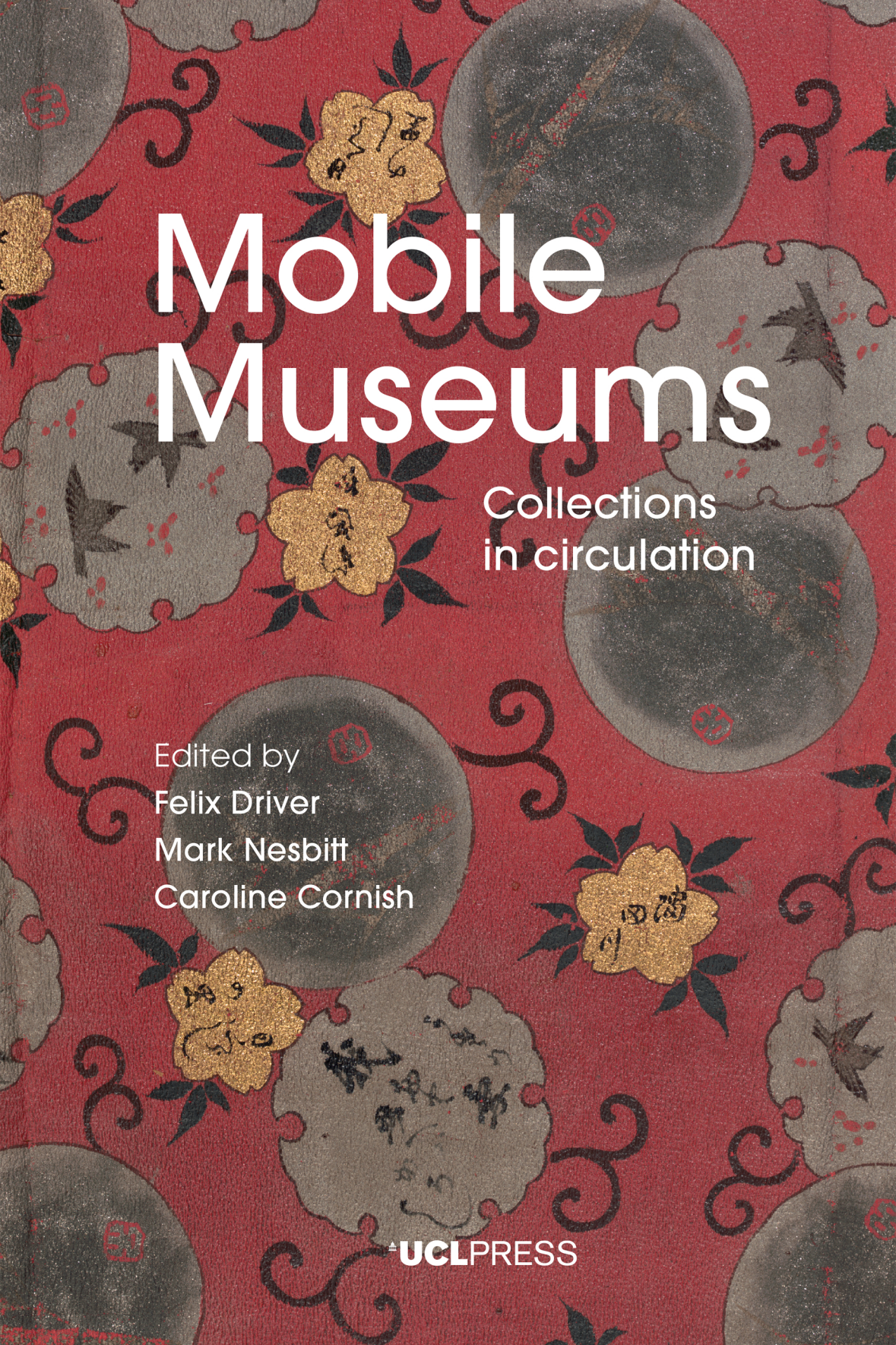
Mobile Museums
Collections in circulation
Edited by
Felix Driver
Mark Nesbitt
Caroline Cornish
UCLPRESS

