Constructing nature behind glass

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Abstract

By way of introducing this special issue of *Museum and Society*, 'Constructing nature behind glass', this paper first surveys the literature devoted to analyses of natural history objects and collections. Such work is to be found in interesting places – not only in museum studies, history of science, and professional museum literature, but also in visual studies, anthropology and cultural geography. After exploiting this writing for different perspectives on the cultural and practical construction of museum nature, this paper moves on to consider one popular topic, taxidermy. The ambiguous nature of taxidermic mounts, or 'remnant models', leads to a discussion of the relative status of specimen and artefact. I identify four configurations of their relationship: museum nature *as opposed to* material culture; museum nature *as* material culture; museum nature and material culture sharing parallel processes; and finally, museum nature and material culture entangled. All offer perspectives on the construction of nature and culture behind glass.

Key words: museum nature, natural history, material culture, taxidermy

Introduction

Half of the 200 million objects in UK museums are in natural history collections; around a third of them are in the Natural History Museum in London alone (Carter *et al*. 1999, Keene 2008). There are as many natural history objects as *all other kinds of objects put together*. And yet they are rarely considered within the pages of this journal (Hansen and Moussouri 2004, Machin 2008, Meyer 2008), and most analytical museology is concerned with other kinds of institutions of display. If academic museum studies is an intellectual playground, as Simon Knell (2007) recently imagined, then the natural science collection is a large climbing frame that seems empty while the children gather on the bouncy castle of the art gallery or anthropology's swings.

This special issue is intended not so much to balance this apparent irregularity, but rather to look elsewhere for studies of natural history collections and museums. There is a great deal going on, if one but knows where to find it.[1] History of science has a long tradition of studying natural history collecting and display; science and technology studies reflect upon the museum as a distinct site; and natural scientists contribute prolifically to the professional museum literature. In this special issue we seek out this interesting work, presenting five new papers that reflect on natural history collections from different perspectives, and we suggest avenues for further research. This is especially relevant for Museum Studies programmes, especially in the UK, as criticisms have recently been raised against them as training providers for ignoring the science museum sector (e.g. Davies 2007; Fothergill 2006).[2] That the contributors to this issue include not only practising museum professionals but also artists, historians of science, sociologists and geographers indicates not just the interdisciplinary character of this work – which is characteristic of museology in general – but also wealth of literature that is available, sometimes in surprising places, when we turn our attention to nature behind glass.

This paper, therefore, has a threefold purpose. First, it serves to introduce the five other papers that make up this special issue of *Museum and Society*. Secondly, to set them in context,

I chart the shifting topography of the study of natural science collections, arranged here into two loose but overlapping genres, historical and professional. Of course I will only be able to skim over this intellectual landscape, but in doing so I hope to provide a logic for understanding the museology of nature. Finally, I focus in more detail on one issue that I take to be at the heart of what is characteristic about natural history museums – the relationship between natural specimens and material culture. To what extent is a natural specimen an artefact? Where does the border between nature and culture lie? The study of taxidermy is especially pertinent in this respect, and accordingly it features prominently in my paper and those that follow (Poliquin 2008 in this issue, Patchett and Foster 2008 in this issue). Analyses of the micro-techniques, the exhibitionary contexts and the illusionism of the taxidermic mount continue to reveal the ways in which nature is purified and constructed in the museum. And taxidermy is only the best-studied of a stable of cognate processes, from drying flowers to buffing minerals.

The topic at hand, then, is 'museum nature', which incorporates the practices of collecting, preservation, and displaying certain things – animals, plants, fossils and rocks – and the conceptual and exhibitionary frameworks in which they are set. Models of natural history objects notwithstanding, these are particular kinds of objects that are taken to be, or have been, in some sense natural. The majority are, chemically speaking, organic – that is, they were once alive. This is not their only peculiarity, but a defining characteristic nonetheless. In certain contexts, the collections in question include human remains, in the form of anatomical 'preparations' (Chaplin 2008 in this issue) or when certain human groups are classified by museums as part of the natural world. Overall, these collections are sometimes called natural history, sometimes natural science, and more recently 'natural environments' or the 'natural world' (as at the Manchester Museum and World Museum Liverpool respectively). We may better understand this terminological ambiguity and what is at stake by exploring their function and purpose (see especially Rader and Cain 2008 in this issue). Most of the things in question are commonly termed 'specimens' (Murray 2007), a term which is in itself revealing in its etymology – both 'an individual animal or plant, a piece of mineral, etc., taken for scientific study or display' (from *specere*, to look) and 'a single thing or part taken as an example of a class or representative of the whole' (*Oxford English Dictionary* 2002). Significantly, for much of the museum's history the specimen has been taken to be antithetical to the artefact, which is not only 'a product of human workmanship' but also 'something observed in a scientific investigation ... that is not naturally present' (*Oxford English Dictionary* 2002). In the final section I will suggest that they are not so antonymous after all.

Our remit is museum nature in Western institutions, guided by the Anglophone literature and concentrating mostly on the UK (for a broader geographical perspective, see Slézec 2003). The developments in question are not only geographically but chronologically contingent, and we must be sensitive to historical change. Until the precipitation of modern disciplines during the European Enlightenment, it was for the most part difficult to discern a distinct museum nature.[3] This paper will therefore address the last 250 years, but with particular attention to two episodes: the late nineteenth century, when the conceptual and material foundations for many surviving natural history museums were laid, and the period of purported crisis in natural history museums a century later. Indeed, these two periods are closely related, as many of the challenges facing the curator in the new millennium stem from the contexts in which the collections were generated. But what is particular about museum nature? How did natural objects come to be in museums, and how are they used? How is museum nature distinct, on the one hand from the other worlds created in the museum, and on the other from natures presented in other media – on paper, in gardens, or on TV? How is nature constructed in the museum?

