



Piecing Together the Extinct Great Auk

Techniques and Charms of Contiguity

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Abstract Extinct as a result of overhunting and habitat loss, the great auk, or garefowl, leads a hidden taxidermied existence in museum storerooms, sheltered from potential further degradation. As an environmental icon, however, the bird inspires a lively political economy of re-creation. Engaging from an anthropological perspective with practices of collecting, representing, and re-creating the great auk, I combine testimonies from Cambridge ornithologist John Wolley's mid-nineteenth-century *Garefowl Books* with contemporary ethnography among taxidermists and model makers in Britain and Belgium to argue that remnants, re-creations, and reenactments of the extinct great auk offer a material substrate from which to grasp a human drive to achieve contiguity with a lost species. Re-creation as a form of attentive reanimation by dedicated experts takes shape both discursively and plastically, predicated on assumptions about natural appearance and behavior that may not reflect evidence from historical records. Animated by what I call techniques of contiguity, reconstructions play a persuasive role in expressing and shaping human perceptions and imaginings of past environmental disaster and future environmental opportunity. Contiguity is achieved, on one hand, through performances of bodily kinship between human practitioners and dead or extinct animals and, on the other, through plays on resonance with specific organic materials, including garefowl remnants in Victorian taxidermied auks and plumage from related seabirds used in contemporary auk reconstructions. The reanimated great auk lives to tell stories of ethographic entanglement and continues, through its presence in museum spaces, to provoke both thought and action in a time of unprecedented numbers of species extinctions.

Keywords contiguity, extinction, reconstruction, reanimation, great auk, materials

The Great Auk: The Lure of the Rare

A list of names appears on one of the last pages of the first notebook of nineteenth-century ornithologist John Wolley's handwritten *Garefowl Books*.¹ Headed "Last Crew Which Got Geirfugl," the list features the Icelandic men, identified by their first names

1. Wolley, *Garefowl Books*, 1:113 (hereafter cited in the text as *Garefowl Books*). See also Fuller, *Great Auk*, 80–85 (hereafter cited in the text as *Great Auk*). The *Garefowl Books* are kept in Cambridge University Library, where I was kindly allowed to consult them in the Manuscripts Reading Room.

and patronymic references (Hakonarson, Brandson, Hafsson, Ketelsson . . .), who were allegedly the last to capture a pair of live garefowls, or great auks (*Alca* or *Pinguinus impennis*; *geirfugl* in Icelandic), before the large flightless North Atlantic seabird became extinct. The great auk was last seen, and strangled, off the Icelandic coast on the island of Eldey in 1844. The bird's extinction was preceded by a feverish drive to collect increasingly rare specimens for purposes of science and display, particularly in Britain; replicas were produced as well.²

The great auk saga speaks of environmental disaster, both human-caused and natural—the last colonies of garefowls had to leave their remote rocks, the Geirfuglasker, when these were engulfed as a result of volcanic activity, thus becoming more vulnerable to (over)hunting. Great auk remnants remain symbolically rich in a contemporary context of unprecedented numbers of species extinctions in the Anthropocene.³ In a mainly historical overview, Robert A. Lambert conceives of the auk as an “indicator species,” suggesting to use the term “in a novel way, to describe the relationship of an individual species to the mind of the human species” so as to have it speak to environmental history.⁴ The rich associations evoked by the extinct great auk are also highlighted by Jamie Lorimer, with plays made on the resonances between *auk* and *awkward* to emphasize the bird's disarming vulnerability.⁵ Auks remain desirable as intriguing *material* specimens as well, and this is the relationship I wish to highlight, a relationship between great auks that have fallen still and humans using skills of inquiry, imagination, crafting, and embodiment to enliven these birds again through what I call techniques of contiguity.

In his first notebook, Wolley was piecing together the last successful garefowl expedition on Eldey, the refuge of the birds after their eponymous Geirfuglasker islands had disappeared under water (*Great Auk*, 72). Wolley and his ornithologist friend and fellow Englishman Alfred Newton visited Iceland in the 1850s on a quest to learn about the bird, its appearance, and its behavior. They interviewed men and women who had seen living garefowls or who had skinned and stuffed the fresh bodies desired by collectors and naturalists. By gathering testimonies and meeting with all surviving members of “the last crew,” Wolley and Newton sought to gain closer proximity to the absent auk.⁶

Wolley's and Newton's piecing together of the live garefowl, of the species' demise, and of its continuing existence as a mounted skin through a listing of those who

2. See Fuller, “Auks and Men,” with drawings and images of newspaper clippings from the era.

3. See van Dooren, *Flight Ways*. That a concern with extinction existed already more than a century ago and led to zealous collecting for scientific purposes is evident from renowned American taxidermist William T. Hornaday's call for collecting at the end of the nineteenth century: “The rapid and alarming destruction of all forms of wild animal life which is now going on furiously throughout the entire world, renders it imperatively necessary for those who would build up great zoological collections to be up and doing before any more of the leading species are exterminated. It is already too late to collect wild specimens of the American bison, Californian elephant seal, West Indian seal, great auk, and Labrador duck” (*Taxidermy*, vii).

4. Lambert, “From Exploitation to Extinction,” 31.

5. Lorimer, “On Auks and Awkwardness.”

6. “This book commenced in Reykiavik 30th April 1858 by me, John Wolley . . . intended for notes on *alca impennis*” (Wolley, 1:2).

engaged with it sets the tone for the themes I pursue in this article. Combining present-day ethnography among great auk experts and modelers with a close reading of sections in the *Garefowl Books*, I suggest that remnants and re-creations of the extinct great auk offer a material substrate from which to grasp sustained desires to get close to the rare and the elusive through practices of (textual and material) re-creation, imitation, and reanimation.

In a recent special section of *Environmental Humanities* highlighting research into multispecies relations, Thom van Dooren and Deborah Bird Rose call for “ethographies” to provide dedicated storytelling from various narrative perspectives that include the more-than-human.⁷ Making great auks emerge as actors in stories of mutual entanglement, Wolley and Newton provided an *ethography-avant-la-lettre*. This story is ongoing: the auk lives on in three-dimensional models, including stuffed specimens and great auk re-creations from scratch. These ambivalent beings, displaying a no-longer-biotic liveliness in multispecies webs of relating, continue to move collectors and model makers in their quest for contiguity with an extinct species.⁸ Heeding the call to cultivate “arts of attentiveness” in exploring multispecies relations,⁹ I include these specimens and their makers in an ethographic analysis of reanimation. I will argue that re-creation as a form of reanimation takes shape both discursively and plastically through human action inspired by auks and auk-like materials. Such action is predicated on particular assumptions about natural appearance and behavior and performed both discursively, by enthusiasts’ piecing together and acting out the story of the garefowl, and plastically, by enthusiasts’ piecing together the garefowl through material re-creation. Both imitative modes, I suggest, are embodied expressions of a desire for proximity with the rare and elusive through techniques of contiguity—an apt term, as it denotes tangibility and contact through touching (from the Latin *contingere: cum* meaning “with, together”; *tangere* meaning “to touch”). My analysis is meant to contribute to the call by environmental humanities scholars working on extinction “to weave tales that add flesh to the bones of the dead and dying.”¹⁰ Importantly, however, the practices of reanimation that I discuss here constitute as-such tales that reinvigorate the dead and provide them with (substitute) flesh; my analysis, then, engages with and provides an additional narrative layer to ongoing tales of embodiment and re-creation.