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The idea for this book originated in the work of the Mobile Museum project, funded by the Arts and Humanities Research Council (AH/N00941X/1), which focused specifically on the Economic Botany Collection at the Royal Botanic Gardens, Kew. Our research on the circulation of specimens and artefacts from this remarkable collection into a variety of different kinds of museums, botanic gardens, research institutes, schools and universities in Britain and across the world raised wider questions requiring a broader focus. Questions about the mobility of collections intersected with new approaches to museum history. The work of researchers such as ourselves on the provenance of museum objects was propelled into wider arenas by urgent debates over repatriation and decolonising collections. And so, our decision to host a conference at Kew with the circulation of collections as its central theme proved remarkably propitious.

As outlined in the Introduction, the theme of this book – the mobility of museum collections, past and present – invites an interdisciplinary approach. The conference from which the book arises, held at Kew Gardens in May 2019, brought together historians of science, anthropologists, imperial historians, geographers, archaeologists, botanists, museum curators and historians of education to address the theme. The papers at this event were presented in pairs, an arrangement largely reflected in the organisation of this book, a format which encouraged discussion and debate among speakers and participants. We are very grateful to the authors for contributing their work and engaging in dialogue across disciplines and professions in a spirit of generosity and openness (and also remarkable efficiency and tenacity, given what else has been happening in the world since then). We hope that bringing their chapters together in book form will not only make their work more widely available, but will also encourage further collaboration between researchers and others working in very different disciplines and contexts.

We would like to thank Clive Gamble, Anne Secord, Gaye Sculthorpe and Joshua Bell for their generous contributions as conference session chairs, and for the continued stimulus they have provided to the work reflected in this book. We are also grateful to Tim Boon, Jeremy Coote, Tony Kanellos and Judith Warnement for their advice on the Mobile Museum project. In addition, we gratefully acknowledge the work of other members of the project team and associates, especially Beth Wilkey, Harriet Gendall, James Morley, Laura Newman, Frankie Kubicki and Kim Walker. Kew's Library, Art and Archives team (including Kiri Ross-Jones, Katherine Harrington and Rachael Gardner) deserve special thanks, not only for curating a special display for the conference which inspired this book, but also for providing expert guidance to the Mobile Museum project researchers over a much longer period. Warm thanks are also due to Chris Penfold at UCL Press, and to the reviewers of our book proposal.

Introduction: mobilising and re-mobilising museum collections

Felix Driver, Mark Nesbitt and Caroline Cornish

This book presents an argument for the importance of circulation in the study of museum collections, past and present. Bringing together international researchers from a wide variety of disciplines (including the history of science, museum anthropology, archaeology, geography and postcolonial history) to consider the mobility of collections, we aim to provide an overview of some urgent themes in the study of museums and collections. From the first chapter to the last, the book seeks to move between questions of theory and practice, and so our contributors include museum curators working with a variety of collections in the UK, Australia, the United States and Austria. The 13 essays that follow combine historical perspectives on the circulation of museum objects in the past with contemporary accounts of their re-mobilisation, most notably in the context of Indigenous community engagement. The authors seek to explore processes of circulation historically in order to re-examine, inform and unsettle common assumptions about the way museum collections have evolved over time and through space.

By foregrounding questions of circulation, we argue, the essays in *Mobile Museums* collectively represent a paradigm shift in the understanding of the history and future uses of museum collections. In this introductory chapter, we outline the basis for such a claim, exploring different aspects of the mobility of collections as reflected in both recent historical scholarship and contemporary approaches to the management of collections. The book covers a wide range of collections, including the botanical, the biocultural, the ethnographic, the photographic, the naval, the educational, the archaeological and the zoological. And its perspective extends from the local to the global, with case studies drawn from South America, West Africa, Oceania, Australia, the United States,

Europe and the UK. The essays in this book help us to understand why the mobility of museum collections was a fundamental aspect of their history, and why it continues to matter today.

