crypt. Understanding how specimen collections embody specific ethical and ontological orientations to

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[1] Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[2] In this essay, I will be using the term "specimen" to reflect contemporary lab and museum terminologies. Otherwise, I prefer to use what I have learned from thinkers like Zoë Todd, Max Liboiron, Jane Bennett, and Robin Wall Kimmerer to leave behind the category of specimen due to its reductive nature. Where possible, I try to use phrases like "bird bodies," "bones," or "birds" to remind myself of the multidimensional roles these creatures can (and do) enact in laboratory ecologies.
[3] "Ornithology," Yale Peabody Museum of Natural History.
[4] For more on collection access and speculative interests, see Joanna Radin, "Planned Hindsight," *Journal of Cultural Economy*, 8:3 (2015), 361-378; see also Bruno Strasser, Strasser, Bruno J. "Collecting Nature: Practices, Styles, and Narratives." *Osiris*, Vol. 27, No. 1 Clio Meets Science: The Challenges of History, (2012): 303-340.

the world offers an opportunity to reimagine the science done within (and beyond) sites like the Peabody.

My first encounter with the Peabody's ornithology collection was during a 2021 undergraduate class tour intended to familiarize students with the museum's holdings and purpose, to take them beyond the display. As the ornithology collections' manager, Kristof Zyskowski, led us through the aisles of cabinets, I felt that the climate-controlled air around me nonetheless becoming thick with some quality that hadn't been named on our tour. It was more than the overwhelming scent of must and death, and it rose in tandem with Zyskowski's words. When he said a bird had been "taken" into the collection, rather than "killed," I felt my unease increase, compounding the death-smell.[5] To take my own discomfort seriously required acknowledging both the affective and sensory aspects of the collection, which caused me to wonder about the sensual experiences of the researchers who spent every day with these birds. This sensory permeation of almost-rotting scents distorted my ability to experience the birds as objects; the smell's affective associations flared up within me, providing a portal to alternate analyses of the specimens. I grasped that what had been disrupted within me could be termed a "sense-able" boundary: a boundary that you barely register as such until it is unexpectedly disrupted by overwhelming stimuli.[6]

After the visit, I searched for a foothold to describe the particular dimensions of violence that felt so thickly present in these collections. Subsequent visits to ornithology collections

[5] What does "collecting" mean in these contexts? It serves as a summary verb for "killing, preserving, labelling, and keeping study skins," in Barbara Mearns and Richard Mearns, *The Bird Collectors,* (Academic Press, 1998) xi.
[6] I later found that the term "sense-ability" has also been used to describe "a praxis of sensibility and care that expands our usual sensory regimes and disrupts conventional disciplinary hierarchies and divisions of the senses," within the 2021 paper, "Sympathetic Vibrations: Sense-ability, Medical Performance, and Hearing Histories of Hurt" published by King et al. Here, I learned that these authors conceptualize sense-ability as "sensitive to the connectedness, liveliness, and agency of all things," which further informed my own approach to this concept.

across the U.S. and Europe provided me with additional sensually informative data.[7] Although that sick, musty smell persisted in all the collections that I visited, the Peabody's felt most oppressive. I remembered that the air around me in the Peabody's collections had seemed almost hazy with bird-matter by the time that the tour completed. It wasn't quite the scent (or sense) of something allowed to decay, of matter sighing into wet dirt. It was the scent of something made to fight against time. Given the specificity of the Peabody's (un)rotten context, I began to suspect that it was not only the smell that was haunting me.

The Peabody operates under the Yale Corporation, being invariably tied up in the capitalist and colonialist projects of the university. As a student within these collections, I felt what Avery Gordon describes as the haunting moment where "you know in a way you did not know before… you are *already* involved, implicated, in one way or another."[8] At Yale, a land-grant institution built by enslaved laborers, having benefitted massively from investments in fossil fuels, and currently refusing to divest from Puerto Rican debt, engagement with already-collected specimens is a particular and situated act; here, the question of "how to care" is insistent but slippery.[9] As a result, articulations of care and productions of fact are constrained by university narratives. Gordon's concept of haunting reveals how narratives first emerge from and then nest within institutional settings until they are normalized. As a result, I approach the

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[7] Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14 no. 3 (1988): 579. 1988.

[8] Avery Gordon, *Ghostly Matters: Haunting and the Sociological Imagination* (University of Minnesota Press, 2011), 206; Gordon's work grapples with the violence and grief of slavery's afterlives by considering how the past becomes materially manifest in the present, visibly and invisibly. One might turn to Ann Cvetkovich's *An Archive of Feelings (2003)* for further discussion on the usefulness of Gordon's "haunting" framework.

[9] Nick Tabio, "Yale and the Puerto Rican Debt Crisis." *Yale Daily News*, 2022, https://yaledailynews.com/blog/2019/04/05/yale-and-the-puerto-rican-debt-crisis/; Puig de la Bellacasa, *Matters of Care*, 7.

Peabody as a site where I must "organize particular rituals of storytelling told by situated investigators" throughout its history into the present.[10]

Continued attention to the sense-able dimensions of collections can be starkly juxtaposed with the objectivity generally attributed to those working in scientific spaces. Aperspectival scientific rationality culminates in a sort of sensibility imagined to be unique to the sciences.[11] Today, scientists within the Peabody, which was created as a natural historical museum in 1866, operate using these same sensibilities, which dictate much of common contemporary lab culture, due to their reliance on typical funding structures, academic training, and lab practices.[12] The resulting institutional sensibility operates off normalized scientific practices sustaining knowledge production, including the ethics of amassing collections for study and experiment.[13]

I consider the knowledge produced at the Peabody as entangled with natural history practitioners' relationship to sensibility. This necessarily includes both present orientations and past, such as the attitude exemplified by the 19th century Academy of Natural Sciences' president that while the senses may be used to understand, the discipline of natural history "was not intended… to be in any way sensual."[14] The disciplinary rejection of sensuality presents a significant obstacle to those who seek to develop relationships (beyond that of observer-object) with what they study, as well as to those like myself who are overwhelmed by emotions upon encountering such collections. This disciplinary outlook, along with site-specific institutional

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[10] Gordon, *Ghostly Matters*, 10.
[11] Lorraine Daston, "Objectivity and the Escape from Perspective" *Social Studies of Science*. 22 (1992): 597-618.
[12] Alexis Shotwell, *Against Purity: Living Ethically in Compromised Times,* (University of Minnesota Press, 2021) 99; Banu Subramaniam, "Snow Brown and the Seven Detergents: A Metanarrative on Science and the Scientific Method," *Women's Studies Quarterly* 28, no. 1/2 (2000): 296–304; Strasser, "Collecting Nature," 324.
[13] Strasser, "Collecting Nature," 334; Bruno Strasser, "Laboratories, Museums, and the Comparative Perspective: Alan A. Boyden's Quest for Objectivity in Serological Taxonomy, 1924-62," *Historical Studies in the Natural Sciences*, Spring; 40: 2 (2010):149.
[14] See the 1871 President of the Academy of Natural Sciences' statement in Steven Conn, *Museums and American Intellectual Life 1876-1926* (Univ. of Chicago Press, 1998), 41

framing, has led the Peabody to position its specimens as a form of global heritage—both natural and cultural. [15] Natural history museums' self-positioning as heritage spaces that allow for visitors' discovery of the "natural world," has allowed for the persistence of colonial relations within institutions that are intent on denying them.[16] In order to produce this heritage, living birds are killed, then preserved for the purpose of benefiting as yet undone science.[17] In this way, the collections function to maintain representatives of the past in order to embody future-oriented desires and imaginaries.[18]

Throughout the late eighteenth and nineteenth centuries, natural history museums had already "emerged as colossal storehouses of nature," fed by colonial and imperial exploits.[19] In its search to be representative of the natural world, (white) collectors reified their own separation from the chaos of nature by controlling and representing it within specific sociocultural contexts. The later end of these efforts coincided with a push by scientific ornithologists to cement their discipline "in the midst of a [nineteenth century] explosion of popular interest in birds."[20] Ornithology, as it was practiced by American scientists in the twentieth century, necessitated the accumulation of birds and bird-related materials so that specialized knowledge might be

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[15] Kirk R. Johnson, Ian F. P. Owens, and the Global Collection Group, "A Global Approach for Natural History Museum Collections," *Science* 379, no. 6638 (March 24, 2023): 1192–94, https://doi.org/10.1126/science.adf6434; R&P Design, "Yale Peabody Museum of Natural History," *R&P Design*, July 23, 2021. https://www.designrp.com/projects/yales-peabody-museum/; "Ornithology," *Yale Peabody Museum of Natural History;* Dorfman, *Future of Natural History Museums*; Maria Puig de la Bellacasa, *Matters of Care: Speculative Ethics in More than Human World, (*University of Minnesota Press, 2017) 2.

[16] Subhadra Das and Miranda Lowe, "Nature Read in Black and White: decolonial approaches to interpreting natural history collections," *Journal of Natural Science Collections,* Volume 6, 7.

[17] I am grateful to Joanna Radin for this phrasing, as articulated in conversation and editorial suggestions.

[18] This articulation is not singular; see Radin's "Planned Hindsight" for examination of how sites like the Frozen Zoo ® imagine themselves to be operating as an "ark" of kinds.

[19] Poliquin, *The Breathless Zoo*, 114.

[20] This professionalization was anchored in the creation of a total archive of North American birds, "which was to be constructed by systematically collecting, preserving, and comparing extensive series of bird skins." The forging of this discipline, therefore, was only possible through an intervention into bird life that utilized violence for the purposes of controlling knowledge and relationship production. This information (though framed differently) comes from Barrow, "Birds and Boundaries," 1-2, 40.

produced from the comparative juxtapositions.[21] It was critical that specimens also be able to serve their representative function to the public. The Peabody's ornithology archive was arranged to contain material objects, but with a specified purpose; in doing so, the collections became spaces of containment for abstract ideas, including the descriptive and numerical data associated with specimens.[22] I consider what it would mean to bring up the question of ethical relations at an institution like the Peabody, through the process of marking specimens as a critical site of past and present material and discursive interconnections.[23] Another way to understand this approach is to consider the birds as "agential assemblages," wherein traces of neoliberal capitalism, white supremacy, and patriarchy, along with "power relations" are maintained, held within bird bodies at great cost, with great care, and great violence.[24] It is the justifications that those affiliated with the museum make for these processes which interest me most.

By tracing the material-semiotic shifts that birds undergo as they are transformed from living creatures into specimens into objects of knowledge, this thesis brings together un-disciplined study with myriad methodologies.[25] I consider the formation of American natural history museum culture throughout the early 20th century in order to situate a critical engagement with the Peabody's archives. Institutional archives and historical backgrounds are made to frame individual processes in *Death*, while interviews with contemporary curators reveal how *Preservation* operates on relationships, narratives, and material bodies. Thirdly, the *Arrangement* of bodies within collection spaces tends to the material conditions required to sustain

[21] Strasser, "Collecting Nature," 320.
[22] Strasser, "Collecting Nature," 336.
[23] Alexis Shotwell, *Against Purity: Living Ethically in Compromised Times, (*University of Minnesota Press, 2021).
[24] King et al, "Sympathetic Vibrations."
[25] Haraway, "Situated Knowledges," 588.

preservation efforts, bringing together the previous sections into a framework. *Arrangement* also examines how material and semiotic "truths" become bound together in specimens' bodies, congealing and preserving certain orientations to the world (which then re-emerge in research produced with these bodies). Lastly, *Decay* is premised on the ability of disruption and rot to initiate change; within this section I offer three speculative proposals: allow rot, alter protocol, and cease collecting.

Taken together, these sections represent my argument that our motivations and methodologies for preservation, matter. Narratives that inform processes of preservation end up determining what is preserved: relationships, ways of being in the world, physical bodies, future scientific possibility, species, heritage, and more besides. Specific methods and practices of preservation normalize, replicate, and otherwise continue those relationships which made colonial collecting projects possible.[26] As a concept, the natural history museum has a complex heritage that far exceeds its static objects; it embodies an entangled past-present-future web of relations that are made to stand in for an ethics of care, while justifying practices of colonial extraction and killing.

It is from feminist STS that I have learned meanings and materials do not travel separately, but participate in one another's formation and collapse; the bindings of emotion, ontology, and values which relate meaning to matter are therefore owed critical attention. [27] I am perhaps most interested in feminist STS for its ability to ask questions about responsibility—to one another, to interrelated heritage(s), and to speculated future relations. If research frameworks continue to be

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[26] Within Western culture, "modern" science has dealt with the threat of nature's unruliness and secrets by asserting power through the scientific method—a way to unravel and reveal nature's secrets. For more, see Evelyn Fox Keller, *Secrets of Life, Secrets of Death: Essays on Language, Gender and Science*, (New York, NY: Routledge, 2009) 41.

[27] King et al, "Sympathetic Vibrations: Sense-ability, Medical Performance, and Hearing Histories of Hurt," *Global Performance Studies*, vol. 4, no. 2, 2021.

encoded with the restrictions of the colonial imaginary, then STS researchers and scientists alike will entrench their research in the same gaps, hauntings, and blocked relations which have so violently shaped museum archives.

Feminist STS offers me the grounds to ask how a living heron from South Carolina comes to be a dead object in a Connecticut museum. This is not just a question of materiality—it is a question of how these semiotic categories maintain authority and legitimacy against the many other ways of conceptualizing multispecies relations. How does a mobile creature with its own set of relations become suspended, then reduced into a resource for scientific knowledge and environmental futurity? How are bodily time-scales altered, both materially and conceptually? These processes require transmutations, operations of change that function on both material and semiotic levels.[28] What is epistemologically happening to the specimens of dead birds being brought into collection spaces?[29]

I meet these birds in the midst of one key transmutation—after they have been captured and preserved, but before they have been thoroughly used up by the process of making scientific knowledge. Within the preserved bird bodies of the Peabody's collection, round glass eyes protrude from still bodies, or else overstuffed cotton spills out from empty sockets. The result is a haunting gaze which upsets both sense-able viewer and bird, as the bird's false eye often strains against its physical setting. An attention to sense-ability allows for the disruption of scientific sensory hierarchies, which tend to privilege whoever's eyes can achieve the closest

[28] Haraway, "Situated Knowledges," 588.
[29] Kari Weil in Stephen D. Moore's *Divinanimality: Animal Theory, Creaturely Theology*, (Fordham University Press, 2014), 2.

vision to a god's eye view.[30] Instead, tracing the discomforts of gaze in the ornithology collections brings up a critical aspect of these birds' material-semiotics: their care and keeping.[31]

Given that the objective of preservation animates much of museum care-work, it is critical to consider whose ways of seeing and knowing become mapped onto specimens, provoking both aesthetic and ethical issues in the bird-as-specimen transformation.[32] One might consider the necessary trade-offs that would be made depending on which type of knowing is deemed most valuable (i.e. preserving an object for visual purposes behind a glass case, which eliminates the ability to build non-tactile sensory knowledges; objects for which use-based knowledge was most important find this capacity to be relegated under the colonial hierarchy of senses). In any event, intimacies of the living are lost through specific preservation choices which have high (though often unacknowledged) ontological stakes. It has been my experience that these gaps in different ways of knowing, feeling, or relating with objects make themselves known through haunting moments where (unexpected) affective responses provoke personal critiques of institutional narratives.