Taxidermy as Nonrepresentational Engagement

My investigation into the great auk took place as part of a larger project on interspecies dynamics in taxidermy, involving short stints of multisited fieldwork over an extended

7. van Dooren and Rose, “Lively Ethography.”

8. I expand here on van Dooren, Kirksey, and Münster’s remark that multispecies relations may extend to relations between biotic and “abiotic liveliness” (“Multispecies Studies,” 4–5).

9. *Ibid.*, 17.

10. van Dooren, *Flight Ways*, 8.

period of time. As an anthropologist, I am particularly interested in human embodied skill and in category making. Taxidermy, as a skilled practice, offers valuable insights into human relationships with the natural world that blur boundaries between categories, including living being versus object and life versus death. Since 2012, I have met and interviewed both taxidermists and artists using taxidermy in their artwork, visiting them in their studios in England, Scotland, the Netherlands, Belgium, and Switzerland.¹¹ I have become an active member of the UK Guild of Taxidermists, participating in its annual conventions and in skill demonstrations. I have undertaken training courses in mammal and bird taxidermy offered by three different practitioners in England and built on skills of preserving at home. Meetings with guild members with an interest in re-creations of extinct species led to conversations with great auk experts in Britain and Belgium and to my encounters with several models as well as a “real” stuffed auk, providing the narratives for this article. In engaging with animal materials and in observing others engage with these, I was struck by the lively, alluring presence of dead specimens and their narrative potential in contexts of making. Taxidermy is very much about getting in touch with what would otherwise disappear; reconstructions of extinct species put categorical distinctions between life and death into even starker relief while constituting attempts to bridge such distinctions. Being attentive to these practices means highlighting a bodily kinship between practitioners and a natural world that spans different temporalities as it is imagined and lived-through materially.

Taxidermy tells many different stories and has been entwined in the course of its history with different politics, ranging from early modern scientific classification and nineteenth-century trade and empire building to recent artistic critiques of nature-culture dichotomies.¹² Focusing on material entanglements in human- auk relations, I align myself with authors who have embraced a nonrepresentational approach to taxidermy by engaging in processes of embodied making themselves or by seeking to piece together stories by following material remnants through time.¹³ In the latter approach, notable projects include the bringing together of mounted polar bears, scattered over museums and private collections, into one large exhibition;¹⁴ an artistic and playful re-assembling of the extinct blue antelope;¹⁵ the return of a hen harrier study skin to its Scottish habitat, where birds of prey are threatened with illegal hunting;¹⁶ and a

11. One outcome was an exhibition and workshop among Kendal Museum’s Victorian taxidermy collections in collaboration with artist Anthea Walsh, funded by a 2012–13 British Academy/Leverhulme Small Research Grant titled “Mastership in Taxidermy: Artistic Interventions in Human-Animal Ontologies.”

12. See Poliquin, *Breathless Zoo*, 124, on taxidermy as a “shape-shifter.”

13. Patchett, “Witnessing Craft”; Patchett, “Taxidermist’s Apprentice”; Straughan, “Entangled Corporeality.”

14. Snaebjörnsdóttir and Wilson, *Nanoq*.

15. Patchett and Foster, “Repair Work.”

16. Patchett, Foster, and Lorimer, “Biogeographies of a Hollow-Eyed Harrier.”

diachronic analysis of craft and apprenticeship.¹⁷ In my piecing together of the great auk, I pay attention to the persuasive role that materials (namely, auk remnants in taxidermied auks and other bird stuff used in auk models) play in achieving contiguity with the extinct as it is patchworked out of kin materials. But I am also attentive to performances of interspecies kinship acted out in choreographies of mimicking, which constitute another technique of contiguity—as close reading of the *Garefowl Books* will reveal. Owing to the very different sources on which I draw (a collection of testimonies from the past combined with sustained personal interaction with contemporary model makers), I will not present a neatly diachronic account. Instead, I draw out analogies that point to ongoing human desires to achieve closeness with elusive fellow beings through imaginative and skillful play with categories of life and death.

Memories of the Great Auk—Bodily Approximations in the *Garefowl Books*

In my ethnography of taxidermy, I found that the making of taxidermied mounts (that is, mounted or stuffed specimens) involves what I have named “morphological approximation,” a kinesthetic performance predicated on morphological interspecies similarities acted out physically by the practitioner in a bid to achieve correct morphology and posture for the mount. Morphological approximation in taxidermy practice, I suggest, is a more-than-human variation on the affective state of empathy described by Dee Reynolds and Matthew Reason as occurring between human actors through imitative movement, which they call “kinesthetic empathy.”¹⁸ Kinesthetic empathy is about mimicking movement and posture through affect, a bodily response that precedes cognitive judgment, experienced with other human bodies in a relational process such as a dance performance. In the case of taxidermy, practicing morphological approximation helps bring the living, breathing animal back into the taxidermist’s memory, gesturing so that a correct, lifelike morphology may be projected from the practitioner’s living body onto the dead mount. This occurs when practitioners strike poses that they associate with the species on which they work, trying these out on their own breathing, fleshy, articulated bodies in what may be considered a performance of morphological kinship.¹⁹

This technique of contiguity—acting out another species’ morphology on one’s own body—also plays a role in the *Garefowl Books*. As Wolley and Newton inquired into the auk’s posture and comportment, piecing together the story of its last sightings and

17. Patchett, “Historical Geographies of Apprenticeship.” For more general emphasis on the material over the representational in human and posthuman experience, cf. Barad, “Posthumanist Performativity,” and Ingold, “On Human Correspondence.”