Museum nature historicized

The first genre I would explore when seeking to understand the museology of nature is the history of science, which has long been rich in the history of collecting and displaying natural history. David Elliston Allen's *The Naturalist in Britain* (1978) set collecting and arranging specimens alongside the other social and political activities involved in natural history. Historians of life science have since drawn on this and on Richard Altick's germinal *The Shows*

of London (1978) to set natural history museums in their rich social and exhibitionary contexts (for an early snapshot, see Society for the Bibliography of Natural History 1980). In the following decades, natural history museums have been deployed within the history of science in institutional biographies; as centres for collecting activities; and as spaces for the exhibition and consumption of natural knowledge. Here I can only touch on each of these topics in turn, indicating some of the compelling issues they raise.

Many historical studies are clustered around particular large institutions, especially the British Museum (Natural History) in London, only formally dubbed the 'Natural History Museum' in 1992 (Günther 1975, 1980, Stearn 1981, Thackray and Press 2001, Whitehead 1981) and the American Museum of Natural History in New York (Andrei 2006, Haraway 1984, Hellman 1968, Jones 2003, Preston 1994, Rainger 1991, Reynolds 1988, 1995, Wonders 1993a). These and other large natural history museums have been the site for detailed studies of the history of natural knowledge (e.g. Winsor 1991), and as part of John Pickstone's notion of 'museological science' (1994, 2000). Museums feature alongside other institutions in the historical geography of science (for surveys, see Naylor and Hill 2008, Livingstone 2003) and in studies of nineteenth-century provincial science (Alberti 2002, Elliott 2003, Knell 2000, Naylor 2002).

Fig 1. Taxidermy as product: snake and tiger in combat, attributed to William Bullock, now at Rossendale Museum, Lancashire. See MacGregor 2007; Pearce 2007. Photograph courtesy of Rossendale Museum.

Whether of institutions or individuals, biographies have been a staple format within the history of science, including important studies of individuals such as the showman William Bullock (Pearce 2007, 2008; see fig. 1), the first director of the British Museum (Natural History) Richard Owen (Rupke 1994), or Mary Anning the fossil collector (Torrens 1995). These have more recently been joined by cultural studies of more general collecting practices (Hamm 2001,

Pascoe 2005, Pearce 1995, Porter 2008, Secord 1994). Firmly embedding collecting within the history of science, one of the most important studies in recent years – Robert Kohler's *All Creatures: Naturalists, Collectors, and Biodiversity* – alerts us to the shift around 1900 from previous individualist 'Linnaean' and 'Humboldtian' ways of collecting, which had been extensive and fruitful in terms of new species, to new collective surveying expeditions (Kohler 2006; cf. Rainbow 2005). They collected in a qualitatively and quantitatively novel way, resulting in a massive expansion in the volume of material held by museums. Kohler's work demonstrates the importance of studying collecting patterns as well as individual collectors. To understand twentieth- and twenty-first-century collections, we need to understand the rationale behind collecting in the decades around 1900, as Kohler has for the US context.

These decades were also marked by colonial acquisition routes, and historians of science have detailed this traffic, including the activities of individual colonial officers (collecting as part of their official duties or otherwise), larger enterprises such as imperial geological surveys, and museum-making in colonial contexts (Bennett 2004, Kohlstedt 1987, Leviton and Aldrich 2000, Loughney 2005, Sheets-Pyenson 1988). It was no accident that the late nineteenth-century imperial extension was matched by unprecedented foundation and expansion in museums in Europe. The serried ranks of trophy heads in the stores of natural history museums are symptomatic of the central role played by hunting in zoological acquisition routes (Kohlstedt forthcoming, Mangan 2009, Smith 2007). Like other specimens, hunting trophies outlive their original contexts and present display challenges to the successors of those who acquired them. But their provenances proved stubbornly difficult to exorcise. Whole body mounts might be re-displayed in a diorama, but heads on shields are more problematic. An imperial or sporting provenance is only the most obvious of the ways in which the study of collecting and collectors can reveal the political character of natural history collecting, however. Even if surviving displays did not, such studies of collecting clearly show that collections intended to be objective and universal were loaded with different meanings, partial and reflective of the collector and curator.

The politics of the collections are also evident in the grand buildings erected to house the specimens once they arrived in Western metropolises (Kohlstedt and Brinkman 2004, MacLeod 2005, Markus 1993, Yanni 1999). In South Kensington, ideas about nature were embedded into the fabric and layout of Richard Owen's British Museum (Natural History) (Cunningham and Waterhouse 1992, Girouard 1981, Peponis and Hedin 1982). Nature was constructed in the very architectonics. Sophie Forgan's work on the spaces for science has been especially groundbreaking on the relationship between buildings and knowledge (Forgan 1994, Forgan and Gooday 1996). She has adeptly explored 'the physical aspects of the buildings, their visual vocabulary [and] the ability to encode knowledge in material forms' (2005: 572), examining the museum as place, space and site.