Circulation: making museums mobile

Why 'mobile museums'? In our experience, the term elicits a variety of responses, usually associating mobility with pedagogical programmes of knowledge diffusion, as in the university extension movement, the circulating public library or the travelling museum on wheels. Such initiatives have a long history stretching back for over a century and a half, often associated with progressive ideals of community education, social welfare and modern citizenship. The positive associations of mobility in this sense have been further accentuated in our own time, the era of digitisation, as characterised by a profusion of initiatives to 'unlock' the archives, 'break down' the walls of the museum and 'share' the knowledge embedded in particular institutional collections.

Alongside, but distinct from, this ethical commitment to reaching new audiences, we intend the term 'mobile museum' to signal a significant moment in research on collections, reflecting a wider paradigm shift in the form of a 'mobility turn' across the disciplines. Here, mobility refers to the flow of ideas and practices, as well as to the movement of people and things, and especially their diasporic legacies in dispersed collections of archives, objects and photographs.[1] More generally, in the context of academic research within such fields as global history, historical geography and the history of science, the vogue for studies of 'circulation' (of things, people, techniques and ideas) has in recent years been sufficiently marked to have become itself a subject of scholarly study.[2] In the public sphere, meanwhile, the political dimensions of commitments to free circulation, especially the so-called 'frictionless' circulation of goods and people in Europe or the Americas (a utopian idea, if ever there was one), have become simultaneously more universally discussed and much less certain in an age of refugee crises and global pandemics. Hence the increasing emphasis in political discourse on the regulation of mobility. Within the world of heritage, meanwhile, the language of circulation has sometimes carried distinctly negative connotations, notably in the debate over repatriation – as in in the Sarr–Savoy 2018 report to the French President Emmanuel Macron, where 'circulation' in the form of temporary museum loans is figured as the conservative substitute for genuine restitution.[3]

The language of circulation thus suggests particular, and often contested, ways of thinking about exchange and mobility in the making of the modern world. Moving closer to the focus of our book – the importance of circulation as an aspect of the formation and mobilisation of museum collections – a host of recent historical studies have drawn attention to the mobility of collections at every stage of their formation and development, as well as the increasingly global infrastructures of trade and empire which enabled this mobility.[4] From the perspective of contemporary science, increased realisation of the value of data locked up in collections (including natural history museums, botanical gardens, and national and local archives repositories) has reinforced arguments for their reconnection in digital form. Here, the history of circulation can easily be associated with the fragmentation of knowledge: the promise of the digital is one of integration, reconnecting collections with their users. On the other hand, in the history of science, we have an increasing number of studies attending to the different ways in which collections – and the knowledge embedded in them – have circulated and continue to circulate, in whole or in part, both materially and virtually. Here, the history of the 'duplicate' (as discussed further, below) is of particular importance.

In the context of ethnographic collections, the question of dispersal has been turned to advantage in a number of recent studies, notably the work of the Pacific Presences research team at the Cambridge Museum of Archaeology and Anthropology. In his introduction to the work of this project, Nicholas Thomas makes clear the challenge of working with large collections of artefacts originating in countless places across the vast human realm of Oceania and now stored in European museums thousands of miles away.[5] As described by Thomas, this challenge was conceptual and ethical as well as practical and logistical, and it involved being attuned to the creative potential of such collections once they are reunited with the sources of their vitality. Rather than seeing museum artefacts as legacies of the past or as heritage resources, Thomas insists on their active potential for remaking the future: 'The collection is, in a profound and vital sense, a creative technology, a complex formation that can enable new knowledge and new outcomes of many kinds.'[6] This argument for the collection as a 'creative technology' is also evident in Paul Basu's Museum Affordances project, concerned with colonial anthropological collections from West Africa, which is discussed in Chapter 2. Projects such as these have drawn attention to the value not just of reconnecting objects with the communities which made them, but of *re-mobilising* these collections. 'At the most basic level', as Basu has

argued, 'dispersed collections create relationships between communities (between museum professionals, different audiences and source communities, for example); they generate networks of exchange that entail obligations and responsibilities.'[7]