18. Reynolds and Reason, *Kinesthetic Empathy*.

19. See Kalshoven, “Gestures of Taxidermy”; see also Patchett, “Witnessing Craft”; and Desmond, “Post-mortem Exhibitions.” Van Dooren’s chapter on whooping cranes and the human-bird mimesis occurring in attempts to raise endangered cranes and hatch eggs in captivity (with human caretakers dressing up as cranes in order to evade problems of “imprinting”) may be interpreted as another instance of morphological approximation (*Flight Ways*, chap. 4).

its dwindling numbers, some Icelanders expressed their knowledge of the bird not only verbally but also through remarkable instances of bodily performance. Several protagonists involved in hunting the birds responded to the ornithologists' queries by acting out great auk movement, mimicking from memory, with their own bodies. For example, reporting on his interview with Vilhjalm Hakonarson, the captain of the crew that went out on the last expedition, Wolley writes, "He (Wilhelm) acts as the bird putting his head first on one side then on the other then forward with the neck stiff. Then he begins to run with short little steps" (1:40). Similarly, in an interview with witness Oddi Oddison, Wolley writes, "Does he hold his beak straight, so? No he has it so, pointing 45° with his arm, the neck at the same time carried straight. . . . He has a mark over his eye (as big as a hens [sic] egg), as witness shows on his hand with the forefinger of the other" (1:93–94). Talking to eighty-one-year-old Erlandur Gudmundson, who witnessed the volcanic eruption of the Geirfuglasker, Wolley reports, "He often saw the birds. . . . He always had his beak pointed upwards & was always moving his head from side to side [Erlandur] shows exactly this action on a dried body (skin & all) of a little auk lying in his window." Several pages later, Wolley writes, "[Erlandur] [s]hows again & again on the little auk how the Garefowl turns its head from side to side. It had a white patch as big as the end of a thumb near the eye. Himma was blue white—the film that came over the eye—can't remember & declines to say what the colour of the eye is." Erlandur continued to manipulate the little auk in discussing the great auk's color: "He takes the skin of the earlier little auk & says it was just like that, but nipping it several times under the chin, he does not remember whether or not it was white there" (1:67). In another interview, Gudni Hakonarson, one of the "last crew," demonstrated on his own body to Wolley how the garefowl moved: "[It] comes walking slowly (*Gudni makes action*) like children, but quite upright—neck straight up. Gudni speaks this last with emphasis, decidedly as though he remembers well" (1:81; emphasis added).

Of interest in these examples are the instances of imitation that occur in remembering and "bodying forth" another species' posture on the speaker's own body or through mimicking on an available, related body, in this case the little auk animated by Erlandur.²⁰ Wolley's inquiries were met with demonstrations of knowledge-through-the-body meant to render tangible the no-longer-visible auk. Through a technique of contiguity predicated on imitation, then, proximity with the elusive, formerly present, formerly alive fellow being was conveyed.

Stuffed Specimens—Conceptions of Lifelike Taxidermy

In order to achieve insights into the auk's bodily constitution, Wolley and Newton interviewed Icelanders who skinned specimens and prepared them for collectors. All the

20. And later also by Vilhjalm: "Vilhjalm assents at once to the upward direction of the beak & the turning about of the head, but does not remember whether or not the Garefowl is lower in the water than the Guillemot—Vilhjalm repeats exactly on the little auks [sic] body the motions of the head as done by Erlandur having seen either Erlandur's original exhibition or any repetition of it" (Wolley, 1:67).

interviewees involved in skinning appear to have been women, notably, Sigridur Thorlaksdottir and Jungfrau Lewer, who discuss their techniques and explain the commissions they received, providing glimpses of a political economy of preserving and collecting (Wolley, 1:56–57, 160). We get some limited insights into the making of stuffed auks for increasingly zealous collectors, and into the organic materials involved in this process. For the Icelanders, the bird also remained a source of nutrition. “Jungfrau shows me between her fingers and thumb a space of about a quarter of an inch, as representing the thickness of the fat attached to the skin. . . . The flesh was eaten made into soup for the people and was very ‘kraftig’ (nutritious)—and good. . . . There was something put into the skins to preserve them of the nature of a ‘salva,’ a salve—yellow, kept in simple clay pot—They were stuffed with hay—and the end of the bones wrapped with common hemp. The contents of the skull were taken out through the small natural hole. . . . These were left with the skins the skulls, the wingbones, & the thigh bones . . . & as Jungfrau shows me by pointing to her arm, the humerus and the fore limb” (1:160–62; emphasis added). Similar to what I noticed in my ethnography of contemporary taxidermy, the taxidermist’s body serves as a measuring rod and as an analogy to the bird’s body.

About eighty taxidermied great auks from the Victorian period and a similar number of eggs are currently extant in natural history collections, primarily in Europe and North America.²¹ The quality of antique specimens in museum collections varies, and the feel that we get for the visual impression that the taxidermists interviewed by Wolley and Newton strived for is quite limited. In my ethnography of taxidermy, however, contemporary professional practitioners expressed themselves straightforwardly about their aim: to create a realistic effigy of life as observed in “nature,” using some of the animal’s organic materials, in order to do justice to nature’s perfect aesthetics. “Perfect” is a key modifier in this context; to respond to expectations of customers and of judges at competitions but also to satisfy their own sense of aesthetics, taxidermists, I found, generally strive for mounts that convey a symmetrical, unblemished look, creating a particular illusion of life,²² namely, life exuding health, regularity, and beauty.²³

In June 2015 I met Errol Fuller, an avid collector of Victorian taxidermy and the author of *The Great Auk* (1999) and a series of other books on extinct birds and on taxidermy. He suggested that taxidermy is fundamentally driven by a desire to retain beauty that will otherwise fade, a sentiment shared by many professional taxidermists when discussing their motivations in taking up the practice. In collecting specimens, Fuller suggested, “there always was a thing to get the best one, the finest, the biggest,

21. For the story behind each mounted specimen and each egg, see Fuller, *Great Auk*.

22. “Creating the illusion of life” is the motto of the UK Guild of Taxidermists.

23. On standards of realism and lifelikeness in a North American context, see Desmond, “Displaying Death, Animating Life”; and Desmond, “Postmortem Exhibitions”; see also Orlean, “Lifelike”; and Kalshoven, “Gestures of Taxidermy.”