It is not my hope to provide an unimpeachable critique of "how science does," but to suggest that there are better questions to ask, that might lead towards practices of learning-with, rather than learning-about.[33] I want to use this thesis to provide an additional entry into the multi-year conversations I have been having with museum staff, curators, and researchers. In 2022, I wrote an essay that tried to name the sensations that invaded me after my first visit to the bird collections at the Peabody. Though I was aware that my essay, "Tenderness and Rot, Or Why I

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[30] Haraway, "Situated Knowledges," 581.
[31] Haraway, "Situated Knowledges," 588.
[32] Boris Jardine and Matthew Drage, "The Total Archive: Data, Subjectivity, Universality." *History of the Human Sciences* 31, no. 5 (2018): 16.
[33] I take the phrase "asking different questions," as well as much of my fSTS knowledge, from Dr. Kalindi Vora's graduate seminar by the same name.

Should Be Allowed to Burn Down the Peabody" would be publicly available, I was still taken by surprise to learn that it had been read and felt by Peabody scientists.[34] More remarkable was that these scientists, some of them just beginning their training, some of them at the pinnacle of their careers, wanted to talk to me, to explain themselves, to help me understand.

A year later, after many conversations, upon which I draw in this essay, it is evident to me that emotions, at times seemingly contradictory ones, are a central dimension of knowledge-making at the Museum. Moreover, conversations that inevitably invoke "trans-species interdependency…hypothesizing cross-species relationality" require a feminist kind of dual attention to alterity and solidarity.[35] Therefore, it is important to clarify that my questions about avian gazes are not an attempt to describe exactly what these specimens were looking at, or what they desire to be looking at, but about what connectivities their haunting gaze(s) might initiate between human and bird eyes, as well as the conditions that these gazes occur under. I find myself working with a more "narrative view of ethics" as a result, not seeking to define or purify "abstract principles or duties," but to reimagine the conditions and complications of our descriptive, affective, and relational capacities.[36]

Part I: Death

Opening to the public in 1876, the Peabody Museum took about $175,000 to construct—equivalent to almost 3.5 million today.[37] Contrastingly, although the total cost of the Peabody's ongoing renovation has not been publicly disclosed, museum officials' statements indicate that it

[34] This essay is available for reference in Appendix A.
[35] Zakiyyah Iman Jackson, *Becoming Human: Matter and Meaning in an Antiblack World*, (New York University Press, 2020) 34; Che Gossett, "Blackness, Animality, and the Unsovereign," *Verso*, 2015.
[36] Brody; Hudson-Jones in King et al, "Sympathetic Vibrations."
[37] "Series II, Box 5, Folder 39," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658

exceeds $180 million dollars.[38] This can be read as an indication of the influx of resources that the Peabody has been able to access as a result of its self-produced scientific knowledge and authority. The beginnings of Peabody-based ornithology came shortly after the museum's opening with OC Marsh's discoveries in avian paleontology.[39] As the Peabody Museum worked to amass specimens, they also archived letters between collectors and curators—providing present-day researchers with insight into which motivations which influenced collecting and preservation. Taking the Peabody as an ongoing intervention into the landscape of human-nonhuman relations means taking its archival history as also being a history of relationships, even when it is not framed as such. Critical readings of these letters and administrative documents provide insight into what was regarded as relevant to the Peabody's projects of knowledge production, scientific professionalization, and university development.

Over half a century after the Peabody's opening, Director Richard Swann Lull penned the 1927-28 annual report to the President and Fellows of Yale University. His report indicates a pressure to conform to "modern museum practice," which "renders it possible to set forth the truths of nature in a clearer way, with less confusion to the average visitor."[40] Historian Steven Conn has written about how "relentlessly empirical, nineteenth-century natural history made a fetish of the observable fact," noting that the American museum's approach linked "the collection of specimens in the field with the study, preservation, and arrangement to specimens by natural historians."[41] Lull had a clear sense of whose categorical and meaning-making

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[38] Mark Alden Branch, "Peabody Museum Will Get an Overhaul," *Yale Alumni Magazine*, February 2019, https://yalealumnimagazine.org/articles/4819-peabody-museum-will-get-an-overhaul.
[39] See Lukas Rieppel, *Assembling the Dinosaur: Fossil Hunters, Tycoons, and the Making of a Spectacle*, (Cambridge, MA and London, England: Harvard University Press, 2019), 4; for more on the extractive economies, such as mining, which allowed Marsh success in American Western paleontology discoveries. Rieppel has also written about Marsh's emphasis on the importance of museum "work-rooms" rather than simply showrooms (62).
[40] "1927-28 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[41] Conn, *Museums*, 33.

abilities should impact the production of "truths" about the world—the Peabody's staff and visiting scientists, so that was who he opened the full collections to. This schism between public and private access to collections continues into the Peabody's present-day organization. Lull offers a view of collections which are good primarily for their ability to represent nature, but without proper translation from institutionally-accredited scientific researchers, will collapse back into the chaos of unorganized nature, from which a layperson could not gain meaningful truths.

One might compare the Peabody's aims with those of the New York-based American Museum of Natural History (AMNH), which was functioning as a "meaning-making machine" under Henry Osborn in the early 20th century; the museum's ability to produce "nature" within urban settings marked it as a potential space for regenerating the values and morality of modern citizens.[42] In this case, as with the Peabody, the kind of scientific meaning-making being done with AMNH specimens impacted which cultural and natural truths could be communicated through objects' metonymy.[43] American elites like Osborn were using 20th century museums to juxtapose "progress" with the uncivilized Other—often portrayed in museums as a melding of racialized human and animal, fused through Euro-American concepts of "civilization" to serve the eugenicist purposes of conservationists.[44] The resulting rhetoric of authority was used to enforce colonial hierarchies, producing both a social and moral incentive towards funding preservation efforts like the Peabody's. Arguments for conservation—as a way to create the natural and cultural heritage which is presently used as a justification for museum collection sustainment—were motivated by the belief that the natural world was vanishing due to

[42] Mitman (1996) in Marianne Sommers, *History Within: The Science, Culture, and Politics of Bones, Organisms, and Molecules*, (University of Chicago Press, 2016), 26.
[43] Curry et al, *Worlds of Natural History*, (Cambridge: Cambridge University Press, 2018) 12.
[44] Sommer, History Within, 27.

technological and intellectual progress. Building the kind of competitive, world-class institution that Lull and other contemporary museum directors strove for required serious buy-in to preservation; one had to believe that it was possible to preserve "not only the conservation of nature and animal species," but also racialized and gendered hierarchies of difference, in order for the museum to function as both a modernizing and moralizing space.[45]

The concept of "public interest" in the nineteenth century had culminated in "its own logic of accumulation" via zoos, libraries, and museums.[46] Yet because museums were perceived by elites as a being the site for social education of the masses, they could assert multifunctional usefulness by demonstrating alignment between the "natural truths" they portrayed about the world and the 20th century "economization of life," which sought to shape economic prosperity through population control measures.[47] In this regard, the Peabody is no exception, and its archives reflect this in ways so blatant they unsettle. A 1932 Peabody curatorial report on economic downturn and high unemployment rates would go on to record that "natural history comes again into its own, bringing interest into lives which have had little time to employ their more 'primitive' instincts of observations… [this] is part of the University's duty to the Commonwealth." The colonial aims of the state, university, and natural history are explicitly-allied interlocutors here, as well as in Lull's 1927-28 report; when I see reports on the Peabody's contributions to Connecticut biodiversity, or Yale's undergraduate programming, I am inclined to remember these archival moments.[48] Just because different language is used to provide

[45] Sommer, *History Within*, 27.
[46] Jardine and Drage, "The Total Archive," 13
[47] Adele E. Clarke and Donna Haraway, *Making Kin Not Population*, (Chicago: Prickly Paradigm Press 2018) 12.
[48] Examples include the Peabody's "Teach with Peabody" resources to engage professors and students in collections-related education, as well as the Peabody Fellows Biodiversity Learning Opportunities Initiative, both of which are education-focused initiatives; Yale Peabody Museum. "Yale Community: Teach with Peabody." Teach With Peabody | Yale Peabody Museum. Accessed April 2, 2023. https://peabody.yale.edu/education/yale-community/teach-with-peabody.

technical framings for these relationships today does not mean that the site-specific linkages of natural history with (colonizing, imperialist, genocidal) state power and the (anti-Black, patriarchal, hierarchical) university have been severed.

Lull's report states that the Peabody's "exploration funds are… necessary" to "maintain its position in the scientific world," as "the Peabody Museum is so eminent that it cannot be allowed to regress."[49] He implies that exploration entails potential acquisition, both of specimens and of the potential knowledge to be gained through those specimens. This kind of rhetoric hinges on a sense of teleology, that progress and knowledge have a linear, advancing path. Regression, on the other hand, could be understood as losing scientific status. This loss would threaten the museum's capacity to support state and University objectives towards biodiversity and sustainability, as well as produce relevant scientific knowledge—and thereby would be a step backwards, away from the "modern museum" that Lull sought to burnish.[50]

Despite significant renovations resulting from Lull's appeals, the room intended for taxidermy remained "dark and inconvenient," given its unfortunate location in the Peabody's damp, artificially lit basement.[51] These conditions made James Morrill, the Peabody's taxidermist and preparator, quite ill, hindering his work.[52] Lull suggested a new room be found for this work, giving no consideration as to what assumptions underwrite taxidermic preservation in the museum setting—having first rendered the birds as inert specimen-objects, now threatening Morrill's own liveliness. Indeed, there is a tension between maintenance (of the past) and modernization in Lull's requests; ultimately, a desire to preserve or maintain what has

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[49] "1928-29 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[50] Consider programs such as the Peabody's "Biodiversity and Human Health Program" through the Science Education Partnership Award.
[51] Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[52] *Ibid*.

already been done turns into a preservation of the initial motivations behind it (i.e. exhibiting nature, protecting collections)—while modernizing the format.

Lull's 1928-29 and 1929-30 Director's Reports reveal that his arguments for progressive development, usefulness, and aspirational "perfection" as an "ideal museum of natural history" had been effective; Yale authorized multiple expansions of the Peabody.[53] Even so, material conditions failed to reflect the University and museum's visions of controlled, sensible scientific work. For one, the institution was becoming so overcrowded with specimens as to present an actual hazardous obstacle to employees and researchers. I consider this physical straining of the museum's infrastructure as a poetically physical critique of collecting practices. One could say that this critique was mandated by the constraints of the building itself, in response to disparities between scientists' intentions and resources.[54] In 1928-29, the vertebrate paleontology and osteology department were so full that it was "a problem to keep pace with the normal accessions necessary to keep this museum in the forefront of scientific investigation."[55] Even though there were no spaces to lay out specimens for study, accumulation continued in order to provide the Peabody with a more complete archive to support scientific progress.[56]

Within the report rhetoric, there is no note of environmental impact of taking specimens, nor the relationships that made collecting possible, nor potential knowledge lost through the de-contextualization of specimens. Though Lull persistently tried to anticipate arguments against funding the museum's work—he did not expect that the ethos of collecting he was advancing

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[53] Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[54] "1935-36 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[55] "1928-29 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[56] "1932-33 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658

would at all perturb university leadership. (He was correct.) In these and the following years, the ethos of accumulation to create a total archive remained so strong that directors found ways to physically plan for storing not-yet-obtained specimens, though these specimens would only make their way to the public through scientific research rather than exhibitions.[57] The authority of possessing a "total archive" explains one powerful motivation for amassing specimens to fully represent the world and its interrelations. In general, museum attempts to create these total archives reflect a paradox of biological sciences, simultaneously seeking to represent complete systems of evolutionary knowledge while being premised on the idea that life is dynamic, ever-changing, evolving, and disappearing.[58] The 20th century archive of specimens within the Peabody existed not only for public education or entertainment, but for the production of scientific knowledge and authority. Though a precious few would be arranged into lifelike form for display, by in large, specimens were, therefore, treated as inert, lifeless, and solely for museum usage.[59]

By the time that Stanley Ball wrote the 1936 Director's Report, the museum had "literally reached an impasse" due to specimens overcrowding all available storage space.[60] This moment of impasse, where the museum's desire to accumulate seriously outpaced its storage capacity, raises questions of motivation(s) and of specimens' imagined futurity. Material limitations had

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[57] "1937-38 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658; I see parallels in the Peabody's present-day operations wherein there continue to be concerns about running out of space, leading to ornithology's spirit specimen birds and mammals moving to West Campus. From Prum, research interview with author, New Haven, CT, July 7, 2022.

[58] Jardine and Drage, "The Total Archive," 1.

[59] Donna Haraway, *Primate Visions: Gender Race and Nature in the World of Modern Science,* (New York: Routledge, 1989); Donna Haraway, "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908-1936." *Social Text*, no. 11 (1984): 20–64; Poliquin (2012); Daston (1992); Patchett (2010, 2012); Conn (1988); Strasser (2010, 2012).

[60] "1936-37 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658

bumped up against administrators and scientists' desire for both accumulation and control. The resulting physical impasse is tense and awkward; it strains against attempts to separate nature and culture into distinct entities for study.[61] Even as scientists asserted their authority through meaning-making processes at the museum, they were challenged by processes of decay, material rupture, and infrastructural overflow. When exhibit specimens faded, they were no longer suitable for public educational efforts, and had to be replaced.[62]

All projects of the museum demanded additional specimens, as it attempted to prove itself to be a site that could transmute nature into factual knowledge. At this time, the idea of "pure nature" had been—and continues to be—a powerful rhetorical tool for legitimizing both scientific knowledge production and the colonial state. However, this staging ignores the way that scientific work fractures "nature" into multiple, culturally-specific concepts: unmediated nature, nature as science in action, and the scientific archive of nature.[63] Amidst administrative and scientific pressure to produce research from collections, perceptions of what specimens could *be* (ontologically and epistemologically) were limited, and informed by impossible ideals of "pure nature."