Historical studies of museum buildings intersect with perhaps the richest seam in the extant literature on natural history museums, concerning the ways in which nature is presented within them. On one hand, historians of science write about museums as one of the media through which naturalists communicated with other groups – a process sometimes categorized as 'popularization' (Allison-Bunnell 1998, Fyfe and Lightman 2007, Jardine, Secord and Spary 1996, Lightman 2007); others have written about the visual languages of natural history displays (Bennett 1998, Pearce 2007, Reynolds 1995) and the ideologies behind them, especially Darwinism (Adelman 2005, Bennett 2004). Neither have the techniques of display been ignored. Karen Wonders (1993a, 1993b), has explored in some detail the emergence of the habitat diorama as a novel way of presenting nature in Scandinavia and North America at the end of the nineteenth century, an ecological approach replacing staid taxonomic displays, and the subsequent debates between curators and artists on the merits of such exhibitionary techniques (see also Anderson 2000, Bennett 2004, Cain 2006, Griffiths 1996, 2004, Insley 2008, Kohler 2006, Nyhart 2004, Quinn 2006, Reynolds 1988). The study of dioramas bridges art and science, and again concentrates on the crucial decades around 1900. Two important themes that emerge in these discussions I will return to below: the emergence of a conservation ethic in twentieth-century museums and the illusionism – the 'meticulous verisimilitude' – of the diorama.

Central to analyses of display is the inseparability of knowledge production and

representation. Museums were not simply channels for the dissemination of elite knowledge, but rather active sites for the construction of ideas about nature. To understand the function of museums, past and present, is to appreciate the agency of museum visitors. Too often ignored in the history of museums, visitors have reappeared and are as active as ever in constructing ideas about nature when engaging with natural history displays (Alberti 2007, Bennett 1996, Carroll 2004, Haynes 2001, Korn 1995). As Simon Knell observes, 'Museum objects are never entirely mute because our heads are never entirely empty' (2007: 26). The meanings of an object, it has become clear, varied not only over time and space but also according to who was viewing it. Simon Chaplin's paper (2008 in this issue) demonstrates the value of unpacking visitor constituency and the demarcation of audiences for natural history and anatomy, embedding the deployment of natural knowledge in the complex social world of eighteenth-century London.

Some visitors are more involved than others, and the relationship between those who are paid to work in museums and various stakeholders and interest groups prompted one of the most important studies in this genre. Susan Leigh Star and James Griesemer in their oft-cited study of the Berkeley Museum of Vertebrate Zoology cast specimens as 'boundary objects' – 'those scientific objects which both inhabit several intersecting social worlds … *and* satisfy the informational requirements of each of them' (1989: 393). Objects can have different meanings to different groups, and yet be used to enable profitable cooperation. Star and Griesemer explore the 'intersecting social worlds' of amateurs and professionals; others have since developed the historical and contemporary study of their mutual enrolment and partial connections enacted through museums and objects (Alberti 2001, Cain 2006, Ellis *et al*. 2005, Hansen and Moussouri 2004, Meyer 2005, Meyer 2008). Much of this work emerges not from history of science *per se*, but from the related and overlapping disciplinary context of science and technology studies, in which the laboratory was long ago debunked as a place of truthful, objective purity and many scholars are now approaching the museum in this way. Such studies of the networks that coalesce around museums are often written in response to prominent commentators on science, especially Donna Haraway (of whom more below) and Bruno Latour.

Museums, then, have been studied by historians of science for some time. In the 1990s, the history of natural history collections also began to feature in the voluminous literature produced by the Department of Museum Studies at the University of Leicester (Hooper-Greenhill 1992, Pearce 1992, cf. Bennett 1995). Thus natural history museums, despite the apparent lacunae I observed at the outset, were embedded in the interdisciplinary but distinct museum studies enterprise in the UK from the outset. A slow but steady dialogue then emerged with history of science. This is in no small part thanks to the ambassadorial function of the geologist and museologist Simon Knell, whose work is drawn on by historians of geology and in museum studies. Knell's analysis of geological collections of nineteenth-century English philosophical societies (2000) contributes both to the cultural history of science, and to a dynamic understanding of the provenance of collections. But like much of the work mentioned so far, it is concerned with the nineteenth century. Studies of US museums notwithstanding (including Rader and Cain 2008 in this issue), histories of twentieth-century natural history museums in Europe are marked by their absence.[44] Some institutional histories cover part of the century (e.g. Stearn 1981). Two oral history projects seek to address this lacuna: at the Natural History Museum, London, *Museum Lives* (in collaboration with Kingston University), 2008 –, and in Manchester *Re-collecting at the Manchester Museum*, 2004–2006.

This is partly, as Rader and Cain explain, because the museum's authority as a hegemonic site for the production of science (and with it the role of the curator) shifted in the middle of the century, diverting the attention of museologists and historians of science (especially, among the latter, to laboratories and sites for 'big science' – see Ellis 2008 in this issue).

Museum nature in practice

And yet in the 1960s and 1970s, natural history museums were attracting more visitors than ever before. This familiar tension – between the natural history museum as a place for 'serious' science and for mass spectacle, between museum nature as data and museum nature as

entertainment – gave rise to a new stream of curatorship literature from the 1980s. This work is of interest here as both primary source for the analyst of change in the natural history museum and as evidence of reflexive practice in itself. It constitutes an important resource for those interested in the rhetorical construction of museum nature. Any study of the state of twenty-first-century natural history museology must acknowledge the groundwork laid by authors such as those mentioned below, usually professional museum naturalists.