Figure 1. Selecting a specimen at a bird taxidermy course, Greater Manchester, 2011. Photograph by the author

the most showy.” Among the surviving great auk specimens, a certain hierarchy is apparent. The “most celebrated one,” Bullock’s Papa Westray auk, is one of only a few extant specimens without the grey fringe that is associated with female birds protruding from under its wing. Part of its enduring attraction, Fuller writes, is that “it has a British provenance, and it is the British, perhaps, who have pursued the cult of the Gargawle most vigorously.” Also, “of all the Great Auks alleged to be male this is the only one whose sexual determination seems in any degree reliable” (*Great Auk*, 141–45). So I asked the author whether good-looking male specimens were preferred in taxidermy. “I have this massive collection of birds of paradise,” he said. “As you know, the male birds are incredibly showy. The females are subtly beautiful. Some of those plume birds are very easy to get. But to find female ones. . . they are very rare. . . . They were only taken on serious scientific expeditions.” The lifelike in taxidermy is skewed toward a liveliness and vitality associated with perfect, prime condition, displayed in confident, alert, at times gendered exhibitionism.²⁴

Achieving this desired look is impressed on novices from the outset and must begin with the selection of an appropriate specimen. The bird taxidermy courses that I

24. Haraway, “Teddybear Patriarchy,” has powerfully exposed the workings of gender dynamics in early twentieth-century American museum taxidermy, with male specimens selected to symbolize male dominance in human society. Cf. Purcell, *Swift as a Shadow*, a photographic work on extinct species, in which the author notes in a section on the extinct huia that “collectors . . . were intrigued that the female’s bill was approximately twice as long as the male’s” (nr 44 Huia), suggesting that standard expectations are for superior male size. In contemporary taxidermy, gender dynamics continue to play an intriguing role, not only on the nonhuman side but also in terms of men and women taking up taxidermy for sometimes quite different reasons, a topic that I address elsewhere (see Kalshoven, “Gestures of Taxidermy”).

undertook in 2011 and 2013 in England began with the examination of a series of defrosted corvidae (easily accessible species on which to practice), with the aim of checking for fractures and scruffy plumage in order to single out a viable specimen for mounting (fig. 1). Not only, we were warned, would imperfections lead to a less desirable look in the finished product, they would also make the task of mounting more arduous and, commercially speaking, less (or not at all) worthwhile.

Once a specimen has been chosen, a number of skill sets are required to properly skin the carefully measured bird, dispose of all perishable parts, and then reassemble it by stretching the skin over a made-to-measure replacement body called the manikin, a structure that mimics and replaces the animal's body in creating a mount. A mount is a combination of organic materials that belonged to the living animal—its skin, its fur or feathers, a few bones that are left in—plus the manikin, which gives the mount its shape. Different materials may be used for the manikin. In the examples given in the *Garefowl Books*, the Icelandic women used hay to stuff the auk skins—whether they created a three-dimensional manikin, around which the skin got draped, remains unclear.

The Great Auk's Eye: Observations of a *Bladka*

Wolley and Newton were primarily interested in finding out more about the appearance of the bird, such as the color on the inside of its mouth or the color of the eyes. They had certain expectations based on their knowledge of previous studies into great auks, as was evident when they visited an apothecary: “In his room was hanging up a picture of the bird, very stiff, by a French artist. His wife's first husband it was who held it, a dead bird, in position whilst it was being painted—the eye seemed to us too large and the wings much too long, besides other defects in the painting” (Wolley, 1:5–6).²⁵ The eye proved particularly elusive to both ornithologists because, according to most of their interview partners, it was often obscured by a membrane, or *bladka*. According to Erlandur, “The bird looked about as if from under blinkers, it could see with great difficulty until the water lifts the lid from its eyes” (1:62), and Jon Gunnarson, a member of the last crew, remarked, “The bird is blind on the rocks, there is a cover (*bladka*) comes over the eye” (1:35).

Fuller, in his standard work on the great auk, also mentions the *bladka*'s prominence in the *Garefowl Books* and suggests this must have been the so-called nictitating

25. An intriguing mistake in early great auk representations arose as a result of a drawing of a pet bird kept by seventeenth-century Danish scientist and naturalist Ole Worm; a collar the bird wore around its neck was understood to be part of the bird's plumage and was reproduced in subsequent images. See Fuller, *Great Auk*, 44, 56, and for an image of the drawing, see 361. Worm established the Museum Wormianum, an extensive curiosity cabinet immortalized in a famous engraving for the frontispiece of the museum's catalogue. In 2014, I visited a permanent exhibition by American artist Rosamond Purcell in Copenhagen's Geology Museum that consisted in a full-scale re-creation of the catalogue's frontispiece, including a three-dimensional rendition of a great auk. See “All Things Strange and Beautiful,” Geological Museum, Natural History Museum of Denmark, geologi.snm.ku.dk/english/exhibitions/all_things_strange_and_beautiful (accessed April 12, 2017).

membrane (*Great Auk*, 25). In his extensive overview of the bird's fate in collecting history, he discusses the auks one by one, often with an illustrating photograph or drawing. What is striking in these images are the bird's invariably visible (usually brown) eyes (*ibid.*).²⁶ Despite the evidence provided in Wolley's and Newton's interviews, taxidermists and artists have chosen to portray great auks without the *bladka* deployed. Nor have I noticed the *bladka* in action on recent reconstructions of *garefowls*. The absence of a *bladka* on great auk representations seems to stand in opposition to the general principle followed by taxidermists to aim for a lifelike look as observed in nature.

So how do representations of the great auk, with eyes inquisitively open in seeming defiance of the descriptions of their "blindness," relate to conceptions of lifelike appearance as pursued by taxidermists? The third eyelid became a topic in my discussions with contemporary model makers on their mission to bring the great auk back to life through reconstructions. I met with two highly regarded modelers of great auks, each with many years of experience in the world of museum taxidermy, to find out more about the assumptions and materials involved in re-creating auks—and to get their perspective on the *bladka* and its absence on *garefowl* mounts.

Re-creating an Extinct Bird: Techniques of Contiguity through Material Kinship

Where "real" remnants from Victorian times can no longer be had, auks are pieced together by human practitioners in attempts to bring the extinct bird closer and make it visible again. The challenge in re-creating an extinct species, as distinct from a straightforward taxidermy job, is twofold: the practitioner must find proper reference materials that provide clues about the original, living creature and must prepare substitute materials that will stand in for skin and for fur or feathers that are no longer readily available. The construction of a model is otherwise quite similar to creating a mount in taxidermy. In both cases, a manikin needs to be prepared, which is just as key in modeling an extinct bird (using replacement materials) as it is in making a mount (using the specimen's own skin). Fashioning replacement materials for an extinct bird (that is, skin and plumage) constitutes an additional technique of contiguity involving ingenuity and a lot of patience. Taxidermists use plumage from other, related bird species and cast bills and feet from antique mounts or re-create these by magnifying molds taken from smaller birds.