The social authority of science was not only used as a veneer for increasingly extractive westward expansion and "development;" the idea of "scientific expeditions" also provided cover for military missions who could bring scientists along in order to disguise their more outright

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[61] Donna Haraway, *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. Vol. 1, (Chicago: Prickly Paradigm Press, 2003).
[62] "1927-28 Director's Report," and "1934-35 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[63] Jardine and Drage, "The Total Archive," 2; Stengers (2011) in Banu Subrahamian, "Red Queen Runneth," in *Ghost Stories for Darwin: The Science of Variation and the Politics of Diversity* (University of Illinois Press, 2014), xii.

violent work.[64] Dillon Ripley, after arriving at the museum in 1946, brought in nearly 100,000 specimens;[65] his work within American intelligence in Ceylon, Burma, and India allowed him to visit areas which were otherwise closed to westerners to gather many of these specimens.[66] Violent campaigns against Indigenous-held lands and communities have been intertwined with ambitions of collecting "nature" before it vanishes; collections have continually been a site of scientific and racial violence as Indigenous remains were stolen from resting sites to be used in scientific projects that "reinforced existing and emerging colonial power dynamics veiled as scientific and social progress."[67] As Ripley later wrote, "The use and utility of collections are validated [by research] … and will continue to be so long as our culture survives."[68] The Peabody had indeed created a culture of accumulation and extraction which was not unusual for American museums in the twentieth century. Still, the entanglements between the drive for a total archive and capital accumulation have not been meaningfully addressed by current museum administration—beyond creating additional storage space (mirroring the institution's administration a hundred years prior).[69]

The resulting orientation to the nonhuman world as a resource to be extracted has undeniably shaped the imaginations of those disciplines which operate in museums today.

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[64] Mark Velpeau Barrow, Jr., "Birds and Boundaries: Community, Practice, and Conservation in North American Ornithology, 1865-1935," (Harvard University, 1992) 417; Nicholas Mirzoeff, "The Whiteness of Birds," *liquid blackness*, 6:1 (2022) 122.

[65] Sibley also had many collectors working on his behalf, and purchased collections from private collectors. In some years he added over 12,000 specimens a year. Much of the Peabody's ornithology specimens are from this era. From Kristof Zyskowski, research interview with author, New Haven, CT, June 21, 2022.

[66] Frederick R. Davis, "The History of Ornithology at Yale University and the Peabody Museum of Natural History," in Davis, W.E., & Jackson, J. (Eds.), *Contributions to the History of North American Ornithology, Volume II* (2000), 96.

[67] Henry M. Reeves, "Once upon a Time in American Ornithology." *The Wilson Journal of Ornithology* 118, no. 1 (2006): 117; Samuel J. Redman, *Bone Rooms: From Scientific Racism to Human Prehistory in Museums*, (Cambridge: Harvard University Press, 2023) 6.

[68] Ripley et al. (1960) in Davis, "History of Ornithology," 99.

[69] The Birds of Connecticut Hall closure in the 2024 reopening has led to additional movement of specimens to Yale's West Campus, which helps store Peabody overflow. From Prum, research interview with author, New Haven, CT, July 7, 2022.

Although Parr took over the Director's Report for 1937-38, previous themes of preservation, progress, and protection remained consistent influences on the museum's mission, implying that although the identities of museum actors varied, the institutional narratives would remain consistent. That these ambitions had superseded their individual advocates should encourage scrutiny towards how they live on in current-day infrastructure and collection management at the Peabody.

Part II: Preservation

Growing the Collection

The 21st century concept of the "global museum" and the universal data-sharing that it engenders has altered both curators' relationships with one another, with specimens, and the ecologies that they encounter.[70] Now, curators at the Peabody describe inter-museum efforts as "complementing each other" through the creation of online databases to show which species are represented.[71] Online spaces allow museums to share ornithology resources and data (i.e. measurements, scale, color pattern, sounds), in the service of scientific knowledge-making projects. This kind of information influences future trips to complement the holdings of existing collections.[72] However, these collaborative efforts raise questions about how institutional histories and situated knowledge-making practices are influencing *what* exactly is preserved. I argue that the material practices of preservation at play in the Peabody are epistemologically

[70] Kirk R. Johnson, Ian F. P. Owens, and the Global Collection Group, "A Global Approach for Natural History Museum Collections," *Science* 379, no. 6638 (March 24, 2023): 1192–94, https://doi.org/10.1126/science.adf6434; Karolina Majewska-Güde. "The Idea of the Global Museum." *ARTMargins*, February 14, 2019. https://artmargins.com/the-idea-of-the-global-museum/.
[71] Zyskowski, research interview with author, New Haven, CT, June 21, 2022.
[72] And what exactly is being collected? "Specimens" includes "spirit" specimens in jars filled with ethanol, cleared and stained materials (anatomical parts), skins, skeletons, nests, eggs, and birds mounted (i.e. marbles in their eyes). From Prum, research interview with author, New Haven, CT, June 7, 2022.

entangled with processes of preserving particular relationalities.[73] That is to say, rather than understanding the museum's laboratory as a place where objectivity can engender the teleological progression of more and more technical fact-finding missions, I see the Peabody's constricted imagination as reproducing gaps in ethical consideration into the present (i.e. the limiting of moral concerns to biodiversity, rather than site-specific collecting ethics or interspecies obligations to decomposition, as described in the next section).

Collecting as a material process is today portrayed by the Peabody's internal actors as integral to the ornithology department's mission insofar as it enabled critical care, continuation, and outreach.[74] The ornithology department's head curator argues that because "the culture of curation and, and research is tied to [the collecting] process…it would be very hard to maintain an intellectually vibrant museum that did not continue to have some kind of acquisition function."[75] As the Peabody's archives indicate, many of their collecting sites and practices overlap with military, colonialist, and conservationist endeavors, all of which have engendered unique motivations for "mapping the world."[76] Therefore, arguments that collecting trips help "document a period of time," or "make permanent additions to biodiversity knowledge" are not ethically neutral.[77] Collecting continues to be portrayed as a positive act juxtaposed against death wrought by habitat destruction or the pet trade.[78]

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[73] Or, as in Joanna Radin's "Planned Hindsight," (2015), what is preserved is also the "wildly divergent speculative visions" of individuals involved with collection and maintenance.
[74] Zyskowski, research interview with author, New Haven, CT, June 21, 2022.
[75] Prum, research interview with author, New Haven, CT, June 7, 2022.
[76]Alexander Zaitchik. "How Conservation Became Colonialism." *Foreign Policy*, July 16, 2018. https://foreignpolicy.com/2018/07/16/how-conservation-became-colonialism-environment-indigenous-people-ecuador-mining/; Haraway, "Situated Knowledges," 598.
[77] Prum, research interview with author, New Haven, CT, June 7, 2022.
[78] Zyskowski, research interview with author, New Haven, CT, August 4, 2022; This distinction is also made in Mearns, *Bird Collectors*, p. xi.

However, because the collection aspires towards completeness in its species representation, it also threatens itself by making itself useless if it does not continually collect, keeping an up-to-date record of its death-work. The present material existence of the collection reinforces the need for itself and its growth, in order to accrue future value. Idealizations of a future "completeness" have long animated collectors, drawing North American collectors into Latin America, "where the possibility of discovering new species and subspecies was much greater and the restrictions on collecting were fewer."[79] The impossible fantasy of the "total archive" is alluring, often leading 21st century scientists through the same routes as imperial collectors. Though today's researchers might arrive with differently stated intentions, the material impacts and ontological categories evinced by collecting have a haunting absence of relations.[80]

Even with increased access to collect specimens in Latin America as a result of these colonial legacies, curators today express dissatisfaction with the constraints imposed by legal restrictions on specimen collection.[81] In one instance, these restrictions meant that the Peabody's ornithology collections manager, Kristof Zyskowski, had to leave behind a specimen unique to eastern Paraguay; when he returned years later to recover it, it was nowhere to be found. Zyskowski's frustration with the specimen's disappearance reminded me of archeologist Robert Marx's 1960s response to Jamaican laborers obstructing his collecting efforts by dumping "recovered" artifacts back into the ocean.[82] Marx had been not only upset, but rather amazed to hear that no preservation work had been, or would be, done with the artifacts. Moments of loss,

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[79] Barrow, "Birds and Boundaries," 527; Laurelyn Whitt, *Science, Colonialism, and Indigenous Peoples: The Cultural Politics of Law and Knowledge.* (Cambridge: Cambridge University Press, 2009) 134.
[80] Jardine and Drage, "The Total Archive."
[81] This includes the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), as well as country-specific requirements for collectors to work with host-country institutions to share specimens.
[82] James Delbourgo, "Divers Things: Collecting the World Under Water," *History of Science* 49, no. 163 (June 2011): 177.

like those experienced by Marx and Zyskowski, are often perceived as a failure by museum actors. Having failed to preserve the object, the scientist's responsibility to producing knowledge has not been fulfilled. However, this hyper-focus on preservation as a moral imperative obfuscates a more complex set of interrelational responsibilities which exist between collectors and specimens.

Zyskowski explained to me that the most impactful limiting factor on collecting trips is generally not money, but "time and permits… multiple visits to the country to negotiate the permits… [with] some intellectual partner in the country… as a co-sponsor for your research."[83] While this regulation is certainly regarded as frustrating by collectors, it is also used as a shield to defend against accusations of over-collection, and to mark collecting as distinct from other extractive practices. Even so, bird collecting involves the same "maps, plats, titles, and other apparatus of bureaucratic colonizing" as other "raw materials" in the "extractive zone."[84] These dimensions of collected material objects, entangled as they are with processes of extraction, are relevant to the science that they help produce. At the same time, climate change and resource extraction are leading to increased destruction of natural habitats, "it is no longer possible to collect birds at the same scale, making collections irreplaceable."[85] The same resource extraction mindset which positions the world as use-full and use-able, rather than relational, incentivizes scientists to see bird specimens as containers of value.

Tensions between unprincipled and principled collecting, which emerged during nineteenth-century debates about bird protection, continue to influence portrayals of

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[83] Prum, research interview with author, New Haven, CT, June 7, 2022.
[84] Mirzoeff, "Whiteness of Birds," 121.
[85] WRJ Dean, *Warriors, Dilettantes and Businessmen: Bird Collectors during the Mid-19th to Mid-20th Centuries in Southern Africa. Cape Town*: (JVBBF, 2017) 1. I argue that the current environmental predicament has gone along with a shift in scientific desirability of specimens that has not necessarily included an examination of collections' roots or the diverse motivations animating ornithology's scientific practices and relationships.

ornithological research.[86] Although some have argued that bird collectors "should be judged according to their own time and culture;" collections work is not a project located exclusively in the past; neither is it an ahistorical project.[87] These narratives of justification, while preserved within research methodologies and collection practices, can be (with effort) malleable and open to shifting ideas of what ornithology could be. This felt increasingly evident during my conversations with the Peabody's Ornithology Curator, Rick Prum, about his decision to understand bird specimens as historical individuals, as well as when I heard evolutionary ecologist and PhD candidate Liam Taylor's argument for "thick description" in ecological fieldwork at the Peabody.[88]

From arguments about principled and unprincipled collecting, a metric of whether collecting was ethical emerged: was it "scientifically legitimate?"[89] This metric did not engage questions of values in the sciences, nor did it seriously challenge the ethos behind commercialization which bird conservationists in the 19th century so derided. When ornithologists seeking to "distance themselves from all forms of commercial natural history" indicated their success through the decline of the taxidermist trade, the Bird Protection Committee's 1898 report quoted a "disgruntled taxidermist" asking "what's the birds for if they ain't to be used?"[90] But scientists weren't challenging that birds were for usage—they were arguing that there were more ethical uses, which only their scientific expertise and

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[86] Barrow, "Birds and Boundaries," 468.
[87] Mearns, *Bird Collectors*, 1; The conversation about the ethics of collecting tends to raise an important, but limited set of questions. I am interested in the ethics of preservation, which steers away from the rather over-hashed ethical debate out of whether scientists should or should not collect, because I think that questions of preservation approach the same issues without erecting artificial distinctions between commercial or non-commercial exploitations of the world; instead, I would rather focus on the systems of domination which enable these exploitations.
[88] He draws the idea of thick description from Clifford Geertz's scholarship, such as *The Interpretation of Cultures* (1973), and while I cannot cite Liam's unpublished writing on the topic, I hope that he will soon produce an article that you can find yourself.
[89] Barrow, "Birds and Boundaries," 479.
[90] See Stone's "Report [for 1898]," *Auk* 16 (1899): 59 in Barrow, "Birds and Boundaries," 474.

professionalism could accomplish/achieve/access. The parallels between these historical arguments and contemporary attempts to distinguish scientific collecting continue to be caught in this tense, one-way, spiral. Where scientific knowledge production is used as a moral justification for amassing specimens, I often found that preservation functioned as the link between these two. Given the contemporary ecological crises which face our world and disproportionately threaten populations, communities, and lifeways in the Global South, ornithologists have a stronger case than ever to argue that the "opportunity for knowledge is disappearing…it can be considered a scientific ethical responsibility to try to preserve that knowledge, as potential."[91]

Creating Use and Knowing Value

As I suggested in the previous section, arguments for the necessity of collections hinge on the production of scientific knowledge, which I use here to mean a kind of specialist knowledge about birds that can only be passed down through a combination of formal, informal, educational, and fieldwork contexts. Because of this, it has been logical for past Peabody leadership to argue that "certain fields of science involve the study of material objects and can be developed only where large collections are available for study and comparison," thereby justifying the resources needed to ensure proteges' absorption of factual knowledge, and confirming that the museum's goals are aligned with Yale's: "the stream of students that have trained in these halls and have gone out to positions of prominence, indicates how well Peabody Museum has served the purposes of the University."[92]

[91] Prum, research interview with author, New Haven, CT, June 7, 2022.
[92] "Director's Report, 1945-46," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658

The preservation of bird specimens allows curators to produce value through knowledge—not just in the present, but in a speculated future, where new technology is imagined to be ever-developing. Zyskowski told me, "I really have a hard time explaining to people the power of a physical object that you have in the collection, in being informative for centuries in new and new ways. And the photograph and 3D thing that you take, being so incomplete."[93] Knowledge, in this sense, can be created by people making observations, measuring bones, measuring colors, and integrating metadata, among other methods.[94] This knowledge is the result of the collection's mission: "to further research and education on birds," which is then redistributed across various axes through student projects with specimens, initiate public or community education events, and facilitate volunteer opportunities to unite people with the museums.[95] While the literal methods of engagement are preserved, as I have been arguing throughout, the relationships and structures that make these interactions possible are also preserved.