The use of the term 'mobile museum' in the title for this book requires some more specific explanation. For three years, we have been engaged on a research project in which we traced the circulation of objects into, and especially out of, the Economic Botany Collection at the Royal Botanic Gardens, Kew (the subject of Chapter 4).[8] The project title – Mobile Museum – reflected our focus on the movement of objects and their continued circulation after they had entered the Kew complex. It also drew attention to the fact that this was often a programmed mobility – not simply a byproduct of reorganisation or rationalisation, but an integral aspect of the functions of the museum as seen by its Victorian founders. This, we argue, reflected a broader cultural economy in which the circulation of specimens and artefacts was designed into the structure of the museum system. The term 'mobile museum' was inherited from a prior study (undertaken with design historian Sonia Ashmore and cultural geographer Phil Crang) of South Asian textile collections of the Victoria and Albert Museum.[9] That work was concerned with the various forms in which the knowledge of textiles travelled during the nineteenth century, from the abstracted Oriental designs of Owen Jones to the 'portable museums' of John Forbes Watson, the India Office's 'Reporter on the natural products of India'. Forbes Watson's use of the term 'museum' – to describe simultaneously the larger institution he curated for a period at the India Office, the ingenious cabinets he designed for the display of thousands of specimens *and* the series of volumes of textile samples cut from South Asian fabrics – is itself highly suggestive.[10] New technologies of display, combined with innovations in print culture, helped to make the museum mobile.

At another level, we intend the term 'mobile museum' to draw attention to the dynamism of the museum landscape, with its constantly mutating institutional forms.[11] Through a telling anecdote in his book *Travels in South Kensington* (1882), the freethinker Moncure Conway captured the impact of the extraordinary profusion of museum buildings and displays in this part of London during the second half of the nineteenth century. Seeking a picture to illustrate his narrative, he finds the museum attendant has none to sell: '"What, no photograph of the South Kensington Museum!", I exclaimed with some impatience. "Why, sir", replied the man mildly, "you see, the museum doesn't stand still long enough to be photographed."'[12] As an illustration of what Arindam Dutta

has called South Kensington's 'state of permanent incompletion',[13] this image – or, rather, the lack of one! – points us towards a museum world much more mobile than the one with which many of us are familiar. In part, this was another expression of a programmed mobility in the sense that the South Kensington Museum had a powerful pedagogic mission reaching far beyond its walls, as reflected, for example, in the work of its Circulation Department, as well as in its extension into the world of East London via the Bethnal Green Museum.[14] Yet the museum, and the museum complex of which it was a part, was also the product of unanticipated contingencies, as collections were acquired, merged and redistributed across an expanding network.[15] This way of thinking about collections as inherently mobile, actually or potentially, provides the starting point for the studies presented in this book. In the remainder of this introduction, we explore its significance for studies of the histories of museum collections and the challenges facing museums today.

Histories: collections in circulation

Museum histories have often been thought of as histories of concentration, of the accumulation of objects assembled in one place. As Gosden and Larson write in the first sentence of their book *Knowing Things* (an indispensable reference for work on the history of museum collections), 'The Pitt Rivers Museum is in Oxford'.[16] From the fact of location, of the concentration of objects, people and knowledge in particular places, much else follows: the museum, even the universal museum, is after all always situated in a particular place. The work of a generation of museum theorists and historians of science on the history of collections has been profoundly influenced by this concern with matters of site and location, and associated questions about the geography of power. To acknowledge the importance of location is to draw attention to the contexts and networks in which collections are built, extending from the local to the global; to draw attention to their highly situated nature, socially and culturally as well as spatially. However, when combined with somewhat linear and/or teleological frameworks of analysis that centre on the evolution of a museum collection towards its present state, this focus on questions of concentration can obscure important aspects of the history of collections.

What might it mean to think of the history of museums and collections in terms of dispersion rather than accumulation, mobility

rather than fixity, mutation rather than inertia? At this particular moment in the history of museums and collections, at a time when the provenance of museum objects and calls for their repatriation are subjects of great public debate, particularly within Europe, it is instructive to be reminded that objects have always circulated through the museum complex, even in its early days. Indeed, as many of the studies in this book show, it was often through the circulation of objects that new meanings and values were created. It was the movement of objects that made the difference. Studies of the circulation of objects in the past may lead us to rethink the forms of mobility available in the present. Equally, the increasing possibilities around the digital reassemblage of dispersed collections today raise new questions about the different forms of mobility which have shaped them in the past.