The first expert I consulted was Derek Frampton, founding member of the UK Guild of Taxidermists and a sought-after figure in the world of natural history museums. Great auks are especially attractive to reconstruct, Frampton suggested, because there are specimens left. What is different from modeling a dodo, for instance, is the possibility of taking measurements from extant, mounted auk specimens—while being aware that such specimens are antique models in themselves rather than recently alive bodies, so not necessarily good likenesses of the living animal. In creating his own

26. Here Fuller refers to some evidence that the eye was either chestnut or hazel.

Figure 2. Derek Frampton demonstrates layering of plumage in his studio near London, 2015. Photograph by the author



reconstructions of the great auk, Frampton had indeed taken references, that is, measurements, from extant mounts, but he had also studied techniques deployed in Victorian reconstructions made by renowned taxidermy company Rowland Ward (*Great Auk*, 110–12).²⁷ Already in Victorian times, great auk models were produced to satisfy collectors who could not get their hands on a stuffed “real” specimen. What is considered real is a relative matter—nineteenth-century mounted specimens may be considered closer to the living bird because they contain materials that were once part of a living auk. Moreover, because of this particular materiality they are contiguous with the times and places in which great auks lived. And yet a reconstructed model may be truer to the once-living specimen. For example, Frampton told me that he made his reconstructions less stretched out than Victorian mounts, because, by taking measurements of skeletons, he had found that birds would not have been able to stretch as far as they did in Victorian mounts or reconstructions; subsequently, to fill out the prepared skin, his models needed to be made a bit fuller.

During a visit in June 2015 to Frampton’s studio in the periphery of London, he showed me how he worked to create great auk skins using substitute feathers from other seabirds. From leftovers of razorbill or guillemot skins, he cut small pieces with white plumage attached and then glued these onto a wooden board to demonstrate a technique comparable to tiling a roof, with pieces overlapping like fish scales (fig. 2). He had noticed this technique when he restored a Rowland Ward replica specimen. When you make a re-creation, he explained, you do not have the luxury of having at your disposal feathers of different lengths, as would occur naturally on a bird skin, so you have

27. Here Fuller presents a photograph of a “fake” great auk produced by Ward (112). Also see Morris, *History of Taxidermy*, 292–96.

to adapt the manikin to mimic the fullness of natural bird plumage. He demonstrated this by drawing a bird's body, indicating how the feathers would sit and how he would subsequently reshape the manikin to compensate for the lack of gradual differences in feather length in the substitute feathers he had at his disposal.

As Frampton explained, Rowland Ward made some of its great auk replicas by nipping off individual feathers and pasting these onto the manikin with rubber glue—a very time-consuming process. This is why Frampton chose to leave substitute feathers attached to pieces of skin, using the feathers in clusters. But, he cautioned, gluing large pieces onto the manikin might lead to unsightly demarcations because of different feather lengths on the different patches of skin, so that feathers would show in different clumps. For the head, he had used feathers taken from little auks, since these are smaller than razorbill or guillemot feathers. While creating the white patch near the great auk's eye, he needed to control his breathing to avoid either inhaling or dispersing the tiny feathers he used.

As we spoke, one of Frampton's great auk re-creations, showing the bird in a diving pose, was touring with London's Natural History Museum exhibition on extinction. Its feet, he explained, had been made from goose feet with the hind claw removed and sewn up, since great auks had only three toes. "You have to pay attention to such things," Frampton said. Another of his reconstructions showed a more classic, upright pose and had been inspired by the celebrated Papa Westray auk.

Frampton's expertise in reanimating the extinct great auk, then, was a result of research into contemporary and antique processes of making and of close engagement with carefully selected materials manipulated in great detail to imitate plumage. His techniques of contiguity included both imitation and emulation of Victorian techniques of model making as well as use of organic remnants of the auk's still-living kin, genealogically in touch with the extinct bird.

In the practice of Belgian taxidermist and model maker Pierre-Yves Renkin, tangible connections in reanimating fellow beings came about through sustained use of molds and mock-ups.²⁸ In March 2016, in his residence not far from Namur, Wallonia, Renkin talked me through his collections of curiosities and scientific models and took me on a tour of his workshop.²⁹ Its walls were covered in plaster molds he had collected or fashioned himself from the bodies of specimens that had captured his interest. In discussing his craftsmanship, Renkin foregrounded his mastery of mold making as being key to his practice. Molds are likenesses created from a direct impression of a malleable substance onto a surface, such as an animal's or human's skin, usually the face. The mold resembles a mask taken in preparation of a three-dimensional portrait. From

28. For a celebration of Renkin's work, see Heerbrant, *Le monde de Pierre-Yves Renkin*. For images of his reconstructions of a great auk and a dodo, see Fuller, *Voodoo Salon*, 201, 206–7.

29. My conversations with Renkin took place in French, with occasional phrases in Dutch. Translations into English are mine.

a mold, a cast can be made by filling the “negative” of the mold with a liquid or soft material that subsequently hardens and then yields the “positive” again. Making molds and using these for casting, Renkin suggested, helped one to gain intimate knowledge of the materials at hand through an exploration of shapes, folds, and wrinkles, offering at once a three-dimensional and a surface impression.³⁰ In Renkin’s work, the mold became the embodiment of contiguity, having touched and having molded itself upon the shape to be rendered. The material that Renkin used for molding—plaster—could also be useful for casting from a mold, as when he made replicas of great auk eggs meant to accompany great auk models shown with an egg at their feet, a traditional way of displaying auks. For this purpose, Renkin created eggs in the correct shapes and dimensions in wood, made a mold from the wooden egg, and then cast a plaster egg from the mold because plaster would provide the slightly granular texture of the eggshell.³¹

Having completed three great auk reconstructions, Renkin showed me a new model on which he had started work (fig. 3). He had made a cast of the bill of a mounted specimen kept in Brussels.³² On the original mount, the bill was closed; but on the cast, Renkin had separated the upper and lower jaws slightly to make space for a capelin that he planned to include in the reconstruction. To prepare for the body, he would fashion a mock-up from cardboard. Like a tailor, he would proceed to cut the cardboard to measure, then draw demarcations on it, resulting in a patchwork that indicated where different kinds of plumage were needed. Drawing, he explained, makes for better design. It helps one stay on track in the face of the skin’s malleability, which causes sections of plumage to become entangled with one another or certain layers of colors to be dislocated.³³ Renkin used to order substitute skins from Iceland, but lately he contents himself with guillemot or razorbill casualties from a rescue center on the Belgian coast. For one great auk, he would need eight guillemot skins to compose the dark-feathered back. Not every guillemot, however, has the same shade of feathers. So to ensure a perfect blend, he soaks the skins in a bath containing just a smatter of dye—not, he explained, to alter the natural colors but to ensure homogeneity. He hoped to put his new model forward at a competition.³⁴

30. On surfaces in taxidermy, see Kalshoven, “Re-animating Skin.”

31. Fuller dedicates a hundred pages to garefowl eggs, describing each extant specimen (all differently and attractively marbled) and discussing egg collecting and research by nineteenth-century naturalists (*Great Auk*, 240–339). Offering detail that eloquently expresses the Victorian naturalists’ passion, Fuller describes how Wolley’s collaborator Newton identified two eggs as being from the same parent, a year apart: “At the pointed end of each egg was a semispiral depression: ‘The effect no doubt of a sphincter muscle working upon the shell when in a soft and plastic condition’” (254). This depression is indeed visible in a lithograph shown of Newton’s egg as well as in a watercolor (253).