Regarding the dynamics which alter relationship-making within museum science work, Prum noted that, "the first thing is, people who are in the space, have to immediately learn enough to not disrupt our curatorial practice… they're trusted because they've learned the core values of how to how to deal with and handle the specimens."[96] Simultaneously, he emphasized the "extraordinary accessibility" of the space to "anyone who is willing to understand the things and has the knowledge to get in there and do science," given individuals' "demonstrated knowledge of what it is that we're about, and how the things are being preserved."[97] When I

[93] Zyskowski, research interview with author, New Haven, CT, August 4, 2022.
[94] Prum, research interview with author, New Haven, CT, June 14, 2022.
[95] Prum, research interview with author, New Haven, CT, June 7, 2022; Zyskowski, research interview with author, New Haven, CT, June 21, 2022.
[96] Prum, research interview with author, New Haven, CT, June 14, 2022.
[97] Prum, research interview with author, New Haven, CT, June 14, 2022.

asked about the relationships which structure laboratory and museum practices, both Prum and Zyskowski were inclined to consider human, rather than nonhuman, relationships. One reason given for this was that "the birds are already dead, and it's kind of hard to develop a relationship," although one could ostensibly still have "some sort of realization of the extent of the diversity and beauty."[98] The ontological dimensions of the collection, its ways of drawing boundaries between life and death, relation and anti-relation, become increasingly clear in moments such as these, and the haunting parallels to the Peabody's earlier Commonwealth education and colonial research projects thicken the air.

Although these relationships structure the bulk of ornithologists' everyday work, their purported lack of affective dimension decreases the number of actors who are imagined to be in the space. The conditions of specimen value are impacted by the discoveries that they make possible, to the point that "destructive sampling" requests, those that will in some way diminish the integrity of the sample, are evaluated for their potential contributions to ornithological knowledge.[99] A successful destructive sampling might establish "a connection between [additional] data and the specimen," which enhances the value of the specimen, "connecting that specimen to knowledge, to some web of understanding, to some web of interpretation, and obviously one measure of the thriving of the institution is the vigor and the ongoing engagement with that, the development of that."[100] The Peabody, in ways that are consistent with many other museums of its stature, opts to use specimens in a way that maximizes or expands their "value," by considering rarity (which correlates with value, as there will be "few other opportunities to do

[98] Zyskowski, research interview with author, New Haven, CT, August 4, 2022.
[99] Prum, research interview with author, New Haven, CT, June 7, 2022.
[100] Prum, research interview with author, New Haven, CT, June 7, 2022.

that science") and the quality of original data (which cannot be generated later, "after you've lost it or never had it").[101]

Type specimens—the first known specimen of an organism—also take on additional value, as they are irreplaceable and metonymic. The museum collection provides a format to understand specimens against one another in order to contextualize them; specimens make other specimens "valuable" and "relevant."[102] Moreover, they become "critical to maintaining order, and deciding priorities," because DNA can be sequenced to answer questions such as "where does it come from in the world," or "what does this represent?"[103] It can be argued that the concept of "value"—which is operating on multiple levels, including administrative, economic, and scientific—operates as a constrictive metric, forcing the birds' bodies to be objectified. These present-day curatorial practices and judgements of use-fullness do not challenge the bird bodies' material-semiotic presence in the museum-laboratory.

Because the collections are portrayed as a kind of "heritage," the museum effectively "recreates a place to 'discover' materials."[104] Within the Peabody's collections, this ethic of discovery was described as "new opportunities" that one might "stumble upon" which prompts the realization that collections' "excitement and value is…unlimited."[105]A recent "surge of interest" around collecting came up in the late 1990s; natural history museums are now "experiencing a revolutionary rebirth," being portrayed as spaces with the "potential to become a network of fact-based reality in a post-truth world."[106] Moreover, the desire to collect previously unrepresented taxa still animates collecting impulses, contributing to the idea that there is an

[101] Prum, research interview with author, New Haven, CT, June 14, 2022.
[102] Strasser, "Collecting Nature;" Prum, research interview with author, New Haven, CT, July 15, 2022.
[103] Prum, research interview with author, New Haven, CT, July 15, 2022.
[104] Dorfman, *Future of Natural History Museums*, xviii; Dean, *Warriors*, 1.
[105] Prum, research interview with author, New Haven, CT, June 14, 2022.
[106] Dean, *Warriors*, 4; Dorfman, *Future of Natural History Museums*, xix.

unexplored and wild world still waiting for those smart enough to find it. The materiality of the collections positions them as potentially unlimited resources for the future, as long as they are well-preserved. Zyskowski tells me that, "I don't even think that it's important to immediately have all these uses. Sometimes those uses will become possible or be discovered…because those things are available, in existing collections."[107] In this view, the museum can function as perpetual crypt, a place of hallowed (not haunted) ways of knowing. The veneer of respect and care that extinction discourses offer to collecting practices effectively limit the terms of debate on collecting.

Across museums, the argument that "science has learned all it can" from specimens has been used to push for myriad de-accessionings.[108] What this argument fails to anticipate is that evolving technologies have long been used to adjust the scale of scientific observation; thereby, an institution like the Peabody, which offers "direct engagement with the materiality of birds," has only interpreted such critiques as a challenge to become more extractive.[109] Without recognition that the concept of specimen "value" has been socially, economically, and culturally influenced, museum aspirations will continue to reflect the desire to see scientific evolution and tools "create new value that we didn't even realize was there."[110]

Preservation as Care as Maintenance

During my time at the Peabody, the topic of care proved to be particularly provocative. My academic training in feminist studies, as well as my community organizing experiences have led me to agree with bell hooks' claim that love is a commitment shown through acts (rather than

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[107] Zyskowski, research interview with author, New Haven, CT, August 4, 2022.
[108] These debates arose in the context of Charles Bryne's skeleton, the ethics of which Prum and I discussed at length; Claire Moses, "London Museum Removes 'Irish Giant' Skeleton from Display." *The New York Times*, January 21, 2023. https://www.nytimes.com/2023/01/21/world/europe/charles-byrne-irish-giant-museum.html?searchResultPosition=2.
[109] Prum, research interview with author, New Haven, CT, June 7, 2022.
[110] Prum, research interview with author, New Haven, CT, June 14, 2022.

an intangible feeling); love is a way to nurture and dream of mutual flourishing, meaning that "we cannot claim to love if we are hurtful and abusive."[111] However, love and care were both motivations consistently articulated by my interlocutors at the Peabody (the same ones who were responsible for killing and holding onto these birds). Furthermore, feminist studies of care have proposed that in between the "affective sides of care (love and affection, for instance)" and "care as a work of maintenance," there exist both ambivalent and "unsolved tensions and relations."[112]

To take preservation as a work of care-full maintenance requires consideration of its violent dimensions, which curiously coexist alongside and within articulations of deep and meaningful care. Bird specimens gathered through collecting trips are commonly killed by one of two means: "dust-shot" shotguns, or nets laced with lethal chemicals.[113] Preservation interferes with the process of decay, a rich and generative transmutation that brings a diversity of bodies back in connection with one another so that they might find new ways to help one another flourish.[114] To follow Metis scientist Max Liboiron's lead, and think of care "as an affective relation whose leading ethic is to create attachments within infrastructures of inequity," I consider preservation in this context to be a non-innocent gesture of care.[115] Given the immense amount of government, private, and scientific resources dedicated to preservation, it is worth considering what exactly we are trying to hold on to. While the history of museum endeavors appears to be premised on the implication that science is an aperspectival and progressive project of preserving the world's truths, there are those within the museum who agree that the situated

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[111] bell hooks, *All About Love: New Visions*, (New York: William Morrow, an imprint of HarperCollins Publishers, 2000); bell hooks, *The Will to Change: Men, Masculinity, and Love*, (Washington Square Press, 2005) 65.
[112] Tronto (1993) in Puig de la Bellacasa, *Matters of Care*, 5.
[113] Dean, *Warriors*, 10.
[114] Joanna Radin, "Rot." *The Multispecies Salon*, 2015.
[115] Max Liboiron, "An Anticolonial Pollution Science" in *Pollution is Colonialism*, (Duke, 2021): 114; Haraway, "Situated Knowledges," 579.

project of ornithology should be appraised differently.[116] As Prum puts it, "This is [an] enterprise dedicated to preserving and to investigating the world in a way that takes lives… I think it's actually healthier on the inside and on the outside for that to be understood."[117] Reckoning with concepts of care in the museum laboratory and collections requires an attention to violence.

So, what is being preserved—is it the physical body, the whole species, a future opportunity to do science, the idea of "birds," or a documentation of how ecologies were in the past? As Prum puts it, "what we're really preserving is material genotypes and phenotypes."[118] As such, strategic choices must be made about how to "do" preservation. Depending on what is being preserved—both ideologically and materially—the critical aspect of the bird body shifts. Prum describes these choices, saying that "a study skin is going to, you know, eliminate a lot of the soft internal anatomy, the spirit specimens have all of that, but the feather colors themselves will degrade in the fluid… The frozen tissues preserve a little piece of the body, but not the plumage or the feathers… A lot of the constant decisions that Kristof and I are making are, what is the most useful, scientifically useful thing to do in this condition? Do we preserve it this way?"[119] Additionally, the "quality of science" to be done in the future is dependent on what data the specimen carries with it, either in its physical form or via accompanying information (i.e. a descriptive tag, digital record, or metadata).[120]

What enables specimens to become "forever" objects? According to Prum, "specimen survival is indefinite, as long as the culture is maintained."[121] While acknowledging that that "obviously requires preservation of the environment and temperature and [being] bug free," he

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[116] Daston, "Objectivity," 597-618.
[117] Prum, research interview with author, New Haven, CT, June 7, 2022.
[118] Prum, research interview with author, New Haven, CT, June 14, 2022.
[119] Prum, research interview with author, New Haven, CT, June 14, 2022.
[120] Prum, research interview with author, New Haven, CT, June 14, 2022.
[121] Prum, research interview with author, New Haven, CT, June 7, 2022; I sense an echo (or haunting, or preservation) of Dillon Ripley's comment on culture within these words as well.

argued that "the biggest threat to [specimens] is the degradation of the cultural commitment, or the intellectual commitment to the mission, which is one of the reasons why doing science enhances the likelihood that they'll be here."[122] If the creation of meaning and value in the museum and its laboratory requires considering how culture and materialism intertwine, then so too does preservation. The Peabody's Alcohol Room archives note that "anatomical specimens, unlike study skins, are actually 'consumed' in the course of normal use," which begs the question of what is ontologically being "consumed."[123] The same archival source notes that "no better fate can befall the alcohol specimen than to be much cut up and have many parts removed for examination. Sitting in its jar, the specimen is not fulfilling the objectives of its collector."[124] These objectives can only be pursued via consumption—of life, scientific knowledge, materiality, and any lingering liveliness.[125] But before this consumption can occur, the specimen must be preserved: ossifying not just the avian fragments but also any narrative associated with what the bird is, or could be. Therefore, it also removes flux and fluidity from the question of what responsibilities a researcher or museum might have towards the specimens they work with.[126]

Part III: Arrangement

Because prominent curators from across the natural history museum scene are presently looking to make their museums "relevant, forward-looking, and exciting to visit," the question of

[122] Prum, research interview with author, New Haven, CT, June 7, 2022.
[123] "Miscellaneous Alcohol Room Information," Vertebrate Zoology, Peabody Museum of Natural History, Yale University.
[124] "Miscellaneous," Peabody Museum of Natural History.
[125] Here, I use liveliness to reference asymmetries, disruptions, and difficulties created by the bird's seemingly unfortunate and arguably agential material processes. There will be more on this shortly, in the *Arrangement* section.
[126] See Gordon, *Ghostly Matters* for more on haunting; Eli Burke, "Intuition and Vulnerability: A Queer Approach to Museum Education," *Journal of Museum Education*, 45:4 (2020), 404.

arrangement inevitably arises.[127] I draw the concept of arrangement from the Peabody's archival descriptions of how dead birds must be carefully manipulated to prevent specimen damage.[128] How might (haunted) researchers at the university arrange ourselves—knowing that any collective "we" is still a disparate, heterogeneous group—in relation to the university's collection histories, material-semiotic preservation projects, and "specimens" themselves? Moreover, the concept of "arrangement" is a way to gesture towards curators' imaginings of what narratives and relationships exhibitions can demonstrate.[129] Because natural history museums are lauded as spaces with representative power, able to "integrate rational thought with the understanding of natural and cultural worlds," those who work in and around museums might aspire to a re-arranged analytic that approaches specimen relations as sense-able things: full of ethical implications, affective dimensions, and liveliness.[130]

In 1925, the Peabody's acting director Dr. Richard S. Lull wrote to the Charleston Museum's "Preparation Department," thanking them for the 3 boxes of "Cypress Swamp" specimens sent to New Haven. The enclosed bodies of herons "particularly delighted" Lull, being that they were "beautifully mounted, being just in the positions [wanted]." Contrastingly, the "alligator's head was in rather bad condition…but the defects can be remedied, and we shall make use of the specimen."[131] Lull's letter provides a useful demonstration of how education, institutional association, and white settler conventions around relating to the "natural world" help to create distance between those who accumulate and the violence required for accumulation efforts. Whereas an affective response that acknowledged the specimens' liveliness would run

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[127] Dorfman, *Future of Natural History Museums*, 117.
[128] "Miscellaneous," Peabody Museum of Natural History.
[129] For more on this, you might consider Kara Bland's chapter in Dorfman's *Future of Natural History Museums* where Bland writes that birds should be in a lifelike position to indicate which traits they possess(ed).
[130] Dorfman, *Future of Natural History Museums*, xviii.
[131] "Curator's Meetings," Peabody Museum of Natural History, Yale University, Records, Box 5, no. Series Accession 19ND-A-146. Records of the director, Circa 1866-1959 (n.d.).

the risk of disrupting this distance, Lull's cool "delight" and appreciation for the specimen's deathly-beauty are important parts of legitimating museum actors' control over the unruly liveliness of the world.[132] One is inclined to wonder—how could a natural specimen be defective? And why is that defectiveness an issue, rather than a demonstration of diversity?

Twentieth-century museum leadership believed that the Peabody was "essentially a three-dimensional visual textbook of Natural History," at distinct odds with "fantasy and folklore…[which] hinder the dissemination of [emphasis added] *real* information."[133] American curators since the nineteenth century had been working from the "belief that objects, at least as much as texts, were sources of knowledge and meaning."[134] Processes of accumulation, as well as the new system of relations that museums created for its specimens within the museum-laboratory and collection infrastructure, determined what stories about the natural world these objects would be made to represent.[135] As Nicholas Mirzoeff has argued, this kind of narrative education in museum settings effectively "teach[es] children both that the role of nonhuman life is to die and that they are to be its killers."[136] Collectors' values were encoded into these educational projects, but also into the scientific structures and practices being normalized within the Peabody.