One way of addressing these questions is to reverse the logic of the dominant narrative in the field of museum history and ask not about the 'birth of the museum' but about 'how collections end', to evoke the title of a recent special issue of the *British Journal for the History of Science Themes*. A dramatic cover photograph, showing three readers browsing the shelves of the bombed-out library of Holland House (Kensington) in 1940, draws attention to the possibility of catastrophic endings (echoed more recently in the destruction of the National Museum in Rio de Janeiro). Yet its message is softened by the suggestion of a continuity in public engagement as the well-dressed male visitors – very likely actors in a staged photograph designed to boost wartime morale – calmly inspect the apparently intact contents of the shelves. The catastrophism of the cover image is also belied by the contents of the issue, a diverse set of studies exploring the diverse and routine histories of various kinds of specimen, object and archive collections, with a strong emphasis on their perpetually shapeshifting forms. In the words of the editors:

> A collection or group of collections is not a static entity: the twin forces of circulation and maintenance have a far greater bearing on the nature of collections than the more familiar conditions of stasis and permanence. Objects have been packed up, moved around, unpacked, repacked, stored, display[ed], loaned out, returned, catalogued, recatalogued, lost, found, photographed, scanned, described, published, replaced, faked, stolen; they have decayed, been conserved and decayed again.[17]

This way of thinking is reflected in an increasing number of studies of very different kinds of collections. As Dahlia Porter puts it in a paper on the Hunterian Museum's anatomical collections, it is the 'flux of objects

coming and going over time – the collection's changeling ontological status' that draws the eye.[18]

To ask questions about the 'changeling ontological status' of collections is to reframe the way that histories of museum collections are written. Rather than composing narratives of the 'origin' of the modern natural history museum, the ethnographic museum or the modern art museum, as if their stories were embryonically present at some well-defined historical moment, today's historians of collections are paying close attention to the diverse, overlapping, discontinuous and unequal histories that are reflected in the making and remaking of collections. This is particularly evident in the study of moments of, and sites of, collection – especially collection through various forms of fieldwork – and the various kinds of encounter this involved. In different ways, the work of Joshua Bell and Jude Philp – represented in this book in studies of botanical, ethnographic and zoological collecting in New Guinea – has done much to shed light on the motivations and methods of collectors in the field, whether professional collectors sent out on expeditions, or the traders, missionaries, explorers and many others who found themselves collecting in the same place.[19] The importance of recognising the different ontological status of a plant or an animal to an Indigenous person and an outsider is clear from their accounts, as is the reliance of such expeditions on local labour and local knowledge, even as it was being effaced.[20]

Historical studies of collection in the field, especially in the context of scientific expeditions, have proliferated in recent years.[21] The study of the expedition as a 'distinct socio-cultural formation', as Martin Thomas puts it,[22] sheds light on historically specific modes of collecting the world through the acquisition of specimens and artefacts in the field which have developed in Europe from the seventeenth century onwards. This mode of collecting evolved into the large-scale, state-sponsored expeditions of the nineteenth and twentieth centuries, examples of which are provided in this book by Joshua Bell and Daniel Simpson. However, the afterlives of these collections once they had reached their metropolitan destinations, and especially their subsequent recirculation through networks of institutions nationally and internationally, has received rather less attention, with some notable exceptions.[23] While the vogue for the writing of object biographies in recent years has drawn attention to the significance of the circulation of individual artefacts between different collections, there is a need for more systematic studies at the level of collections. Alice Stevenson's contribution to this book thus examines the distribution of archaeological artefacts from British excavations in Egypt to a variety of museums around the world, emphasising the

historical specificity of what she calls 'object habits' at different moments in the twentieth century. Such work can be challenging, reliant as it is on familiarity with idiosyncratic collections databases and associated archival sources from different museums, which are often fragmentary and incommensurate. The shifting meanings and uses of objects as they travelled through institutional networks are also visible in the case of botanical collections, such as those in New York and London discussed here by Sally Gregory Kohlstedt and Laura Newman. The focus in their chapters is on the educational uses of collections of plants and plant-derived materials, specifically their active redeployment in wider programmes of nature study in the modern city. In this context, the connections between the histories of museums and schools are surely ripe for further exploration.