32. For the specimen’s collecting history and characteristics, see Fuller, *Great Auk*, 123–24.

33. For other examples of drawing practice in taxidermy, see Kalshoven, “Gestures of Taxidermy”; see Cain, *Drawing*, and Ingold, *Lines*, on drawing and embodiment.

34. Re-creations of extinct species form a separate category in major taxidermy competitions. Jane Desmond, in an article discussing the 2005 World Taxidermy Championships in Springfield, Illinois, refers to re-



Figure 3. Pierre-Yves Renkin with a great auk model, near Namur, Belgium, 2016. Photograph by the author

At the beginning of his career, Renkin had worked for advertising agencies, which meant that he had learned to be very creative in making animal mounts that resulted in a playful and convincing image on screen. He enjoyed using materials that were not necessarily the “proper” ones for a specific animal in order to achieve a rhetorical effect, effectively disturbing assumptions of contiguity. A technique that entered into play here was what Renkin called *dénaturer* (to denature).³⁵ As an example, he explained how he had created a horse head in miniature by using a rabbit skin with its large ears. He would denature the rabbit by using it in a way that denied its rabbitness, sculpting a little horse head and covering this with the rabbit skin instead of using the rabbit’s skull. This implied playing with volumes and textures and exploiting the iconic rabbit ears in a different context, tricking people into thinking that they were looking at a strangely small but “real” horse head. Achieving perfect illusion was also possible, he said, by using nonorganic materials, such as resin for the bill of a bird of prey, which would be mistaken for the real thing through expert painting. And yet for a museum piece he preferred using organic materials, implying a tangible connection with real life. To create a dodo, for example, he had used the feet of an emu. “Real materials,” he said, “[y]ou just feel it [*ça se sent, ça*]. You can make a very nice cast, but you know straight away it’s something else. I can’t explain it. Its bill, too, I make it out of horn.”

In explaining his principled approach and in discussing his reconstructions, Renkin used lively gestures and explained some of his assertions by performing examples

creations as a minor category (“Postmortem Exhibitions,” 360n25). At the annual conventions of the UK Guild of Taxidermists that I attended, however, re-creations were discussed frequently and were the subject of demonstrations by several experts. Recent museal interest in instrumentalizing “icons of extinction” possibly contributes to this phenomenon.

35. Interestingly, the French verb for doing taxidermy is *naturaliser*.

of a bird's behavior through bodily movement, as when he suggested how the dodo, heavy on its feet, must have been bald on its breast through friction with the earth as it dug up turtle eggs. "You have to immerse yourself in its history," he added. "You draw on technical fundamentals, you gather as much information on the quality of the plumage as you can, and then it's just you the dodo, it's you doing the imagining. . . . You become dodo."

Renkin's remarks, and his bodily performance, resonated with the morphological approximation I had noticed more generally in taxidermy practice and in the testimonies in the *Garefowl Books*. While taxidermy is quite literally about "arranging skin" (from the Greek *taxis*, "order/arrangement," and *derma*, "skin")—and, in the case of recreating extinct species, about arranging closely related skins—successful practice is predicated on an involvement on the part of the model maker that goes beyond a quest for similarity in a bid to achieve material and physical contiguity through imaginative enactments meant to give the specimen its "flesh" and imbue it with life or at least with the story of a life. "First and foremost," Renkin said, "taxidermy is the life of an animal." This claim struck me as rather enigmatic until I realized that Renkin's account of his practice suggested that taxidermy, as a form of storytelling through material, embodied pursuits of getting close to (in touch with) what dies and fades away, may bring social and natural histories alive—both within networks of interested parties and, through the museum worlds in which model makers such as Frampton and Renkin are involved, for a wider public.

Taxidermy may be the life of an animal, but that animal's life is imagined and expertly told by skilled practitioners. In the case of reconstructions of extinct birds, imaginative enactments work to bridge not only morphological but also temporal distances, bringing the past alive in the present—making past and present contiguous, touching one another, and moving forward in time. More generally, in Renkin's stories of taxidermy practice and heritage, animal remnants are seen to play a powerful role in bringing the past back to life. Drawing on his encounters with an elderly French taxidermist whose skill he admired, Renkin marveled at the knowledge of birds that this man, living in a region with a history of taxidermy and migratory bird hunting, possessed: "In cemeteries over there, new bodies take the place of the old. This man can lift the cushion, stuffed with feathers, from a coffin, and when he opens it, 150-year-old feathers will spill out, and he will tell you, 'She was buried in 1870—because that year snipes were passing through.' . . . So on the basis of a tuft of feathers he will conjure up a hunting season for you."

The Lure of the Real

Leafing through a photo album of a journey he had undertaken to Iceland years before, Renkin pointed to an image of a rock in one of the photographs. "That's Eldey. At its southernmost point, the last birds were taken. And [one of] the last was this one: the specimen kept in Brussels . . . kept in storage, fully protected." The allegedly last two



Figure 4. Brussels great auk specimen, Institut royal des sciences naturelles de Belgique, Brussels, 2016. Photograph by the author

birds taken on Eldey in 1844 were acquired by a Reykjavik apothecary. No one is quite certain where the mounted birds ended up. Fuller mentions Brussels and Los Angeles as the likeliest locations (*Great Auk*, 85),³⁶ and Renkin felt quite sure about the antecedents of the great auk in Brussels. What is more, he had excellent contacts at the Institut royal des sciences naturelles de Belgique in Brussels, where the bird resided. So in August 2016, I was welcomed by two museum professionals in the tall, labyrinthine 1940s building, which was going through a major refurbishment that was meant to free up two floors. Corridors were lined with cardboard boxes and cabinets-on-the-move. Because the elevator was slow to come, and when it finally did, it was filled with personnel moving tall plants, we took the stairs. We entered a store, and the curator immediately located the bird, at the bottom of a tall cabinet with glass doors, together with a few

36. See *Great Auk*, 416–19, for an appendix on the possible whereabouts of the two “missing birds of 1844.”

other old mounts and study skins and next to a dodo skeleton—these were the museum’s treasures, the curator said. She lifted the mount of the great auk out of the cabinet, then out of its compartment, and carried it into the store’s corridor. The light there was quite poor, so she decided to take it out of the store and into a tiled corridor with windows. The surprisingly fresh-looking garefowl was mounted upright on a simple pedestal; it was tall, slim, and rigid, leaning back on its heels just a little (fig. 4). The labels tied to one of its feet listed a date of 1846, the name of the dealer (Franck, in Amsterdam; mentioned often in Fuller’s *Great Auk* and prominent in the institute’s register), and the qualification “nuptial” to indicate it had its full plumage for courting, including the fluffy grey hair protruding from under the wings. We admired and photographed the bird and agreed it looked very content to be let out—and sad to go back into its store, safely protected and perhaps never to be put on public display because, I was told, it was too precious.