This project of encoding is evident in letters between Dr. Lull and George L. Buist, an attorney who helped the museum procure "Cypress Swamp" specimens. In May of 1925, Buist wrote that "Mr. Sprunt, of the [Charleston] Museum force with the assistance of three negroes

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[132] Simon Gikandi, *Slavery and the Culture of Taste*, (Princeton University Press, 2011); "Collecting Nature," 13.
[133] "1937-38 Director's Report," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658; "Parr to Irwin Allen, 1954," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658
[134] Conn, *Museums*, 4.
[135] Strasser, "Collecting Nature," 320.
[136] Mirzoeff, "Whiteness of Birds," 129.

then commenced skinning the alligator. They removed the entire skin from the body, severed the four legs, pulled the skin back to the base of the head, and then chopped the head from the body."[137] Buist's writing not only echoes the racialized and gendered trope of scientific assistants' work and skill going unnamed in social spaces (and more often, entirely unmentioned within records), but also reinforces white supremacist notions of biologically encoded racial hierarchy.[138] On this point, Zakiyyah Iman Jackson writes that "repudiation of 'the animal' has historically been essential to producing classes of abject humans."[139] Discrepancy and self-distance from the "animal" is constructed within both Buist and Ball's letters, through the referential conventions of naming. As Mirzoeff has written, the colonial gaze would see animals classified and killed, turned into an extractive commodity that has the capacity to contain and express "'higher' values of aesthetics."[140] This interdependent relationship between colonialism, the extraction of liveliness, and bureaucracy has been remarked upon by multidisciplinary scholars.[141]

Despite attempts to control liveliness, there are undeniable moments of ferality throughout the archives. Buist writes that, "Mr. Sprunt happened to stick the toe of his boot against the [alligator's] apparently lifeless jaw. Instantly, the jaws snapped together, catching the boot with such force as to drive the teeth through the heavy boot … a startling example of the

[137] "Curator's Meetings," Peabody Museum of Natural History, Yale University, Records, Box 5, no. Series Accession 19ND-A-146. Records of the director, Circa 1866-1959 (n.d.).
[138] David N. Livingstone, *Putting Science in Its Place: Geographies of Scientific Knowledge,* (Chicago: University of Chicago Press, 2003), 24; Steven Shapin. "The Invisible Technician." *American Scientist* 77(6): 554-563 (1989).
[139] Jackson, *On Becoming Human*, 15.
[140] Mirzoeff, "The Whiteness of Birds," 120.
[141] See Nancy Joy Jacobs, *Birders of Africa: History of a Network*, (Cape Town: UCT Press, 2018); Jonathan Goldberg-Hiller and Noenoe K. Silva, "Botany of Emergence: Kanaka Ontology and Biocolonialism in Hawai'i" *Native American and Indigenous Studies* 2:2 (2015): 1-26. (2015); Mearns' *Bird Collectors* (1998); Whitt (2009); Strasser, "Collecting Nature," 313.

persistency of post-mortem reflexes in this form of life."[142] It appears possible that the rescue of Mr. Sprunt's foot was what caused Lull's aforementioned specimen damage. Rather than present a damaged alligator body along with the story of its capture (including the multilayered violence necessary for its production), the defects had to be rectified by Peabody staff so that the alligator could be imagined (by Northern visitors) as a neutrally-natural and representative ambassador of South Carolinian ecology. Furthermore, the labor of Black people required to strip this specimen down has been completely erased from the narrative by the time that Lull's return letter is written. On multiple fronts, the contexts that influenced this alligator's lively and deathly instincts are eroded, swallowed up within the Peabody's archive. Readers, like myself, are left to wonder of the relationship between these particular Black laborers and Mr. Sprunt, as well as what connection each actor had to the "Cypress Swamp" environment.

What does it mean to make an animal into an object—why is it done, and how?[143] Scholars within critical museum studies have provided creative interventions into animal objectification, although they have primarily focused on public-faced displays, rather than the implications of objectification on scientific knowledge production within museums.[144] I opt to read the Cypress Swamp archives through a re-arranged analytic framework which has developed with the guidance of many others—including the environmental humanities, Black

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[142] "Curator's Meetings," Peabody Museum of Natural History, Yale University, Records, Box 5, no. Series Accession 19ND-A-146. Records of the director, Circa 1866-1959 (n.d.).

[143] Merle Patchett, "Animal as object: taxidermy and the charting of afterlives," (Unpublished web article, 2006); Haraway, "Situated Knowledges," 591; see also Ebony L. Andrews, "Interpreting Nature: Shifts in the Presentation and Display of Taxidermy in Contemporary Museums in Northern England," Order No. U640427, University of Leeds (United Kingdom, 2013); Scholars of these questions must attend to how race becomes portrayed as "only a platform to set the scene of animal studies rather than viewing it as a permanent presence inextricably part of the animal question." I draw this quote and frameworks which have more generally influenced this thesis from Bénédicte Boisseron's "Introduction: Blackness Without Analog" and "Is the Animal the New Black?" in *Afro-Dog: Blackness and the Animal Question* (New York: Columbia University Press, 2018), ix-xxxvii and 1-36; see also Heise's *Imagining Extinction*, on posthumanist arguments about speciesism.

[144] Patchett, "Animal as object," 1; A. Hermannstädter et al., *The Nature of Things: Stories from a Natural History Museum* (ART STOCK BOOKS, 2020).

studies, queer studies, women's studies, science and technology studies, anti-colonial sciences, and my own sense-ability—for moments of liveliness that might inform my situated project of disrupting objectifying gazes within the Peabody.

As the bird is caught and killed, then stripped apart into objectified parts, so too is the collector pushed to strip themselves down of disruptive emotions, preventing the skin to skin contact, and obscuring the messy histories which have brought these particular multispecies relations into being. Following Shotwell's warnings, I do not strive for moral purity in my considerations of bird relationality, nor do I forget the opportunity for ethical attunement present in scientific projects.[145] However, the archival fragments and interviews excerpts compiled here provide a strong impetus to approach scientific narrative for engagement with "affective elements of consciousness and relationships: not feeling against thought, thought as felt and feeling as thought."[146] The stories told about specimens are important because they influence learned sensibilities about interspecies responsibility.[147] It is this aspect of responsibility that I suggest might lead to less antagonistic, if not outright collaboration, with decay in scientific meaning-making processes.

Part IV: Decay

[145] Shotwell, *Against Purity,* 99; 124.
[146] Williams 1977:132 in Gordon, *Ghostly Matters*, 198.
[147] At the American Museum of Natural History, a plaque on the Flamingo Colony mural reads, "Only stringent protection can save and perpetuate these extraordinary and beautiful birds." Given the previously referenced dynamics between conservation and colonialism, cultural ideals about what protection means have great weight on ecological futures. Living in a world that teaches (white) humans that everything is for us/use is not the kind of world that pushes communities to fight for mutual liberation. See Rick De Vos, "'Extinction in a Distant Land: The Question of Elliot's Bird of Paradise;" *Extinction Studies: Stories of Time, Death and Generations*, Eds. D. B. Rose, T. Van Dooren and M. Chrulew, (Columbia University Press., 2017) 88–115.

The role that scientists play in producing knowledge, ethical claims, and relationalities is a sociocultural one, as well as academic.[148] How they choose to engage other species "become part of the stories that human communities tell about themselves: stories about their origins, their development, their identity, and their future horizons."[149] While I attend to the ways that museum specimens are "constructed through their interpretation and reception," I also consider how these stories have the capacity to limit, or expand, our sense of possibility.[150] It is, therefore, a result of my time at the Peabody and the relationships made within that space, both human and nonhuman, that I am inclined to propose alternative ways of conceptualizing the relationship between scientists and specimens, which go beyond anthropocentric or extractive relations.[151] I agree with Carla Bergman and Nick Montgomery that the usefulness of critiques comes from their capacity to open us up to joy and experimentation, to ways of being with one another differently; it is my hope that sense-able attention to the concerns that I have raised here might help in the project of reimagining that scientists must undertake if they wish to do things differently, to release some of the violence that has animated their effort to work with de-animated life.[152] Though funding structures and lab practices have preserved (and normalized) situated narratives about nonhuman life, I am interested in how can different relational responsibilities can be generated.[153]

I make 3 speculative proposals regarding the Peabody's practices, each of which provide a different engagement with the themes of this thesis. Each are differently scaled attempts to "do better science…grounded in the arts of noticing that open to and allow for noticing in contexts

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[148] Heise*, Imagining Extinction*, 5.
[149] Heise, *Imagining Extinction*, 5.
[150] Andrews, "Interpreting Nature," 1.
[151] Heise*, Imagining Extinction*, 12.
[152] Carla Bergman and Nick Montgomery, *Joyful Militancy: Building Thriving Resistance in Toxic Times*, (AK Press, 2018) 230.
[153] Shotwell, *Against Purity,* 99. Puig de la Bellacasa*, Matters of Care*, 151.

that are already disturbed, already impure."[154] Whether engaged on a collective or individual basis, these proposals are meant to be taken up with curiosity; they articulate to broader conversations happening across disciplines about "what we might gain from the rupture of 'the human'" given that "being recognized as human offers no reprieve from ontologizing dominance and violence."[155] These proposals are also an attempt to make clear the importance of asking "how" these structures have become normalized and dominant in meaning-making, knowledge-producing institutions.[156]

Still, it is most accurate to describe them as an entry into the ongoing conversation between the Peabody's administration, researchers, and myself. I am aware of these proposals' difficulty and weight, even as I am certain that disruption is necessary if museum-based researchers seek to produce a more response-able and care-full scientific practice.[157] These proposals create friction against legitimized and normalized core principles of collection preservation and growth. To enact them would force a serious reimagining of what the Peabody's ornithology collection is, both materially and ontologically. And yet, that is precisely what is needed.

Proposal 1: Allowing Rot

While taxidermied dioramas receive the lion's share of scholarly attention, due to their public-facing positions, the specimens intended for scientific knowledge-making projects will also "never be allowed to decompose… ensuring their survival through the afterlife… persist[ing] for as long as materially possible, lingering as cautionary tales, immortal and

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[154] Shotwell, *Against Purity*, 106.
[155] Gossett, "Blackness," 36.
[156] Liboiron, *Pollution is Colonialism*, 121.
[157] I draw the phrase "response-ability" from Haraway's concept of the Chthulucene, as cited in *Making Kin Not Population.*

musty."[158] Whether one begins from a position of attending to the unacknowledged grief and separation that holds these bodies in a constant tension, or the astronomical cost of such specific "care" maintenance, resulting discourses that assume a positive morality in the act of preservation are limited; preservation might be better understood as a non-innocent attempt to sustain and reproduce specific material-semiotic relations that have emerged from historical and multispecies contexts.[159] Any analytic seeking to engage museums must be prepared to grapple with rot, even as "rotting activates and offends our senses."[160] This allows acknowledgement that while "avoiding rot has clear evolutionary advantages…the desire to frustrate materiality through preservation transcends survival instincts."[161]

As Prum explained to me, "scientific observation, scientific measurement, scientific opportunities, often involve disrupting whatever process is going on…And so in this case, what really is being disrupted—in addition to the life of the bird, the physiology, its living, [and] possible reproduction in the future—is rot."[162] Despite rot's association with waste, it is a process of transmutation, which powers meaning-making practices as much as meaning-unmaking practices.[163] Rot's unsettling and amorphous nature make it a queer and powerful ally for disrupting even the most normalized of practices. As I wrote in 2022, "When specimens rot, they "find release from the static objectification of the laboratory. Those prized bodies of long-

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[158] Poliquin, *The Breathless Zoo*, 219.
[159] According to Dorfman's *Future of Natural History Museums*, the Peabody's Environmental Science Center, where I completed a majority of my in-person archival, interview, and collections research "is one of the most expensive of the university's buildings to run, and is less energy efficient than the original 1926 Peabody building. (Bratasz et al, 2016). This is because of the energy cost of maintaining temperature and relative humidity in the relatively narrow range specified for collection environments," 19.
[160] Radin, "Rot."
[161] Simon C. Estok, "Ecophobia, the Agony of Water, and Misogyny." ISLE: Interdisciplinary Studies in Literature and Environment, Volume 26, Issue 2 (2019), 475.
[162] Prum, research interview with author, New Haven, CT, June 14, 2022; I contrast this with my own thoughts in "Tenderness and Rot," writing there that "to specifically and intentionally deny their ability to decay recognizes putrefaction as a transformative process that must be resisted in order to objectify and maintain power."
[163] Radin, "Rot."

extinct birds can break down, rejoining their kin in the damp crevices of the earth from which new life mutates into existence."[164] Thereby, I propose that the Peabody re-evaluate its preservation practices, as a way to engage generative "processes of putrefaction."[165]

I speculate that this proposal could manifest on both material and semiotic levels. The physical bodies of birds within the lab could be engaged with as subjects, rather than scientific objects. This necessarily means the development and inclusion of affective and sense-able experiences involving the birds. After all, as I have found in my encounters with contemporary Peabody scientists and in scholarship, despite efforts to suppress them in the name of objectivity, "emotions are an integral part of the moral economy of science, helping to generate the affects, experiences, and values of communities of scientists."[166] I ask that the bird "specimens" be allowed to decompose.

I recognize that my proposal could be conflated with a disregard for the critical biodiversity work emerging from museum collections, or the value of amassed liveliness present within collection storage. I am not dismissive of these dimensions. Rather, I am suggesting that researchers urgently need a way to disrupt those predetermined ethical responsibilities that have congealed within scientists' assumptively "permanent capacity to investigate, observe and measure" the material aspects of bird specimens.[167] As contemporary scientists from all disciplines explore alternative ways of "Anthropocene" thinking that challenge relational responsibilities between and beyond species, attending to how things end may be the most important and urgent knowledge project of all. Rot restores control to the ecological cycle already attempting to stir in and around the birds' bodies. These moments of rotten liveliness

[164] Foley, "Tenderness and Rot."
[165] Radin, "Rot."
[166] Whitney, "Tangled Up in Knots," 101.
[167] Prum, research interview with author, New Haven, CT, June 14, 2022.

make themselves visible: whether through a post-mortem alligator bite, or a death-shroud of mold.[168]

The physicality of rot alters the material-semiotic status of the bird "specimens" by challenging their very form. Moreover, it asks actors who enter, sustain, and fund the museum-laboratory to consider what exactly they are fighting to preserve. Challenges to preserved narratives draw attention to the institutional histories which have brought contemporary science into being. Rot challenges not only material bodies, but the semiotic and ontological structures which hold those bodies in place. How can museum actors "think of care as an obligation that transverses the natureculture bifurcation without simply reinstating the binaries and moralism of anthropocentric ethics?"[169] Refusing to moralize rot, or "distill it to an ethical relation," might allow "care to operate like rot… to expand us and transform our sense of possibility."[170]

Proposal 2: Altering Protocol

Astrida Neimanis and Jennifer Hamilton write that "muddy grounds contain multiple worlds, and the differences of these worlds also need tending."[171] Which is to say, how can scientists account for myriad kinds of differences in our worlds as they produce scientific knowledge? I follow Max Liboiron in their emphasis on protocols, which "reinforce and perpetuate what is meaningful and right… orient[ing] you towards a particular horizon and away from others."[172] My second proposal, then, is that the Peabody reconsider how scientists and students (aka scientists-in-training) are engaging specimens.