Like many specialist areas of the developing museum profession in the UK, natural science curators formed associations in the 1970s – first the Geological Curators' Group (established in 1974), followed a year later by the Biology Curators' Group (from 2003 the Natural Science Collections Association). These organizations gave natural science curators a lobbying voice, a clearer sense of identity as museum professionals as well as scientists, and fora for debate and promotion in *The Geology Curator* and *The Biology Curator*. Thus galvanized, natural science curators were at the forefront of a movement to standardize and regulate museum practice in the following decades. There emerged a plentiful literature comprising guidance and standards, complemented by the proceedings of a series of conferences on the maintenance of collections (Lindsay, Larkin and Smith 1996, Museums and Galleries Commission 1992, 1993, Rose, Hawks and Genoways 1995**,** Rose, Williams and Gisbert 1993, Stansfield, Mathias and Reid 1994, Thompson 1984, Waddington and Rudkin 1986). Conservators and curators continue to publish guidance concerning the specific collection management, educational and other challenges posed by natural history (e.g. Diamond 2000, Fitton and Carter 2006, Stanley 2004).

Among the early members of Geological Curators' Group, Hugh Torrens, Simon Knell and others with historical interests used detailed knowledge of past collecting activity to champion natural science collections, which they felt were under-valued and under-resourced (e.g. Cleevely 1983). They thereby complemented the established tradition of curators writing the history of their own collections and of collectors associated with them – uniquely placed as they were to do so (e.g. Society for the Bibliography of Natural History 1980, Whitehead 1970, and the *British Museum (Natural History): Historical Series* 1953–1991). Natural scientists often demonstrate an interest in previous collectors, lending a keen appreciation of the history of their collections, and their reflections on the practice and status of natural history museums are thus historically well informed (see especially Davis 1996, Ghiselin and Leviton 2000, Leviton and Aldrich 2004, Thomson 2002), which render them especially useful to (other) museologists.

But after a decade of furious activity, it seemed to those working in the museums in the 1980s that defending their collections was more necessary than ever (Knell 2002). A Conservative government seeking to trim down the public sector threatened core museum activities, especially the Natural History Museum in London (Culotta 1992). This prompted curators and commentators to write about an unprecedented 'crisis' in the sector (even though it was far from unique to natural history museums – see for example Warhurst 1986), lamenting the lack of appreciation and resources for natural history museums (e.g. Doughty 1980, 1981). Curators and commentators continued to mount vigorous defences of natural science collections throughout the 1990s (Knell 1996, Genoways 1999). In the face of indifference and government demands to establish the fiscal worth of their collections, museum scientists sought to re-assert other ways of valuing natural science museums. At a conference in 1995, 136 delegates from 31 countries signed the 'Manchester Accord' demanding that governments 'recognise the value of natural science collections to society' and 'develop facilities that extend and improve the beneficial use of natural science collections' because they constitute 'an irreplaceable world resource used for the long-term benefit of society' (Nudds and Pettitt 1997: 211). Robust advocacy of natural science collections continues to be evident in professional and popular writing (Farnum 2004, Fortey 2008, Gropp 2003, 2004, Pinna 2000, Thomson 2002).

More recently, it seems that natural history museums have a brighter future in store, as museum scientists consider new ways for their collections to benefit 'science' and 'society' (Allmon 2005, Chalmers 2004, Sampson and George 2004, Suarez and Tsutsui 2004, Winker 2004). By these accounts, collections are hives of activity, and museum nature is a source of inspiration and salvation (and would be more so if extra resources might be allocated). They point to key areas including public health, agriculture, and, especially, environmental concerns. In a sense, museums have been concerned about the environment from which their objects

originate since the development of scientific ecology in the late nineteenth century. But from the 1970s in the US (and subsequently in the UK), as Peter Davis has detailed, museum professionals effected

> a move from collecting for its own sake to collecting with a conservation aim; from capturing specimens to capturing and interpreting data, from working alone to networking with conservation organizations, from providing static taxonomic displays to producing entertaining, informative exhibitions with an environmental message … change from providing information to producing interpretation with the aims of changing perceptions and attitudes and influencing behaviour. (Davis 1996: 2–3)

Environmentalism, Davis argued, has been and should be a catalyst for change in museums. Even though it has at times been fiercely contested (Knell 2002), conservation has provided a powerful rhetorical bridge between past and present museum practice, between museums and their audiences, and arguably prompted a 'renaissance of sorts' in the sector (Leviton and Aldrich 2004: 4; Barrett and McManus 2007, Henriksen 1998, Slézec 2003).

If an environmentally conscious museum nature prompted reflections on the appeal of natural history collections to society, then the use of natural specimens in the study of biodiversity prompted a rhetorical hook with which to appeal to science, especially in the wake of the 1992 Convention on Biological Diversity (Alberch 1993, Butler 1998, Davis 1996, 2003, Ellis 2008 in this issue, Ellis *et al*. 2005, Knell 2007, Ponder *et al*. 2001, Wetzer 2004). 'To know what is being lost', argue museum naturalists, 'it is necessary to know what is here in the first place' (Rainbow and Lincoln 2003: 11). Traditional recording activities undertaken by and in association with museums have been complemented by new techniques employed by a range of users. In 1998, the American Museum of Natural History opened the Center for Biodiversity and Conservation; international museum-based projects such as Diversitas and the Barcoding of Life Initiative have high profiles beyond the museum sector (Ellis 2008 in this issue, Heimlich 2004). The high-tech aspects of these endeavours encourage those who write about natural history museums to be optimistic about the activities 'in the 21st century that are both relevant to society and relevant to the advancement of knowledge' (Leviton and Aldrich 2004: 5; Cotterill 2002, Hennes 2007). New sorts of collections from biodiversity databases to genomics prompt commentators to suggest 'a new era in the history of collecting is being ushered in' (Parry 2004: 43). The literature tells us that as a key site in a complex moral and technical landscape, the museum is adapting with the times.