The limitations of teleological narratives in museum history are particularly clear in studies of 'lost museums', in other words, the history of institutional collections that have been broken up, redistributed and sometimes absorbed into other collections.[24] Examples of such collections in nineteenth-century London include those of the East India Company, the London Missionary Society Museum, the Museum of Economic Botany, the Haslar Hospital Museum and the Imperial Institute (the last three of which are discussed in this book).[25] All these museums functioned as entrepôts for highly significant botanical, ethnographic and other collections entering the UK during an age of imperial globalisation. Yet their absence from today's museum landscape (the museum rather than the collection, in the case of Kew) has until recently made their stories much less visible to historians. And, as our contributors and others make clear, it is the 'changeling ontological status' of such collections as they moved through institutional and museum networks that makes them of particular relevance today.

Museums, relations and practices: interdisciplinary perspectives

One of the most important insights offered by the recent literature on collections is that, as Nicholas Thomas succinctly puts it, 'collections are made up of relations as much as they are of things'.[26] The relations might be actual or potential, manifest or latent, remembered or forgotten, material or imagined, but it is impossible to conceive of a collection that is not marked in some way by the flux of human relationships, whether near or far, historical or contemporary. Thinking simultaneously of

objects and relations, and their mutual entanglement in what have come to be known in museum studies as assemblages, has also drawn attention to the agency of objects, in the sense that material things always have the potential to do new things, not simply to acquire new meanings. This approach has particular consequences for the ways in which we approach collections, especially a fundamental divide in the literature on museums and collections: that between culture and nature.

One of our purposes in bringing researchers from a variety of different disciplines together in one book, as in the conference from which this book has evolved,[27] was to build bridges across common divides in the way collections are understood. The distinction between the study of 'culture' and 'nature', which has profoundly shaped the disciplinary landscape of the modern academy, has also been reflected in the literature on museums and heritage more generally, especially insofar as museums have been understood, in art history or anatomy, for example, as the incubators of practices and ways of thinking associated with the emergence of specialist disciplines. Recent work in the study of museum collections inspired by a turn to questions of curatorial practice – common to many fields from anthropology to science and technology studies – opens up space for more cross-disciplinary thinking. A focus on the work of managing and maintaining collections, from digital databases to laboratory reference collections, transcends the usual disciplinary divides between the humanities and the sciences. Whereas much previous historical work on collections has emphasised a fundamental parting of the ways between working science collections (such as those found in laboratories) and unique heritage collections (such as those of art museums), attention to practices of curatorship blurs these boundaries. This focus raises many questions about the role of curatorial labour in the maintenance of collections, as can be seen in the literature on anthropological museum collections in particular.[28] It is also reflected in recent work in the history of science, where the study of working collections has emerged as a key theme with implications for the wider discipline: as one account puts it, 'Might we think of scientific work as more a matter of care and curation than experiment and discovery?'[29]

Practices of curation clearly extend beyond maintenance, arrangement and documentation of an existing collection to development, extension or redefinition of collections through the acquisition of new materials. In recent work on the history of museum collections, the role of systems of exchange between museums has come to be a significant theme. What originated in the practices of seventeenth- and eighteenth-century gentlemanly (and gentlewomanly) naturalists,