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[168] Pepper W Trail, Ariel M. Woodward, and Johnnie H. French, "Fungus and Feathers: Combatting a Mold Outbreak in an Ornithological Collection," in *Collection Forum*, 2021 35(1): 32-47. See photographs of the shroud in Appendix B.
[169] Puig de la Bellacasa, *Matters of Care*, 13.
[170] Shcheglovitova (2020) cited in Foley, "Tenderness and Rot." *Ibid*.
[171] Hamilton and Neimanis. "Composting Feminisms," 522.
[172] See discussions of Whyte, Brewer, and Johnson, "Weaving Indigenous Science" and TallBear, "Standing with and Speaking as Faith." in Liboiron, *Pollution is Colonialism*, 124.

What would asking this question of care do to our research practices and protocols? In Liboiron's fish-focused lab, it means that lab members are instructed not to wear earbuds while processing animal bodies, "as this separates you from the animal, who deserves your full attention and respect."[173] This practice, along with others in Liboiron's lab, allows for "several moments of orientation in these few moments of protocol: think about the fish, the land, and your relation to them," so that lab members are not "thinking of the fish primarily as a specimen or scientific object."[174] It is not my intention to read Liboiron's work as a clear or replicable roadmap to anti-colonial ethical relations; that would run counter to their explicit warnings. Rather, I want to point out that their laboratory has undertaken specific and tangible steps that impact the kind of relationships possible between people, histories, and ecologies.

Thinking through anti-colonial protocols within the Peabody will require specific collaboration and research into the multispecies l/Land histories of what is today called "New Haven."[175] How might sense-able orientations play a role in relationships and responsibilities articulated within the Yale Peabody's ornithology department? I propose that, at the least, the laboratory struggle against its own institutional predilection for organization and control towards a more complicated poetics of being with one another. This suggestion hinges on the fact that field scientists and researchers are "well placed to break this silence [of emotion] by virtue of their experiential connection to nature" but first the "moral economy of science (scientific decision-making) must be transformed into a flourishing ecology of emotion, where the full array

[173] Liboiron, *Pollution is Colonialism*, 123.
[174] *Ibid*.
[175] This would be an invitation for the Peabody to join discussions about "l/Land" as they come up in Liboiron's work, particularly *Pollution is Colonialism*.

of experiences and value that saturate and instantiate biological and economic "facts" can be articulated."[176]

By turning to emotion and poetics to communicate "what cannot be held, and cannot be touched," scientists are shown "the gaps in what we want."[177] Poetics allow us to approach ethical analysis "not to reduce difference through appeals to abstract principals or duties such as the prescription to avoid harm…[but] to open up dialogue, to develop new vocabularies, to seek out tensions between individual and shared meanings, not in order to reduce them but to multiply them."[178] Might this look like reorienting data collection to include provenance histories for the sake of fleshing out relationships (not just reconstructing past ecologies of fact), or reconsidering whose research questions animate laboratory objectives? Adjusting our lab practices to be thinking-with rather than thinking-about will not happen through one right move or morally innocent protocol; it will require messy re-rearrangements to material and ideological museum-laboratory practices at the Peabody. This work gets slippery. But then, moisture is the source of all organic decay.[179]

Proposal 3: Cease Collecting

Returning to the question which originally animated this thesis, my final proposal centers the issue of what relationship to nature the collections represent (and preserve). What would it mean to use a relational framework to engage with the ornithology specimens? Perhaps it means considering the Peabody's birds not just as embodying heritage, futurity, or a specimen, but also a preserved set of stories about collectors and the world that they are (or were) ethically

[176] Whitney, "Tangled up in Knots," 107.
[177] Lora Mathis, "Desire and Traps," *fun times in a human body*, February 25 2023, https://open.substack.com/pub/lora/p/desire-and-traps?utm_campaign=post&utm_medium=web.
[178] Brody; Hudson Jones, in King et al, "Sympathetic Vibrations."
[179] Poliquin, *The Breathless Zoo*, 209.

entangled in, and responsible to. Confronting these stories means that disrupting their replication, finding new (and composting old) ways to make knowledge. The entangled relationships between violence and care which make the Peabody's collection work possible should be examined, not for the purposes of "reinvesting in purity politics," but to ask "how resilience and healing can occur in the context of transnational capitalism."[180] I propose that the Peabody cease active collection trips, opting instead to work only with salvaged bird bodies that community members bring into the museum space and, where possible, partnering with community-led research projects to support ornithological research in their geographic and intellectual areas of concern.[181] I ask that museum actors within the Peabody seriously consider this proposal, despite the historically-developed instincts which might foster dis-ease and increased sense-ibility at this point.

The enactment of this third proposal would undeniably provide a creative challenge a to the preservation of underlying extraction narratives that make collecting work possible. What would it look like for a knowledge-producing space like the Peabody to commit to engaging with birds as subjects, re-arranging their commitments to decay, and generally exploring the tensions that scientific "care" contains? In other words, how can researchers like myself "feed into anticolonial research practices, scientific and otherwise," through a commitment to understanding what it is to "do science in a settler-colonial context—to understand that both the practice of science extends from colonialism and feeds into it?"[182] To refuse future intentional

[180] Shotwell, *Against Purity*, 105.
[181] Feminist scientists have much to say about community-led research; Max Liboiron's CLEAR lab protocols (2021) provide a useful example of what enacting this might look like; see also Robin Wall Kimmerer, *Braiding Sweetgrass,* (Milkweed Editions, 2015) and Zoë Todd, "Fish, Kin and Hope: Tending to Water Violations in amiskwaciwâskahikan and Treaty Six Territory," *Afterall* 43 (2017): 103-107.
[182] Liboiron, *Pollution is Colonialism*, 155.

collecting trips might be one way to "affirm and engage with insurgent world-webs of life and possibility against colonial, ecocidal, capitalocentric predominant logics."[183]

This is not a proposal for non-engagement, or isolationism. As students and researchers, we are not any better served by ignoring the histories and tensions that haunting shape our institutions. Despite dominant threads within environmentalism that perpetuate the idea of an idealized pre-colonial "restoration ecology," there are myriad testimonies to the ways that "indigenous peoples around the world have reshaped their environments far more extensively and over longer time periods than was previously thought," which prompts a re-envisioning of the task of environmental science in terms of "intervention ecology,' the deliberate design of future ecosystems."[184] How can settler scientists working at a land-grant institution take an active role in the "complex and entangled situation in which we in fact live" that strives for better, more care-full and sense-able relations?[185] The answer to that question certainly will not come about by preserving the practices of the past, nor by burying them in the archives. Rather, it is time to consider how to compost existing scientific practices in order to re-act with feminist, anti-colonial protocols for learning about avian lives and wellbeing. The perceived "value loss" of forgone collecting trips likely will (and should!) spark irritation about the otherwise limited ways of producing knowledge about birds within contemporary Western scientific paradigms. However, this irritation might provide a situated, intimate setting for researchers to reflect on their motivations for producing scientific knowledge—and collaboratively re-orient their imaginings of future science with attention towards relational responsibilities.[186]

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[183] See Starhawk (2002) in Puig de la Bellacasa , *Matters of Care*, 165.
[184] Hobbs et al (2011) in Heise, *Imagining Extinction*, 9-11.
[185] Shotwell, *Against Purity,* 107.
[186] This concept of relational responsibility is draw from Alexis Shotwell's *Against Purity,* 107.

Conclusion

While the classification and display of museums "have come to define a single tradition of nature – mononaturalism," their collections and laboratories are also deeply entangled in this homogenizing tradition.[187] Therefore, the natural sciences are overdue for attending to how their knowledge projects reiterate the extractive "economization of life" that their origins are bound up in.[188] The "culturally contingent" nature of taxidermied animals also influences how "specimens" are retrieved, processed, and preserved into speculated futures. Disrupting this process offers an opportunity to introduce speculations about futurity from sources outside of the scientific process. This thesis has intended to use insights from feminist science studies to open up a dialogue about the tension of caring for one another within the context of historical and structural extractive violence(s).

The threat and power of extinction discourses has re-rendered the natural history museum a space of importance; objects collected to be metonymic in the nineteenth century "now increasingly stand as unique, rare, and lonely…no longer representative of the natural world as it is, but as it was."[189] Yet our (tangled, tentative, thick) task is to move "beyond established decline narratives to a new, future-oriented conceptualization of environmentalism" within and beyond museum collections.[190] Conservation discourses led by scientists have emphasized the privilege of their connection with the environment, using the aperspectival shield of science to imagine themselves as separate from the selfsame colonial, industrial and patriarchal projects which have created the same environmental degradation that they now decry. One only needs to

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[187] Keshani, "Muzium Alam," *British Council*, accessed April 2 2023, https://www.britishcouncil.my/%E2%80%9Cmuzium-alam%E2%80%9D-%E2%80%93-ayesha-keshani.
[188] Clarke and Haraway, *Making Kin Not Population*, 14.
[189] Conn, *Museums and American Intellectual Life*, 73.
[190] Heise, *Imagining Extinction*, 11.

look towards the beginnings of conservation discourses in the early twentieth century to see that what American scientists have tried to preserve is no more pure nature than pure science, but a relationship to nature and the ability to continue relating to it in that way.[191] When that leads to a peripheration of nature, as the colonial epistemological-ontological borders tend to achieve, then science based in that assumption will continue to validate it.[192] As long as the American museum serves as a way for colonial interests to assert control over narratives about Indigenous life and livelihood, its educational capacities will continue to legitimize how colonists impact their stolen environments, as well as seemingly foreclose other possibilities.[193]

What would it mean to resist the colonial ideal of preservation in our fight for a better world?[194] Might it mean we embrace the messier, growing-with, thinking-with processes that decay engenders? As Ursula Heise has explored, biodiversity and extinction are "only secondarily issues of science… [resembling] a collective construction of alternative natures that obeys cultural impulses." These are very different ways of understanding collection narratives and use than the one evinced within the Peabody's 20th century director's reports. But the "stories people tell about themselves, about their troubles, about their social worlds, and about their society's problems are entangled and weave between what is immediately available as a

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[191] See further discussion of this topic in Heise, *Imagining Extinction*, 20, as well as Ayana Young's podcast *Into the Wild*, "Kyle Whyte on the Colonial Genesis of Climate Change." https://forthewild.world/podcast-transcripts/dr-kyle-whyte-on-the-colonial-genesis-of-climate-change-295.

[192] Paul Nadasdy. "How many worlds are there?" *American Ethnologist*, 48 (2021): 358; Vanessa Watts, "Indigenous place-thought & agency amongst humans and non-humans (First Woman and Sky Woman go on a European world tour!)." *Decolonization: Education, Indigeneity, and Society* Vol 2:1 (2013) 26.

[193] "Director's Report 1946-47," Peabody Museum of Natural History, Yale University, Records (RU 471). Manuscripts and Archives, Yale University Library. https://archives.yale.edu/repositories/12/resources/2658

[194] The more critical I grow of preservation's usefulness in maintaining settler systems of power, the more I find the concept of preservation embedded within ecological discourses, such as conservation and environmentalism. Restoration ecology sets pre-colonial ecologies as the ideal state, ignoring both historical and present relationships of interaction between Indigenous peoples and l/Land; the monolithic concept of restoration ecology also serves to legitimize social discourses of intrusion and invasion that are often then projected onto human migrants and refugees. I draw much of this from Heise's *Imagining Extinction*, and Timothy Lee Scott's *Invasive Plant Medicine: The Ecological Benefits and Healing Abilities of Invasives.* Healing Arts Press, 2010.

story and what their imaginations are reaching towards."[195] Perhaps resisting ideals of restoration and control start with allowing data and research practices to become complex, humid, sticky to the point of decay.

This collective undertaking to reckon with human and more-than-human hauntings is necessarily about transformation, and finding ways to affirm the liveliness of the worlds each of us know to be there—while accounting for the inevitable presence of the worlds we will never know.[196] By recognizing our individual complicities as scientists, students, researchers, and humans, we grow closer to understanding the depth and weight of our responsibilities. There is no better, purer world to capture, preserve, or otherwise get back to. I would invite you to stand with me, facing the deathly-silent rows of metal storage lockers, the gaze of unseeing glass bird-eyes, and the onslaught of thickly-wrought violence in the Peabody's archive. Whether your sense-ability is inclined to feel the peculiar haunting in these sites, or you find you possess a different relationality to the birds, it is time to ask why you have chosen to be with the birds. Neither the language of science nor environmentalism offer a neutral way out of haunting sensations.

[195] Gordon, *Ghostly Matters*, 4.
[196] Gordon, *Ghostly Matters*, 208.

Bibliographic Essay

This thesis has represented an important opportunity for me to continue engaging in a set of ethical and relational questions, raised by my interactions with Peabody Museum collections, staff, and administrators. Following a class tour to the Peabody in 2021, I began to think through issues of responsibility, ontology, and preservation as they related to the Peabody's specimens. My training in feminist science and technology (fSTS) studies provided a means to approach those questions with an informed and scholarly, yet poetic, framework. As a result, this thesis was not a theoretical critique, but an active engagement with the question of care, rooted in the meaningful relationships begun between myself and the curatorial staff within the Peabody's ornithology department. I hope that this thesis will represent a learned contribution and reply to the questions of responsibility which myself and Peabody staff are grappling with.

Rather than trying to step outside of the resulting conversation between myself and the Peabody's staff, I used this thesis as a way to think "in the world," to consider how my position as an undergraduate at Yale College influences the ways I encounter and/or perpetuate these narratives.[197] With this in mind, I spend the summer of 2022 at the Peabody: exploring archival materials, participating in research-centered activities with staff, and conducting research interviews to develop my own relationships with interlocutors. I gained further context on the sense of importance, urgency, and care which animated the biodiversity work done at the Peabody, but also the complicated articulations of care and objectification. For myself, this provoked a fixation on the question of how scientific—but very individual—care(s) could be so integral to processes of killing, preserving, and extracting.

[197] Puig de la Bellacasa, "Matters of Care," 10.