Museum nature constructed

Museum naturalists acknowledge, and sometimes even celebrate, the 'cultural' use of the collections in their care, whether artistic, literary or, especially, historical (Pettitt 1997, Stanley 2004, Walley 1997). This tends to be in order to reinforce the value of such collections, and so although as I have argued above natural history museum professionals are often well versed in the history of their collections, they tend not to reflect on its more troubling aspects, such as the colonial provenance of many specimens (Loughney 2005), or the ethics of killing animals to collect them (Smith 2007). Fewer still have explored the cultural construction of those same collections.

'Science displays are never, and never have been', wrote Sharon Macdonald a decade ago, 'just representations of incontestable facts' (Macdonald 1998: 1). And yet the processes by which natural history displays are constructed are disguised as neutral and objective, and in the professional literature there is an emphasis on the 'naturalness' of natural history collections. Unlike other museum objects, it seems, they are not *made*, but *born* (cf. Haraway 1992). By contrast, drawing on constructivist accounts of the history of science (Golinski 2005; cf. Latour 2003), the premise of the present discussion, and of the essays that follow, is that museum nature is indeed *made*. But there is something particular about natural specimens in museums that distinguishes them from other, more obviously crafted things. In what remains of this paper I ask: to what extent are natural objects cultural? Are specimens also artefacts?

In terms of the interest generated and its ambiguous and often contested status, the art-science of taxidermy is a good place to begin to answer these questions (fig. 1). Like other museum activities, as Michelle Henning tells us, taxidermy 'may be very revealing about nature – not nature as something eternal and outside human culture, but as something which is both cultural and historical' (Henning 2007: 664; see also Aloi 2008, Andrei 2005, Asma 2001, Barrow 2000; Davis 1996, Farber 1977, Grasseni 1998, Morris 1993, Snæbjörnsdóttir and Wilson 2006). Famously, Donna Haraway (1984, 1989) began to unpack the political and gendered meanings of gorillas in Carl Akeley's Africa Hall at the American Museum (on gender in natural history displays, see also Kohlstedt 2006, Machin 2008). She challenged Akeley's claim that he was presenting 'the unified truth of natural history' (Haraway 1984: 21) and visitors were looking through 'peepholes into the jungle'. Rather, she argued that he was reflecting the 'Teddy Bear patriarchy' of early twentieth-century United States. Displays that were intended to be unambiguous were instead broadly polysemic, as Poliquin (2008 in this issue) demonstrates. Although Haraway's analysis of taxidermy has been subject to considerable challenge and revision (Andrei 2006, Wonders 1993a), it remains a foundational work in the cultural analysis of natural history.

Fig 2. Taxidermy in process: William Temple Hornaday (centre) and colleagues working in the Smithsonian Institution model and taxidermy shop, c.*1885. See also Shell 2004. Courtesy of the Smithsonian Institution Archives; record unit 95, image # NHB-6071.*

In particular, without necessarily agreeing with her conclusions, other scholars have since developed Haraway's emphasis on the techniques of effected meanings (1984: 29) – that is, the extensive *work* involved in taxidermy (Morris 2006, Patchett 2008, Wonders 1993a; see fig. 2). Other kinds of museum practice have also been explored in historical contexts and natural history museums have emerged as rich sources for critical analyses in this respect (Chaplin 2008 in this issue, Kohler 2006, MacGregor and Headon 2000, Murray 2007, Prince 2003). For taxidermy as for other kinds of things, histories of museum practice address the complexity of

the afterlife of the specimen: after they arrive in the museum, and before they are seen by the public (if at all), what happened to natural objects behind the scenes at the museum? The literature on collection management (see above) tells us what *should* happen. But what of the political and conceptual shifts engendered by museum practice? Certainly objects do not stagnate. They are subject to physical processes to make them stable (such as conservation); a series of textual practices to order them (such as cataloguing); a range of spatial techniques to store them; and a variety of exhibitionary techniques to render them intelligible.

To return to taxidermy: after the labour of manufacture, still further efforts are expended to conceal this work. It is ironed out, silenced, deleted (Macdonald 1998, Star 1992). Like other kinds of museum displays (Whitehead 2008), mounts become authorless. For, if objects are to act as data, they need to be impartial – their constructedness needs to be hidden by those whose credibility depends upon them (Knell 2007). Mounts are intended to be 'resurrections', as close to life as possible (although to many they are far more redolent of death – see Desmond 2002, Shell 2004, Smith 2007). At times they go too far: their meticulous verisimilitude renders them uncanny, especially in the context of the habitat diorama, which is intended to immerse the viewer entirely in the illusion. As Haraway (1984: 34) argues, 'what is so painfully constructed appears effortlessly, spontaneously found, discovered, simply there if one will look'. Art and science, the taxidermists and dioramists argued, went hand in hand (Cain 2006). But this brought accusations of illusionism, of sleight of hand, of betrayal of objective fact; which is why Akeley was so insistent that museum nature *must not lie*. Karen Rader and Victoria Cain quote one scientist complaining of 'extravagant schemes of nature-faking' (Wissler 1925: 173, cited in Rader and Cain 2008 in this issue; see also Patchett and Foster in this issue).