many of whom exchanged botanical and zoological specimens with their peers,[30] developed in the nineteenth century into an institutionalised system in which duplicates were used as a form of currency for exchange with other institutions. Such systems required the establishment and management of extensive reserve collections, a key resource in the rationalisation of collections. As shown by the path-breaking work of Catherine Nichols (on the Smithsonian Institution in Washington) and Christian Feest (on the Ethnological Museum in Vienna), in some contexts, the development of museum collections depended on the institutionalisation and routinisation of such practices.[31] In others, as in the case of the British Museum's Christy Collection, whose exchanges with the Museum of Economic Botany at Kew are discussed in Chapter 4, such practices are less systematically documented but nonetheless are clearly evidenced in archival correspondence. What needs further exploration are the conceptual, methodological and ethical issues at stake in the development of these systems of 'duplicate' exchange. Their model was clearly based on the taxonomic methods of natural history, requiring the construction of classes of like material: from this, it became possible to identify 'duplicates'. As Catherine Nichols shows in her chapter in this book, duplicates were used in concert with texts and illustrations as 'proxy specimens', providing a means for the circulation of collections beyond the museum that housed them.[32] And as Karen Jacobs shows in her chapter, the concept of the duplicate as used by nineteenth-century collectors of Fijian liku (fibre skirts) only made sense in the context of museum epistemology: it was one of the ways in which local artefacts became transformed into ethnographic objects.

In his book *The Return of Curiosity*, Nicholas Thomas provides a critique of what he describes as a 'naturalism of the collection', in which museum collections are thought of in quantitative terms, as accumulations of object – so many herbarium specimens of this species, so many objects from that region.[33] This argument forms part of a wider case for rethinking collections as relational assemblages, as discussed above. It poses a particular challenge in the case of scientific collections, including those of natural history museums and botanic gardens, in which the significance of an individual specimen rests ultimately on its capacity to yield particular kinds of data for science. It is through the aggregation and comparison of such specimens, physically or otherwise, that scientific work becomes possible. For these purposes, aspects of the provenance of a botanical or a zoological specimen (including, for example, the circumstances in which it was acquired) and its local meanings (including any significance for Indigenous people) may not

be important, and typically such information would not be recorded within scientific databases. In this context, the development of new approaches to 'biocultural' collections within scientific institutions, as explored by Luciana Martins in this book, has a wider significance. Such collections are defined not by a single type of object but through their assemblage of different kinds of objects – for example, in the case of economic botany museums, both plant materials and plant-based products, selected to illustrate the properties of botanical materials and the uses to which they can be put.[34] Such hybrid collections seem to defy the logic of specialisation which underpins most histories of natural history and ethnographic museum collections, and therein, of course, lies their fascination for researchers in disciplines such as anthropology, geography, design history and the wider field of the plant humanities. It is important to emphasise, however, that the properties of such collections are neither intrinsic to the objects within them nor fixed by the colonial logic which governed their foundation; rather, they are emergent, activated and reactivated by those who manage, interpret or use them. It is to the re-mobilisation of museum collections that we now turn.

Re-mobilising museum collections

What implications does our focus on circulation have for museum practice today? Much has changed since the heyday of museum circulation in the nineteenth and early twentieth centuries. In particular, the model of circulation through exchange of duplicates in operation across many different kinds of museums and collections has largely (although not entirely) been discontinued, reflecting changes in museum legislation and heritage practice. However, in recent years in the UK and elsewhere, the question of the deaccessioning and disposal of collections has been reopened, reflecting a new emphasis on the benefits of an active policy of collections review in order to serve the needs of the present and the future. The imperative to re-mobilise collections, as expressed in this and a variety of other calls to action, presents new challenges to the managers of many different kinds of museum collections. It is important to emphasise that such calls to action do not have their origins solely or even primarily in the academy; rather, they reflect technological, social and political developments that have arisen well beyond museology as a discipline but which are already reshaping practice within museums. This is, in other words, a story in which museum practice is running ahead of museum theory. If there is indeed a paradigm shift in research

on museum collections, as argued here, it is in part because of changes in the management and interpretation of collections that are already underway, right across the museum landscape.