The primary sources which I explored, both within the Peabody and Yale's Manuscripts and Archives department, allowed me to gain a sense of the Peabody's historical administrative motivations and narratives for creating such a total archive. Maria Puig de la Bellacasa's *Matters of Care* helped structure my questions on more-than-human relational responsibilities and cares; the work of scholars like Rachel Poliquin, Donna Haraway, and Steven Conn all provided me with different footholds to thinking through the internal processes of museums. Using these museum studies scholars' work, I was able to critically contextualize the Peabody's processes of accumulation with broader colonial and imperial organizational projects.

While museum studies (particularly feminist and decolonial accounts) offered useful critiques, I found that they most readily engaged with public-facing exhibitions. I searched for work that was turning towards museums' massive yet hidden collections—particularly the scientific research that they make possible. In this vein, Alexis Shotwell and Zoë Todd's work introduced me to the concept of relational responsibility. This provided me with a link between the scientific meaning-making happening both inside and outside of the lab. Shotwell's work explores the affective relationships formed between scientists and what they study, with an emphasis on the role of narrative in scientific knowledge production. The premise of a relationship-focused approach to STS opened up issues of specimen use, narrative, and futurity.

I remain grateful to the Peabody staff for their patience and time in working through both my and their concerns; their narratives about the work they were doing shaped my approach to secondary scholarly sources. As a result, I looked for sources on biodiversity research, taxidermy studies, and feminist critiques of care. Discourses of biodiversity, extinction, and globalization have altered the stakes of natural history collections; I imagine this conversation will only continue as environmental extraction and structural violence continues to cause what Deborah

Bird Rose terms the "double death" of species. In this context, Ursula Heise's work also provided me with a critical framework for understanding how extinction discourse developed in the 1970s, as well as how it has persisted into today's natural history landscape. This context allowed me to see how, despite tentative acknowledgements made by natural history institutions, linkages between biodiversity, colonialism, and collecting have not resulted in interventions against extractive ways of engaging surrounding world(s).

At the same time, I learned that the trends I noticed in the Peabody's archives, of over-accumulation, had also been noted by contemporary curators in their present-day work. The 1934 supplementary Peabody Director's Report by the Vertebrate Paleontology department remarked that storage space was inadequate, and specimen collection efforts were only making the problem worse. It was impossible not to notice parallels between this trend and present-day narratives at the Peabody about competitiveness over exhibition and collection spaces. Informed by scholarship that aims to move towards actual decolonization, even as it critiques institutional actors' adoption of the concept (i.e. Eve Tuck and Sumaya Kassim), I turned to thinking about how processes of extraction—capital, colonialist, and patriarchal—encouraged this fetishization of accumulation. I learned about the role of the Peabody's massive collections in establishing their authority to produce scientific knowledge.

As I worked my way through these sources and archives, I thought about the fact that my sense of solidarity with the birds—as a human whose body has also been categorized and pathologized by the dominant social narratives of science and medicine—was no closer to innocent than the curators or museum trustees. I used the work of feminist scholars like Donna Haraway to think through my positionality as a white settler student working on these questions from a land-grant university. Along with conversations with my HSHM advisor, Professor

Joanna Radin, Haraway's work allowed me to better understand how scientific actors were conceptualizing their own ethical positions, as they worked with what they imagined to be the best tools for ensuring bird futurity. Innocence, therefore, was not a useful metric for establishing recommendations in this thesis.

I found myself intrigued by moments in the archives that acknowledged death's haunting presence in the museum, such as when the 1928-29 Director's Report included an obituary for staff member Hugh Gibb. The report noted his work preparing skeletons, arguing that his work could then bear witness to his life. This allowed me to think about the idea of futurity in different ways, with an eye towards the way that specimens were imagined as representative subjects. Moments like these seemed to represent tacit acknowledgements that objects are more than scientific specimens, that they become imbued with affective and ontological associations. For me, Gibbs' obituary brought up questions of who has the authority to acknowledge subjecthood, and whose perceptions or narratives about it are preserved. My data and interlocutors from other research sites—including Berlin's Museum für Naturkunde, the U.S. National Fish and Wildlife Forensics Laboratory, Harvard's Comparative Zoology Museum, the Smithsonian Museum of Natural History, and the American Museum for Natural History—also each provided incredibly useful context for understanding how collections were imagined to be used now and in the future.

To learn more about what exactly was being preserved, I located several dissertations, with the help of Dr. Melissa Grafe, on ornithology and specimens that allowed me to think through the role of affect and narrative in producing people's senses of responsibility. Mark Barrow's "Birds and Boundaries" dissertation was particularly useful in understanding processes of professionalization, which allowed me to consider how scientists' need to legitimize or

distinguish their profession influenced their working relationship to affect. While Barrow and Frederick Davis both offered backgrounds on Yale's ornithology department, I found myself reading them their pieces in a similar manner to how I read the archives: against the grain, searching for moments of exclusion and absence. I linked these archival absences—which I felt were most evident in regards to specimen-scientist relationships—with pressures to develop the discipline of ornithology in the eyes of state and university actors, as well as with settler ontologies about the ideal role of man in his environment. This last aspect became clearer when I read Nicholas Mirzoeff's "The Whiteness of Birds," as well as Deborah Bird Rose's *Kin*.

As a continuation of my conversations with Peabody staff, I used this thesis as a way to consider how the museum's fulfillment of university ideals had drawn it deeper into processes of capitalist accumulation, through the museum's self-narrative about producing environmental knowledge through extraction, as well as through its physical representations of over-accumulation. Silvia Federici's *Re-Enchanting the World: Feminism and the Politics of the Commons* was useful for understanding and contextualizing those aims as markedly capitalist. The collectors, administrators, and scientists' whose records I read were not interested in recording their affective experiences anywhere within the museum archive. If I had more time with this project, I would have been interested to see where exactly those experiences had ended up in their lives. One conclusion that I have reached, with the help of Professor Radin's research, is that those affective orientations and impressions cannot be made to disappear, no matter how restrictive or professionalized one's institution is made to become. At the least, they so influenced relationships within the museum that scientists wrote about their responsibilities to birds as limited solely to the birds' scientific capacity, rather than any responsibility to the birds as lively creatures.

The concepts of humanity and responsibility that I engaged with were limited by my sources. Just as Haraway teaches us that there is no god-eye view, there is also no universal liberal humanist to gaze on specimens, only situated actors with a responsibility to interrogate their concepts of humanity in order so that they might move beyond anthropocentric ethical frameworks. While I tried to draw from diverse fields of influence in my secondary sources, my primary sources were all generated by white men within the Peabody museum. My interlocutors at the museum were also white men; whiteness operated, to take a term often used by my WGSS advisor, Professor Kalindi Vora, as an unmarked and assumed identity category. Therefore, I am sure its unquestioned-over-presence in my sources has influenced and limited this thesis in ways I do not yet perceive. However, my museum interlocutors consistently demonstrated their desire to challenge the dominant narratives that structure their work and institutional history, even if they cannot necessarily generate challenges from their own positionalities. As such, they explained to me how turning towards feminist and queer theory have opened up new avenues of thought for them. I believe that inviting me to remain within the institution for the duration of this research and thesis represents their commitment to thinking through these questions, even if potential answers are discomforting on personal as well as institutional levels.

After completing this project, it is my belief that one key way for institutions to genuinely intervene in preserved narratives about responsibility, which continue to consciously or subconsciously shape their infrastructural choices, is to bring outsiders into the museum. Although I am a student at the university, I am also an outsider to it; as a young, queer, FGLI feminist scholar who challenges institutional ethics, my inclinations for action and affect often grate against the ways that things have been (or are) done. However, this thesis has formed meaningful and durable relationships between myself and actors within the Peabody, with both

of us more informed by the others' perspective, and both (hopefully) more able to attend to increasingly nuanced dimensions of inter-creaturely responsibility. These relationships require sustained conversations; yet, while there are many people interested in doing this kind of work museums must seek these people out in order to support their work. My thesis has also left me with the belief that museums must attend to the ways that the past and present violences of colonialism and racism have kept many of these individuals from museum spaces in the first place. As museum researchers seek to find more ethical ways of engaging with scientific narrative and relationships, I hope that the proposals of decay and renewal which I have offered in this thesis might support alternative, poetic, and expansive ways of thinking and feeling with one another.

Appendix A

Tenderness and Rot, or Why I should Be Allowed to Burn down the Peabody

To warm the frozen swamp as best it could
With the slow smokeless burning of decay.
—Robert Frost, "The Wood-Pile" [i]

The Yale Peabody Museum's ornithology laboratory struggles mightily to enforce separation between "observer and observed," as all good Western scientists must.[ii] And yet, mocking the laboratory's attempts at sterility, the smell that lingers inside refuses any such boundaries. The bitter, stale scent infused my hair and skin as soon as I entered. Somehow, the intangible but overwhelming sense of bird-ness mutated into a weighty presence in my lungs. Have you ever smelled a pet shop's reptile section? Somehow the same texture of matted straw and shit had become airborne in that museum's lab. From its scientists, I learned that the Peabody is among the grandest and most complete archives of "scientific bird specimens," at least in the Western Hemisphere.[iii] Boasting (and they are indeed boasting) more than 152,000 specimens in the form of skeletons, skins, fluid-preserved specimens, cryo-preserved tissue samples, eggs, and nests, the Peabody claims that the origins of *their* specimens span the globe.[iv]

Reassuringly, I was told that though scientists often travel internationally to retrieve the birds (retrieve, of course, meaning to stalk and kill), they must first navigate a mire of bureaucratic processes which determine if their quest is legitimate. To embark on their far-flung journeys, which curiously take them over and over again into the Global South for these extractions, scientists must first prove the necessity of their journey to state actors. Power relations in these exchanges become flattened between bird and human, South and North. Instead, front and center are conservationist scientists along with their articulations of care and

concern. These state-and-science legitimized ways of acting on care seem to operate in ways that feel just like domination.

Enough. Let old passport requests and earnest declarations of care as violence join the unfettered "trash of the Anthropocene, the exterminism of the Capitalocene," to create an ever-hotter "compost pile for still possible pasts, presents, and futures." [v] In the few moments of my sharing artificially cleaned and cooled air with the preserved bird bits, I breathed some sense of solidarity in-- too deeply-- and never quite breathed it all back out. Mutated by, infected with, entangled in the possibility of avian agency, I am hopefully mired in a reimagining of care and relations. This essay is my attempt to trace the flight path of that reimagining into world(s) where we can be gentler with one another. This is a dream of tenderness and accountability, of care and decay, of the kind of world that finds itself made more livable and loveable by embracing multiplicities.[vi]

By paying attention to my ability to both see and smell these bodies, the terms of my engagement shifted. This approach marks a way of relating and researching that "more explicitly recognize[s] non-human actors." [vii] Unable to turn away from the visceral experience of meeting these fragmented, stretched, preserved bodies, I found myself in a state of mourning which lasted for some time following my visit to the Peabody Museum. Seeing the cotton-filled bird bodies had evoked strange and strong sensations. During my time in the Peabody Department of Vertebrate Zoology's ornithology collection-laboratory, I felt distress, fury, and above all, a rising panic over the birds' preserved state. To name these feelings here is not only relevant, but necessary to the focus of this essay. Grief and tears might provide a curious solvent for eroding structures and boundaries erected by existing systems of power.

Patriarchy, white supremacy, colonialism, heterosexism: all these systems of domination normalize possibilities for how we relate to the world. An insistence on the presence of emotions in this writing posits both the birds and myself as subject to be empathized and collaborated with, challenging the framework of relations present in the laboratory and often, academia. Refusing to ignore emotion is a small piece of the radical reconfiguring regarding what forms of knowledge are seen and validated. I am not an objective observer, nor would I want to be. My emotional responses inform me in distinct ways. Decay is not an easy process to find oneself in collaboration with. That too, is an understanding that comes from my feelings on the ways that rot has seeped into my world.

Avoiding rot has clear evolutionary advantages, but the desire to frustrate materiality through preservation transcends survival instincts.[viii] We need only skim scientific disciplines' histories to find their beginnings tied up in colonialism and imperialism.[ix] Across settings, these original power dynamics and intents persist in attempts to enforce sterility and objectivity in interactions with the more-than-human. In the laboratory, this manifests in many ways: the term "specimen," Clorox-ed countertops, plastic gloves to separate us from what we study. This essay marks a moment set aside to think through how these boundaries and conditions of sterility ultimately manifest into unsustainable forms of preservation, inside and outside of the laboratory.

We might see the extension of this obsession with preservation in the collective inability of governments to adequately address the climate crisis, in their attempts to maintain present ways of life above all else. In place of radical and necessary adjustments, we are offered gradual shifts as a part of 50-year plans that designate our most vulnerable as incidental costs for maintaining a capitalistic world. Conservation attempts too, are implicated in this obsession with preservation, as they work with "anachronistic equilibrium models of the past… forestalling

[change]." [x] As we struggle to see the world(s) around us as neither "cosmic [n]or blissed [n]or cursed into outer space," we are met with questions of multispecies entanglement, care, and quite possibly, desire.[xi] How might we understand these entanglements without being lured by the universalizing nature of homogeneity?[xii] As Astrida Neimanis and Jennifer Hamilton remind us, "muddy grounds contain multiple worlds, and the differences of these worlds also need tending." [xiii] If we seek to make a mess in the pristine environment of the laboratory, we had better be prepared for what starts growing out of it.

Though they may be construed in different terms by scientists, these same questions and concerns make themselves present in everyday mechanisms that the laboratory depends on to prevent rot. Despite floor-to-ceiling metal storage lockers and brisk, clinical attitudes about hand-washing, the Peabody ornithology department's attempts to circumvent decay invariably center their work around it. Rot becomes an absence keenly felt-- by those who are willing/able/wanting to feel it. Feminist science studies tell us that we should examine why effort and resources are spent on particular objectives; it is necessary, in a time of ecological, interpersonal, and psychological apocalypse(s) that we question the value and ethics of preservation.[xiv] Why wage this war against rot-- whose desires does it fulfill, and whose does it obviate?

Not even our questions escape the decay inflicted by temporality; language and phrasing evolve, shed, and mutate over time. And yet, frameworks present in the language used to structure relations between subject and object in the laboratory has not been adapted to accommodate the ever-more realized complexities of our entanglements. The Peabody ornithology department structures itself in part around a mission of preserving aviary presence in the human world: a species continuation constructed as achievable only with the violence of

retrieval and study. Extracted DNA, bones, and beaks become necessary to the scientists' ability to achieve this mission. To challenge the presence of any one of the 152,000 specimens in the Peabody collection casts the querier as queer. Resist preservation, and you are resisting the logics of academia, science, and informed research. Queer of you to suggest that domination would not be required to care for those (deemed) unable to care for themselves. Discourses that insist on the morality of preservation obscure opportunities for serious inquiry and critique of the selfsame historical, multispecies relations that threatened birds' worlds in the first place.