The cultural analysts of taxidermy seem to have shown us clearly that mounts – 'remnant models' – are clearly artefacts (Nyhart 2004, Griesemer 1990; see especially Poliquin 2008 in this issue). So too the many other kinds of models used to effect illusions in natural history displays (Chadarevian and Hopwood 2004, Daston 2004, Rader and Cain 2008 in this issue, Shteir 2007). But what of the bird skin, the pinned beetle, the organ in a jar, the dried plant, the fossil, the quartz fragment and frozen DNA? Are they, too, material culture? I want to take care when answering this question, to step back and examine our terms and their mutability, and in so doing, to ask questions not only of natural history museums but also of ongoing discussions on the meaning of 'material culture'. For the definition, conceptualization and categorical value of material culture has lately been the subject of intense debate (Henare, Wastell and Holbraad 2006, Ingold 2007, Jorge and Thomas 2007, Tilley 2007, Tilley *et al*. 2006) – this paper and those that follow, we hope, may stimulate as active an exchange around museum nature. Of the many different ways of thinking about the relationship between specimen and artefact, here I identify four configurations: museum nature *as opposed to* material culture; museum nature *as* material culture; museum nature and material culture as parallel processes; and finally, museum nature and material culture entangled. Each gives us a different way of understanding how nature and culture are constructed behind glass.

In its original iteration, material culture – emerging from late nineteenth-century anthropology – explicitly excluded natural specimens, and indeed was set up in polar opposition to them (Alberti 2006, Larson 2007). Natural history and ethnology were linked by common methods (and practitioners): human life could be understood by museum scholars through things brought back from other places (or times); likewise the natural world could be understood by gathering rocks, plants and animals. As Julian Thomas argues, material culture was therefore 'a product of a distinctively modern way of thinking, relying upon dichotomies between culture and nature, mind and matter, and form and substance' (2007: 11). The concept of material culture is itself a product of Western modernity. Museum nature was shaped concurrently by parallel and overlapping processes. (Which, again, explains why the decades around 1900 are so interesting, because they witnessed the articulation of material culture and the re-iteration of museum nature.) If one were partial to metaphors, one might consider the artefact and the specimen twins, birthed by the midwife of modernity (Friedman 1987).

Once in the museum, however, artefacts and specimens were set up in contrast to each other, and this oppositional nature/culture configuration has enduring resonance in collections and on galleries. Many of the classificatory schemes, accession registers and buildings still in use were established to reflect it. The artefact and the specimen are to be found in different

museum cases and accession ledgers. As Ivan Karp claimed, 'Natural-history exhibits display objects that are not produced by human agents who have goals and intentions' (Karp and Lavine 1991: 23). Similarly, although Jules Prown (1982: 2) acknowledged that 'natural objects are occasionally encountered in a pattern that indicates human activity … [and] In the broadest sense these natural materials are artifacts', he nevertheless defined material culture as 'objects made by man or modified by man. It excludes natural objects [–] trees, rocks, fossils, skeletons.' So, in this sense, the specimen is *not* an artefact – museum nature is the antithesis of material culture. There are objects made, and they are cultural, whereas natural things are simply encountered.

But to subscribe to this nature/culture dichotomy is to ignore the work that goes into rendering a piece of nature a specimen – the articulation, the preservation, the polishing, the very act of removal. If one defines material culture as matter that has been manipulated by people, then these processes, and even collecting, render specimens artefacts. Museum specimens are as much part of the material cultures of science as the microscope, the textbook and the test tube. In its original environment, the argument goes, a natural thing was not material culture, but the museum effect renders it so. In Garry Marvin's thought-provoking analysis of the cultural life of dead animals, he writes of

> the journeys or passages that some wild animals make between the contested terrains of 'nature' and 'culture' – from those spaces and conditions in which their lives are largely their own concerns and lived apart from us, to the differently configured spaces and conditions that arise when we intrude into their lives or attempt to bring them out of their spaces and into our human 'cultural' world. (2006: 157)

And yet, theorists of material culture have recently expanded their attention beyond things that have been tinkered with, beyond the purported nature-culture boundary. As Knell expands,

> I should perhaps explain the term 'material culture' … as some have used it in a restricted sense to mean man-made artefacts. Today it tends to be used to refer to all 'things' people come to know and possess, and indeed make – intellectually if not physically – including fossils, blue tits, landscapes and paintings. (2007: 8)

Material culture need not be man-made, or even man-manipulated; Christopher Tilley *et al*. (2006: 4) include 'Things as materially existing and having a significance in the world independent of any human action or intervention (e.g. a stone, a mountain, an animal or a tree).' Not only is the blue tit material culture in the museum, it was in the hedgerow. Haraway has argued as part of her attention to 'scientific discourses' that nature is itself artefactual, whether in a museum or not: 'organisms are made as objects of knowledge in world-changing practices of scientific discourses by particular and always collective actors in specific times and places … Organisms are *biological* embodiments' (1992: 67, original emphasis). And so not only are all objects that come to museums *by definition* material culture; they were material culture before they arrived.

It seems then that specimens have not always been considered artefacts, but in many quarters they are now. Museum nature, originally opposed to material culture, is cast instead as part of it. But simply acknowledging that museum specimens are material and manipulated does not answer many of the questions that historians and museologists ask of objects as we seek to understand the function of the museum as an engine of difference. Rather, we may find it profitable to treat material culture as a *process*, rather than a state; not to imagine that specimens undergo some sort of step-wise change from nature to culture as they are musealised, but rather to appreciate that objects within (and outside) museums are subject to ongoing physical and conceptual transformation. 'Culture', after all, is a verb as well as a noun, and a decidedly biological verb at that. Just as living animals and plants are cultivated, so dead ones, on their way to the museum, as they enter the collection, and during their subsequent (after)lives, are subject to a range of conceptual, classificatory, textual and physical practices. Rather than thinking about natural objects shifting along a single (one-way) nature-culture axis, we may develop a richer, multi-dimensional understanding by exploring them in a 'continual

state of becoming'(Gosden and Knowles 2001: 4; cf. Alberti 2005, Ingold 2007, Tilley 2006). A specimen's career does not terminate once it enters the collection (cf. Belk 2006). Many continue to move in and out of collections (especially plants and insects), others are subject to conceptual re-invention, affording new meanings and statuses, and all accumulate histories. Specimens, as Patchett and Foster argue, are active assemblages (2008 in this issue; see also Ingold 2006, Patchett 2008).