Meeting a “real” stuffed great auk left me feeling quite impressed. One of the “last crew” listed in Wolley’s *Garefowl Books*, I mused, might have had his hands on this one and strangled it. One of the Icelandic women interviewed by Wolley might have skinned it and struggled with its thick layer of fat. The feathers that I could have touched (but did not dare to) were great auk feathers that turned this mount into a “real” great auk. This specimen was literally contiguous with those fateful times. I had looked it in the eye, which was brown, without a *bladka*.

The *Bladka* Revisited

When I mentioned to the model makers the *bladka* and its absence on great auk mounts and reconstructions, their responses diverged. Renkin was intrigued by the insistence on the third membrane that had struck me in the *Garefowl Books*. He suggested, however, that people would not understand a representation with veiled eyes. It might well reflect a historical reality or the functioning of a bird’s eye, but what would it really add or achieve? Many birds, he said, have similar membranes, like a third eyelid. Frampton’s reaction was rather different. He beckoned me to follow him to a room where one of his mounts, presented in a case, showed a pheasant scratching its head with its left leg; he had prepared the left eye with its third lid closed for protection. Frampton, then, had chosen to create a posture with the nictitating membrane in full functional action. Here it made sense and could be easily understood because of the bird’s gesture. Both men worked to create an “illusion of life,” the motto embraced by the UK Guild of Taxidermists, which captures very well what lifelike taxidermy requires: for an illusion to work it needs to be convincing, which implies that compromises may need to be made in the relationship between representation and reality. As became apparent in the discussion of the lifelike in taxidermy, these compromises are by no means value-free. They are predicated on partially unquestioned notions—of aesthetics, functionality, and the value of rarity—that reinforce assumptions about what is worthwhile to be re-created and to be conserved.

What becomes categorized as worthwhile is in itself the product of a selection of historically, ideologically, and socioeconomically motivated decisions on the part of institutions such as natural history museums and professional bodies and on the part of individual taxidermists, model makers, and curators. In their practices, Frampton and Renkin, deploying expert techniques of contiguity, develop arguments expressed through images and materials to convey points about life—life that is recognized by the natural history museums in fleshed-out, lively-looking models, which they buy and display, hoping to shape visitors' perceptions and imaginings of environments past and future.

Contiguity achieved through models is, as it were, one step removed from the tangible connection that “real” mounts afford, even though reconstructions may provide a livelier (and, according to their makers, probably a more genuine-looking) impression of the great auk than some of the antique mounted specimens. This is so through the antique mount's sheer materiality, which includes parts of the individual bird and which has been witness to the era the bird was alive. More generally, this connotation of authenticity anchored in “having been there” and “having been alive” is exactly what makes taxidermy alluring and repulsive at the same time, even though a taxidermied mount is only very partially identical to the real thing in material terms.³⁷

The allure of the *materially* real is evident also in the *Garefowl Books*, since Wolley and Newton were keen to supplement their inquiry with material remnants of the great auk: “Just above high water mark, in high tides, I saw lying on the ground two pieces of bone which at once struck me as Geirfugl—on getting off I found that I was right: they were two distal ends of humerus, & looked like a pair. Newton also getting off found a radius. On the 6th July we again came to this spot and had a very successful digging” (Wolley, 2:262). Bits of great auks not only provided materials to the further understanding of anatomy and morphology but were treasures offering a tangible connection of contiguity with the henceforth elusive auk.³⁸

In my discussions with Fuller, this storyteller of the extinct expressed great enthusiasm for reconstructions that he felt struck the right chord and posture, while he deeply regretted having had to sell an antique mounted specimen of a great auk that he once possessed himself. When a friend accompanied me to “Extinction or Survival?” in Manchester Museum, he was disappointed, and felt rather duped, when the great auk on display turned out to be a (rather awkward) model rather than the real thing. And yet models perform in a lively political economy linking expert makers with natural history museums on a mission to remain socially and environmentally relevant. Natural history museums recognize the potential of “icons of extinction” in telling cautionary

37. Cf. Poliquin, *Breathless Zoo*, 39, on “the strange, unsettling power of taxidermy: it offers—or forces—intimacies between you and an animal-thing that is no longer quite an animal but could not be mistaken for anything other than an animal.”

38. See Lowenthal, “Authenticity?,” on what relics afford, as opposed to replicas, and Kalshoven, “Copies and Fakes,” on the ontological status of copies and replicas.

tales about overhunting, habitat loss, and environmental destruction and invest in convincingly lifelike models that help convey these stories.³⁹ Expertly deployed techniques of contiguity charm collectors and museum visitors into getting closer to the extinct great auk, inviting them to cultivate “arts of attentiveness” in exploring multispecies relations.

While adding another story to “tales that add flesh to the bones of the dead and dying,” then, I hope to have highlighted that the practices discussed in this story are in themselves examples of such storytelling. Arts of attentiveness in these tales are cultivated discursively, plastically, and at times rhetorically, taking shape in bodily and material experiences shared between practitioners and an extinct species, with the lifelike embraced as a means of bridging categories of life and death and of bridging temporalities that help point toward more equitable futures. Animated by human bodily performance and clothed in skins and plumage of related birds, reanimated great auks gesture, discreetly, to shared interspecies genealogies that underpin the interrelatedness of, and silently cry out for the continuity of, all life forms.