Donna J. Haraway argues that the concept of species gives structure to discourse on conservation, particularly the term 'endangered species,' which she argues both locates value and evokes "death and extinction… [for those] reduced to type" so that rational Man may nourish his "bright constitution." [xv] When the Peabody's head curator held up the brightly colored, preserved body of an extinct bird species' last member, he invited us to come in close and touch feathers, touch wings. My queer sensibilities took this to mean that I was being offered a chance to orient myself to the bird as Man. By consuming this bird as a tragically extinct body, I too, could experience being rational and discerning about this object. It could become possible to find contentment in the consumption of, and if I were so academically inclined, the studies of this lost (yet eternally found) body. I did not step closer, nor touch the bird.

Instead, I began to wonder about what happens when scientists keep an organic lifeform from completely succumbing to the promised release and relief of decomposition. Sensation is equated to life and speech to intelligence—I am unconvinced. I was (and am) closer to the objectified, captive bird than rational and dominating Man. This moment of being unable to connect with the bird in any way comprehensible to the laboratory setting triggered a deep grief in me, a sense of exhaustion and identification with this body's Othered-ness. In that room, the

bird was only perceptible as Other, as object. Robin Wall Kimmerer tells us that this shift of viewing life not as subject, but as object creates sciences that are "reductionistic, mechanistic, and strictly objective." [xvi] And it is this science that I am supposed to trust to save my world? This is a matter of questioning collective ethical commitments to the more-than-human lifeforms that humans share worlds with. The issue of how to live well with others does not begin or end with what science perceives as valuable sentience. The objective "active dis-entanglement of human from nature" disregards the "actual inseparability" of existence.[xvii]

I do not come to these hopes or frustrations alone; I know that I am entangled in ever-mutating and informative processes of care with the world around me. What I see and how I respond is changed by what resonates with me emotionally, what links conceptually, and how the queerness of my history reflects into my relationship with nature.[xviii] I am situated, and not only in the identities that I am nurtured by; I am also a white settler, asking these questions at a land-grant university in a country built on stolen land, rife with unacknowledged apocalypses. But I take heart from what standpoint theory has offered many of us who reject objectivity: a way to make our knowledges of the world visible so that we might better resist the systems of domination keeping us apart. I am deeply invested in these questions of ethics and care as a queer(ed) body in relation with and taught by both humans and more-than-humans, especially plants. In intentionally locating myself, I choose to let my identities serve as a form of knowledge about the world, rather than a bias to impossibly remove. I have existed in many a liminal space, and feel a deep compassion for bodies held in the unending, isolated preservation of the museum and laboratory archives.

I am also writing this essay with a squishy little companion: a potato gifted to me, going soft already. It is reminding me of the materiality of these questions, and the importance of

taking seriously temporal processes that occur as part of the earth's regeneration. The tiny tricolor potato, the world at large, not as "resource to be exploited, ward to be protected… [but] dynamic, self-forming." [xix] What companions and travel guides must we bring along to seriously embark on the quest of extending care to bodies other than our own, of pursuing what Maria Puig de la Bellacasa terms an *alterbiopolitics* that "puts caring at the heart of the search of everyday struggles for hopeful flourishing of all beings." [xx] Tonight, when I make dinner for my quarantining roommate, I will use the little potato in a soup for her because they are sick and need nutrients. Tender and caring relations do not equate to asceticism, or isolationism. What I am saying is that the conditions of our engagements matter, and have a lot to teach us.

My proposal is this: we have seen the entrapments of "good science," and the un-dead smells that it produces. We have also seen how these same structures can subversively nurture emotions that grow into disruptive desires, if we take care in how we reorient ourselves. These subversive desires lead me to wonder if this fixation on preservation, a main tenet of the laboratory, offers us a particular occasion to resist violence. After all, while the laboratory that I entered held bones and wings and other things that used to make up birds, the Western sciences' long-standing romance with imperialism, colonialism, and eugenics has created site after site of violence in the quite human bodies of those it has sought (and seeks, in many ways) to subjugate and study. This connection should not be taken as a claim which necessitates flattening the details of contextualized, particular histories, but rather a truth to help make clear how science's tendencies towards violence have been and are being recreated across space and time.

If we want to practice new ways of "rethinking boundaries between living and non-living matter," it may necessarily mean that we need to write, dream, and feel our way towards contradictory epistemologies that allow us to conceptualize the "lively dead." [xxi] When we get

disoriented enough that "the trees are not trees [and] the birds are not birds," as sci-fi writer Jeff Vandermeer's unnamed biologist realizes in *Annihilation*, we might discover new entanglements.[xxii] Scientists' preservation of bird parts, scraps, and bits displays an exertion of extreme control over bodies. Again, the feminist scientist in me is compelled to ask: what kind of way of relating to the world is being sanctified here? Rather than asking what the birds can (or want to) tell us, data is demanded from them.[xxiii] If we dream of release from this unpleasant stasis, this repetitive attempt at the transcendence that Haraway has already warned us against, we must unplug the temperature regulating air conditioners and set off the smoke alarms.[xxiv] In short, we need a funeral pyre.

But what kind of burning is needed? Fire can be understood as both "disastrous and generative," a particular path to new growth under the right circumstances.[xxv] A fiery approach requires a kinship and understanding with the bodies of the birds. I can't claim the intimacy of kinship simply because of my sense of solidarity. It is here that I turn towards what Frost terms the "slow smokeless burning of decay" for an experience of transformation that might relocate agency in the body pieces/parts/partials of the birds.[xxvi] As they rot without permission, cells find release from the static objectification of the laboratory. Those prized bodies of long-extinct birds can break down, rejoining their kin in the damp crevices of the earth from which new life mutates into existence.

This turn towards decay is complicated by the fact that the Western intellectual tradition hasn't historically assigned a strong value to putrefaction. Rot evokes associations of waste, that which "is no longer capable of being saved." [xxvii] To challenge these associations necessitates reevaluating the premium put on preservation. Ancient alchemy suggests that decay is a "necessary stage in the process of regeneration." [xxviii] In that context, material reconstruction was

seen as not only possible, but promising. As Paracelsus explained, “destruction is the first essence of all Naturall things.” [xxix] More presently, Mariya Shcheglovitova’s detailed research of “lively dead” trees in Baltimore proposes that “decay is needed to heal bodies and remediate land.” [xxx] Across temporal dimensions, decay emerges as a force capable of ushering in rebirth, “conjur[ing] multispecies worlds and with them, alternate visions for what it means to be alive.” [xxxi] Critically expanding our data practices to include sharing emotion and rewriting narratives offers new spots for potential frictions to form. Using these points of increased contact, we have more to hold onto while we get resituated. Despite the negative valence of rot, we can fumble and feel our way towards an entirely different relationship to putrefaction.

These new ways of being feel most possible when I think alongside mushrooms and moss. As I have come to know them, they are not afraid of questions that involve decay because they know its sensual and visceral importance in stimulating new life. Less comfortably, I find myself approaching mold, and rotting substances themselves for help feeling my way through this mess. These lifeforms confuse my urge to slip into romanticized thinking about decay. Objectification is not the only violence we should be wary of. We should remember warnings that “distilling rot to an ethical relation is not always possible or straightforward.” [xxxii] If we can incorporate these sensibilities in our ethical relation to rot, we might find another critique of the Peabody Museum’s approach to decay. Seeking to destroy any possibility of rot indicates an ethical relation with decomposition that is grounded in not appreciation or care, but moral control and ecophobia.[xxxiii]

The Peabody ornithology department presents their specimens as birds, despite the deconstruction that these bird bodies have undergone. Whether they are truly birds or just stretched out, fluid-preserved, cryo-preserved bits of what used to be birds, we can refocus on the

state of their material form. Whole or in pieces, perception as an object is what forces these bits of matter to endure preservation, a "death that [does] not mean being dead." [xxxiv] Is it pertinent to ask about their right to decay? Languages of rights and entitlements struggle to find purchase where subject is object. Alternatively, it might be possible and richly generative to recognize the body's organic inclination to decompose as desire. A desire that, without the intervention of the Peabody's curator-scientists, would have been fulfilled for these birds' bodies. To specifically and intentionally deny their ability to decay recognizes putrefaction as a transformative process that must be resisted in order to objectify and maintain power. Rot insists that organic forms are universally susceptible. As we learn from "Soft, Black and Liquid" on corporeal boundaries, the results of rot are "always unbearable, a reminder of our finitude, an unavoidable product of our vulnerable corporeality." [xxxv] Might we instead understand rot as a reminder/promise/threat that we are all bound up in this together?

Caring about materiality means caring about our bindings themselves. There is much to learn from Zoë Todd's deconstruction of the ways that the "machinations of human political-ideological entanglements" determine what is appropriate and possible in relations.[xxxvi] Todd reminds us that we can tend to our "narrow conditions of existence" by shifting logics, and remembering to take care of our relationships in the "continuous co-constitution of life-world between humans and others." [xxxvii] Tending with tenderness means listening to those like self-described Black Feminist Love Evangelist Alexis Pauline Gumbs, who pursues "learning from beings who have long term practice… living [with] adaptation," which is, as she sees it, the salvation of the world.[xxxviii] While the Peabody's ornithology department seeks to learn from bird adaptations, they situate the birds' state of preservation as being necessary to this project.

Contrarily, Joanna Radin describes how rot offers "a way of thinking ontologically in reverse… understanding the order of things as they disappear rather than as they come into being." [xxxix] This should not be mistaken as a call to develop new ethical relations because of the novel value that they could produce. Rather, we can see Radin's curious thinking as creating a new ontological home for some of the wayward scientific motivations that currently power preservation. Over a decade ago, Louis Lefebvre changed the way that scientists could conceptualize bird intelligence by suggesting that an "animal's ability to innovate in its own environment" was more telling than laboratory tests.[xl] While this paper lacks the breadth to critique the anthropocentrism inherent in multispecies intelligence tests, frameworks like Lefebvre's suggest there are ways of learning from birds that do not require holding organic processes hostage for the sake of new data.

Knowledge originating from diverse locations, interdisciplinary combinations/forms, and peoples continues to go unrecognized (at least in the objective laboratory). Consider instead the artist group *Bird Collective*, in which participants shifted perspective and sought out new relations by emulating birds: "Inhabiting the birds allowed us to break out of those strictures… we were able to embody different potentialities through the birds." [xli] What I am suggesting is that it is possible and necessary for us to follow Gumbs' suggestion that we learn to relate to the world in ways that are most "certainly a threat to the status quo." [xlii] This suggestion will have unclear, muddied results; but it is dynamic and rooted in a desire for care, which makes it worth adding to our rotting compost pile, created in honor of the never-dying, ever-dying bird bits.

In investigating our crisis of preservation, we rattle the political/economic/social structures holding us in place. Perhaps defenestration might speed up their decline. We are all, as Haraway reminds us, deep within the "string figure game of caring for and with precarious

worldings," yet care is not often a prioritized value in scientific spaces.[xliii] To think critically and cooperatively in an ecological sense asks of us the "recognition of an intractably compromised, contingent, and politically complex condition of mutual implication." [xliv] Insisting that care is a core value means asking, in Theaster Gates' words, "how can we be good to each other?" while knowing that the bounds of "each other" must extend beyond and across all kinds/kin/kith.[xlv]

To see decay as a "mystical process that gives rise to new life" disorients us—maybe enough that we accidentally imagine birds as subjects, as having their own desires.[xlvi] The uncanny, unfamiliar thoughts found by thinking with processes of decay might leave us in a place where we find the only appropriate course of action is to give the birds their own funeral pyre, letting them burn as they will. While fire can embody a loving intimacy, I propose a pyre that experiences temporality as the force burning through it. Perhaps decay's "smokeless burning" can give back to the birds a tender agency as they rejoin their own, already decomposed, kin.[xlvii] I wonder too, if this moment would generate a sense of collectivity that seems to be missing from science.

It is clearly not only the sciences where collective care and action are lacking, but we might find the most obvious traces of their absence there. I return to the intelligence of mushrooms, the "fruit of a dense hidden world of hyphae, [that] tendrils out, talking to trees and to tree roots," who have longtime whispered promises that "if you listened right, [your] thoughts move from the "I" to the "we." [xlviii] To see the world as interconnected, perhaps even as kin, takes time and effort, just like any intimacy. But, as we see in the development of Ladelle McWhorter's relationship with garden dirt, our entanglements have the possibility of "altering [our] sense of self."[xlix] Care can operate like rot; it has the potential to expand us and transform our sense of possibility. McWhorter eventually begins to ask "what it would mean to treat her

own body as well as she treats her compost," excising Yellow 6 and Red 40 from her world as they are no good at rot or decay. For her, this comes to mean that these chemicals "also have no place in life." [l] Living queerly with rot, as Shcheglovitova reminds us, is both possible and necessary.[li]

I find myself drawn in by early 20th century artist Leonora Carrington's fantastical and surreal stories of animal/human collaborations, which prompt us to ask why, for instance, a hyena and a human shouldn't be allies against systems of empire and domination.[lii] How might we creatively ally ourselves with the more-than-humans around us whose desires we may not, at first glance, comprehend or even notice? Because we desperately, deeply need one another, in "unexpected collaborations and combinations, in hot compost piles." [liii] Our more-than-human entanglements offer "important collaborators in the production of freedom." [liv] Decay itself requires conspiracy and collectivity from all those who help metabolize life after the end.[lv] Systems of power and domination try to keep the temperature balanced and humidity low, but rot seeps in. It is in our best interests to foster decomposition, building both funeral pyres and compost piles. With whatever particular nutrients you can steal/liberate/release—conspire with rot to seed care and compassion into the very atoms of the worlds currently regenerating.

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[xv] Harway, "Foreward: Companion Species, Mis-recognition, and Queer Worlding," xxiv.
[xvi] Kimmerer, *Braiding Sweetgrass*.
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[xxvii] Radin, "Rot."
[xxviii] Findley, "Fruit and rot," 461.
[xxix] Findley, "Fruit and rot," 462
[xxx] Shcheglovitova, "Dawn of the lively dead," 1.
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[xxxv] Horvath, "Soft, Black, and Liquid," 67.
[xxxvi] Todd, "Fish, Kin and Hope"
[xxxvii] Todd, "Fish, Kin and Hope"
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Appendix B

From "Fungus and Feathers," Woodpecker specimen with "shroud" of mold filaments, August 2020.

From "Fungus and Feathers," Golden eagle (Aquila chrysaetos) specimen with "shroud" of mold filaments, September 2020.

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