A key process in the continual becoming of natural objects – and one that muddies the terminology still further – is that like other museum things, they are *naturalized*. Naturalization is what happens when categories or objects cease to be strange, and as such is an integral part of classification, the 'stripping away the contingencies of an object's creation [anthropogenic or otherwise] and its situated nature' (Bowker and Star 1993: 299). Furthermore, 'It is not predetermined whether an object will ever become naturalized, or how long it will remain so; rather, practice-activity is required to make it so and keep it so'. Museum nature, so wild in appearance, is domesticated in its familiarity (Allison-Bunnell 1998). Timothy Lenoir and Cheryl Lynn Ross argue,

> The signifier thus gives foundation to the signified; it helps to produce and reproduce it through naturalization. In the case of natural-history museums, such signifying practices amount to the very production of nature: museums produce nature with their storage rooms, laboratories, and staffs of taxidermists, artists, and curators. And they produce it in light of specific interests. (Lenoir and Ross 1996: 375; cf. Chaplin 2008 in this issue, Ellis 2008 in this issue)

By parity with the relationship between art galleries and the canon, natural history museums are factories for producing a particular kind of nature, and for demarcating disciplines (cf. Lenoir 1993). 'Natural scientists, archaeologists and art historians,' observes Knell (2007: 7) 'share a similar engagement with objects: they build whole subjects from material things.' It is the museologist's job, as I see it, to render the workings of these factories of meaning explicit.

It transpires that museum nature, like art, is purified in its construction behind glass (cf. McClellan 1994, Whitehead 2007); complexities and ambiguities are – in principal – removed. When an animal's skin is prepared for taxidermy, it is thoroughly cleaned and preserved. One part of nature (the hide) is kept, whereas other parts (the blood, the fat, the fleas, the dirt) are discarded. Objects and environments, especially animals, are often deconstructed for transit – collectors develop the 'technology to capture, transport and sequester bits of nature' (Allison-Bunnell 1998: 94; Murray 2007) – then reassembled in the museum. Elements from 'life itself' are pieced back together, ostensibly as authentic, uncontested, natural nature (Lenoir and Ross 1996). The taxonomic display is one particular assemblage, the diorama another; and like other assemblies, they are highly politicized (Latour and Weibel 2005). The museum display is one particular account-of-nature, one told with words and objects and images, and like other accounts, is told from particular moral and theoretical standpoints, whether radical or conservative (Adelman 2005, Desmond 1989). Susan Pearce has observed, 'each exhibition is a production, like a theatrical production, and like a play, it is a specific work of culture with game rules of its own' (Pearce 1992: 136–7).

And so as artefacts and specimens enter different collections (or different parts of the museum collection), they diverge and contrast to shape different worlds. An emphasis on material culture as a process can thereby help us to understand the role of the museum in the distinction between nature and culture. Here we may usefully draw upon Thomas Gieryn's articulation of the cultural boundaries of science: 'Cultural maps allow us to trace out the provenance of contending natural facts and to reach decisions based on the features of where that are said to come from: objectives methods, disinterested investigators, powerful instruments, Nature herself' (Gieryn 1999: 13; cf. Bourdieu 1992). The boundaries of nature and culture are constructed in the museum, carved into the topography of knowledge with objects and galleries (Alberti 2006, Gieryn 1983, 2002). Gieryn's stress on struggles for credibility, on 'boundary work', has obvious utility when studying the recent arguments of museum professionals outlined above. The authority of the systematic biologist relies heavily on the collection. Gieryn explores the 'local and episodic constructions of science' (1999: xi) and so I have argued here that twenty-

first-century museum scientists operates within the cultural space carved out by their predecessors a century ago. Even so, the material-culturing processes that decide what sort of an object something will turn out to be, and thus decide what is nature and what is culture, are not fixed. Some objects go back and forth, witnessing radical classificatory shifts as museum nature is reconfigured around them (Dahlbom 2007, Knell 2007).

Museum nature, then, exists at the intersection of a number of different environments – natural, material, urban – which are more or less obviously constructed. Although positioned in opposition to culture, some argue that it is helpful to understand museum nature and culture as co-constitutive (cf. Jasanoff 2004). In this conception, specimens in the museum are 'naturecultures', rather than ambiguous components of nature/culture (Haraway 2003, 2008). Nature's place within human culture, and human's place in nature, are explored and constructed with specimens and other museological technologies – nature and culture are radically intermingled, inseparable in the museum as elsewhere. But in framing the study of natural history museums in this way, is there little left to say about their role and function? Haraway's work, as ever, is suggestive, but it may leave us with the same problem we face with an expansive definition of material culture: that in so astutely recognizing the manufactured character of the specimen and artefact alike, we ignore the history of their difference.

The museologist has the luxury of studying museum nature in any one of these configurations (or the many others that I have not discussed). The papers in this special issue take geographical-historical perspectives, viewing natural history museums and their objects as dynamic entities. Like them I find it useful to study not only the similar processes involved in building museum culture and nature but also the very different categories they constitute and roles they fulfil. To borrow again from Gosden and Knowles, 'An object is best viewed as indicative of a process, rather than static relations, and this process is ongoing in the museum as elsewhere, so that there is a series of continuous social relations surrounding the object connecting 'field' and 'museum' (Gosden and Knowles 2001: 4–5). Objects from inside society and from nature outside are both naturalized and material-culturized by the museum.