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39. The great auk model featured at Manchester Museum’s 2016–17 exhibition “Extinction or Survival?,” on loan from Leeds Museum, was made by twentieth-century taxidermist Thomas Salkeld from either razorbill or guillemot skins (Rebecca Machin, curator, Leeds Museum, personal communication with the author). The exhibition also showcased a dodo created by Derek Frampton based on recent scientific insights and interpretation—an important investment, according to the exhibition’s cocurator at Manchester Museum (Dmitri Logunov, curator, Manchester Museum, personal communication with the author). The dodo remains the icon of extinction par excellence. Dodo reconstructions by taxidermist Carl Church were commissioned by Kendal Museum for its 2013 Great Dodo Exhibition. Incorporated into the museum’s permanent collection, one model is hailed as “the most modern scientific reconstruction in the UK,” offering “a salutary lesson” for wildlife conservation; see “The Dodo,” Kendal Museum, www.kendalmuseum.org.uk/about-us/the-collections/world-wildlife-gallery/the-dodo.

References

- Barad, Karen. "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter." *Signs* 28, no. 3 (2003): 801–31.
- Cain, Patricia. *Drawing: The Enacted Evolution of the Practitioner*. Bristol, UK: Intellect, 2010.
- Desmond, Jane. "Displaying Death, Animating Life: Changing Fictions of 'Liveness' from Taxidermy to Animatronics." In *Representing Animals*, edited by Nigel Rothfels, 159–79. Bloomington: Indiana University Press, 2002.
- . "Postmortem Exhibitions: Taxidermied Animals and Plastinated Corpses in the Theaters of Death." *Configurations* 16, no. 3 (2008): 347–78.
- Fuller, Errol. "Auks and Men—the Cult of the Garefowl." In *The Great Auk*, 86–117. Southborough, UK: Errol Fuller, 1999.
- . *The Great Auk*. Southborough, UK: Errol Fuller, 1999.
- . *Voodoo Salon*. Billingshurst, UK: Summers Place Auctions, 2014.
- Haraway, Donna. "Teddybear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908–1936." In *Primate Visions: Gender, Race, and Nature in the World of Modern Science*, 26–58. London: Routledge, 1989.
- Heerbrant, Jean-Paul, coord. *Le monde de Pierre-Yves Renkin*. Brussels: Centre Albert Marinus, 2011.
- Hornaday, William T. *Taxidermy and Zoological Collecting: A Complete Handbook for the Amateur Taxidermist, Collector, Osteologist, Museum-Builder, Sportsman, and Traveller*. New York: Scribner's Sons, 1894.
- Ingold, Tim. *Lines: A Brief History*. London: Routledge, 2007.
- . "On Human Correspondence." *Journal of the Royal Anthropological Institute* 23 (2016): 9–27.
- Kalshoven, Petra Tjitske. "Copies and Fakes." In *Anthropology beyond Text*, edited by Rupert Cox. Vol. 12 of *International Encyclopedia of Anthropology*, edited by Hilary Callan. New York: Wiley-Blackwell, forthcoming 2018.
- . "Gestures of Taxidermy: Morphological Approximation as Interspecies Affinity." *American Ethnologist* 45, no. 1 (2018): 34–47.
- . "Re-animating Skin: Probing the Surface in Taxidermic Practice." In *Surfaces: Anthropological Transformations of Body, Materials, and Earth*, edited by Cristian Simonetti and Mike Anusas. London: Routledge, forthcoming 2018.
- Lambert, Robert A. "From Exploitation to Extinction, to Environmental Icon: Our Images of the Great Auk." In *Species History in Scotland: Introductions and Extinctions since the Ice Age*, edited by Robert A. Lambert, 20–37. Edinburgh: Scottish Cultural Press, 1998.
- Lorimer, Jamie. "On Auks and Awkwardness." *Environmental Humanities* 4, no. 1 (2014): 195–205.
- Lowenthal, David. "Authenticity? The Dogma of Self-Delusion." In *Why Fakes Matter: Essays on Problems of Authenticity*, edited by Mark Jones, 184–92. London: British Museum Press, 1992.
- Morris, Pat. *A History of Taxidermy: Art, Science, and Bad Taste*. Ascot: MPM, 2010.
- Orlean, Susan. "Lifelike." *New Yorker*, June 9, 2003, 45–50.
- Patchett, Merle. "Historical Geographies of Apprenticeship: Rethinking and Retracing Craft Conveyance over Time and Place." *Journal of Historical Geography* 55 (2017): 30–43.
- . "The Taxidermist's Apprentice: Stitching together the Past and Present of a Craft Practice." *Cultural Geographies* 23, no. 3 (2016): 401–19.
- . "Witnessing Craft: Employing Video Ethnography to Attend to the More-than-Human Craft Practices of Taxidermy." In *Video Methods: Social Science Research in Motion*, edited by Charlotte Bates, 71–94. London: Routledge, 2015.
- Patchett, Merle, and Kate Foster. "Repair Work: Surfacing the Geographies of Dead Animals." *Museum and Society* 6, no. 2 (2008): 98–122.
- Patchett, Merle, Kate Foster, and Hayden Lorimer. "The Biogeographies of a Hollow-Eyed Harrier." In *The Afterlives of Animals: A Museum Menagerie*, edited by Samuel J. M. M. Alberti, 110–33. Charlottesville: University of Virginia Press, 2011.

- Poliquin, Rachel. *The Breathless Zoo: Taxidermy and the Cultures of Longing*. University Park: Pennsylvania State University Press, 2012.
- Purcell, Rosamund. *Swift as a Shadow: Extinct and Endangered Animals*. Boston: Houghton Mifflin, 1999.
- Reynolds, Dee, and Matthew Reason, eds. *Kinesthetic Empathy in Creative and Cultural Practices*. Bristol, UK: Intellect, 2012.
- Snaebjörnsdóttir, Bryndis, and Mark Wilson. *Nanoq: Flat Out and Bluesome; A Cultural Life of Polar Bears*. London: Black Dog, 2006.
- Straughan, Elizabeth R. "Entangled Corporeality: Taxidermy Practice and the Vibrancy of Dead Matter." *GeoHumanities* 1, no. 2 (2015): 363–77.
- van Dooren, Thom. *Flight Ways: Life and Loss at the Edge of Extinction*. New York: Columbia University Press, 2014.
- van Dooren, Thom, Eben Kirksey, and Ursula Münster. "Multispecies Studies: Cultivating Arts of Attentiveness." *Environmental Humanities* 8, no. 1 (2016): 1–23.
- van Dooren, Thom, and Deborah Bird Rose. "Lively Ethography: Storying Animist Worlds." *Environmental Humanities* 8, no. 1 (2016): 77–94.
- Wolley, John. *Garefowl Books*. Five handwritten notebooks, 1845–1907. Begun by John Wolley; continued after his death by Alfred Newton, with extensive annotations by the latter. MS Add.9839/2/1–5, Alfred Newton Papers, Cambridge University Library, Cambridge, UK.