Conclusions

To return to Knell's (2007) playground metaphor: it seems that the natural history climbing frame is not so empty after all. But those playing on it are too often ignoring each other. Even in such a brief survey, we have seen that there is a rich and established scholarship, especially within history of science and curatorship literature, but that this work could be better exploited by academic museum studies. Moreover, anthropologists, cultural geographers and other scholars are exploring natural objects in new frameworks. They take as their starting point that the processes and products of museum nature, like ideas about nature generally, are historically and politically contingent. Ideas about nature change over time (e.g. Soper 1995, Thomas 1983), and museum nature is the product of a particular configuration of modernity. The papers that follow explore the construction of nature behind glass in different contexts and times, sharing a keen awareness of the particularities of their cases and the processes they are unpacking. The first two essays concentrate in detail on the techniques and meanings of taxidermy. Sitting somewhere between a theoretical essay, exhibition exegesis, and a reflection on practice (theirs and others'), in 'Repair Work: Surfacing the Geographies of Dead Animals', cultural geographer Merle Patchett and artist Kate Foster recount an innovative collaboration to study the embodied techniques in taxidermy production and the meanings they engender. The latter theme is expanded in Rachel Poliquin's 'The Matter and Meaning of Museum Taxidermy', which unpacks the polysemy of the mount with tools drawn from both art history and science studies. Both articles demonstrate the value in thinking of specimens as artefacts, and the complex and contingent processes that go into their construction.

The second set of papers use a wider lens, exploring the place of museum nature in broader cultural and scientific contexts. Falling first chronologically is Simon Chaplin's study of the founding collection of the museum he now directs, 'Nature Dissected, or Dissection Naturalized? The Case of John Hunter's Museum', in which he explores the complex relationship between natural history and (human) anatomy in the museum, and their political uses. Historians of science Karen Rader and Victoria Cain then take us into the twentieth

century to discuss the changing status of museum nature compared to other museological forms, especially the emerging science centre, in 'From Natural History to Science: Display and the Transformation of American museums of Science and Nature'. Finally, social anthropologist Rebecca Ellis shows us the contemporary technological cutting edge in her analysis of the ways that DNA barcoding have reconfigured the museum specimen in 'Rethinking the Value of Biological Specimens: Laboratories, Museums and the Barcoding of Life Initiative'. These essays examine the ways in which museum nature is mobilized to different ends, and they share with the earlier papers a focus on the value and meaning of natural objects.

Together, these discussions make an important contribution to our understanding of the political and social meanings of museum practices, and of the museum nature they generate. But, overall, what is the value of unpacking the construction of museum nature? The literature reviewed above reveals complex social relations that run through specimens. We find that natural history collections, like other kinds of collections, have particular characteristics, values and meanings, stemming partly from their materiality, partly from their context, and partly from their history. By exploring the processes of their construction and use, we may better understand not only natural history museums but other cognate enterprises. On the one hand, we can study museum nature alongside other kinds of museum worlds: museum art, museum science, museum history. On the other, we may better understand accounts-of-nature in other media (Lawrence 1990): in gardens (Drayton 2000, Rothfels 2002), landscapes (Bender 2006), laboratories (Rader 2004), films (Mitman 1999), online (Hawkey 2001, <www.nhm.ac.uk/nature-online>), and even in cartoons (Whitley 2008). In undertaking such comparisons, I do not posit a dichotomy between a socially constructed, subjective nature (studied by anthropologists, historians, museologists) and an objective 'real' nature (studied by natural scientists). It seems that debates around the epistemological status of nature are as enduring as they are intractable (e.g. Knell 2007, Latour 2004, Macnaghten and Urry 1998, Soper 1995). Rather, in this issue we explore the processes by which different communities shape and are shaped by the nature they experience and exploit. The natural history museum, a crucial urban site for the definition of nature (and culture), has a great deal to offer museology and science studies alike. There is much work to be done in understanding the entanglement of nature and culture in the specimen, and the papers in this issue open up of avenues for continued work in this vein.

Received 15 July 2008
Finally accepted 30 July 2008

Notes

1 That the conference at which these papers were first presented attracted over one hundred delegates indicates that there is an audience for this work, based in universities, working in museums, or both. 'Nature behind Glass', 6–8 September 2007, was organized by the Museums and Galleries History Society, the Society for the History of Natural History and the University of Manchester at the Manchester Museum, with generous support from the British Academy. Other publications that arose from the conference include Insley 2008 and Duin 2007. More details can be found at <http://arts.manchester.ac.uk/naturebehindglass>.

2 At the time of writing, three of the largest museum studies programmes in the UK – in Leicester, Newcastle and Manchester – do offer courses dealing with natural history, but they are often under-subscribed.

3 Although the literature on *naturalia* in early modern cabinets of curiosity is very rich: see Arnold 2006, Bennett 1995, Findlen 1994, Impey and MacGregor 1985, MacGregor 2007.

4 Some institutional histories cover part of the century (e.g. Stearn 1981). Two oral history projects seek to address this lacuna: at the Natural History Museum, London, *Museum Lives* (in collaboration with Kingston University), 2008–, and in Manchester *Re-collecting at the Manchester Museum*, 2004–2006.

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Acknowledgements

For countless discussions and many helpful references, thanks to Ben Alberti, Fay Bound Alberti, Hannah Chalk, Simon Naylor, Rebecca Machin, Chris Whitehead, Duncan Wilson and all the contributors to this issue. Simon Knell in particular clarified and guided the argument at a crucial stage.

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