The first call to action connected with circulation to be addressed here, and the one which has been receiving increased attention in the last few years, is that of repatriation: the return of objects and human remains to their communities of origin. In the 2018 Sarr–Savoy report on restitution, as mentioned at the start of this chapter, the idea of 'circulation' tends to be used to describe temporary loans and other measures deployed by European museums, which, according to the authors, fall short of genuine return of objects to their countries of origin. In this book, as should now be clear, we take a broader view of the theme of circulation, framing loans as merely one kind of circulation among many others which have shaped the history and present management of museum collections. It is, however, worth reflecting further here on the idea of provenance as used within the repatriation debate, and especially what Bénédicte Savoy has called the method of 'tracing': the archival investigation of evidence concerning both the ownership of objects and the journeys they have taken prior to their incorporation within museum collections.[35] While the forensic search for clues about the ownership of objects that have been looted, stolen or obtained in the context of asymmetrical power relations is a pressing issue for museums today, a focus on circulation as conceived in this book requires that we also attend to the various different ways in which objects may be connected to, or detached from, particular places, and the necessarily complicated issue of where objects rightfully belong.

Provenance research is not new, of course: it has long been essential to the making of art history as a discipline, as well as to the functioning of the art market. It has also been crucial in the development of the law and policy of restitution in the context of the spoliation of works of art. And yet, the term is often used in very different ways in different disciplines and in different professional communities beyond the academy (including the museum and the auction house).[36] From the perspective of this book's concern with the circulation of collections, there are two usages of the term which need to be differentiated. On the one hand, the term is used as a synonym for the place of origin, or what archaeologists call the 'provenience' of an object. It is, in other words, the source, an identifiable location to which an object can be traced. This meaning has been extended to other fields, including the geosciences, for example, where scientists now routinely deploy the term to refer to elements of a specimen that can be traced to a particular location on

the basis of geochemical analysis of its properties. The analogy here with some uses of the term 'provenance' in the art market is clear: by establishing that a work is by this artist, in this studio at this time, one is able to establish its authenticity, and hence its value. On the other hand, the term 'provenance' is also widely used in the art market to refer to the chain of ownership of an artwork over its life history, which – if it can be identified – also helps to confirm the authenticity of a work. In other contexts, including the study of Indigenous artefacts in Western museums, the issue is less one of authenticity than of establishing what museums actually hold and where the holdings have come from.[37] Stated in more general terms, this aspect of provenance refers less to origins (as in provenience) than to the trajectory of an object, as it passes through different hands and places. As Elizabeth Rodini has argued in a recent study of Levantine objects in early modern Venice, such artefacts are typically 'nomadic' – they circulate geographically as they are traded or gifted between families and generations. And in their design, too, they reflect not simply the origins in a particular site, but the accretions of cultural meaning bestowed on them in the course of their travels. Although Rodini frames her argument as a critique of 'the geographic paradigm of the museum', it is more useful to think of it as less a critique of spatial thinking per se than a reassertion of the importance of the role of mobility in art history, 'resituating circulation not as a hindrance to full interpretation but as a key aspect of an object's meaning'.[38]

Beyond the art museum, the specific focus of Rodini's argument, exhibitionary practice in the contemporary museum has, in fact, been strongly influenced by discussions of circulation, most notably through the vogue for object biographies in heritage practice, which has influenced curatorial strategies in local museums, museums of world culture and science museums. The model of the object biography, which highlights the relationship between site, context and the meanings of an object, has provided a powerful way of drawing attention not only to the mutual entanglement of the lives of things and people, but also to the highly specific ways in which the museum context shapes the interpretation of what objects are and can be.[39] However, the idea of the 'life history' of an object has, like any metaphor, limitations. Insofar as it implies a certain linearity, it may even close down the potential of curatorial practice to engage with the multiple lives of objects and especially the dynamism of the cultures which produced them. The idea of 'object itineraries' has thus recently been proposed as a way of advancing beyond the linearity inherent in object biography and acknowledging the multiple ways in which spatial thinking can enrich our presentation of stories about

objects.[40] Neither the origins of an object nor its life history determine the ways in which it can be made or used in the present or the future. So, when Julie Adams refers to the need for 'multidirectional curation' in her thought-provoking account of the display of the New Caledonia collection of Paul Montague, for example, she effectively highlights the limits of Western notions of provenance.[41]

A second (and long-standing) call to action in the museum sector, which has been thrown into sharp relief by the impact of the Covid-19 pandemic, is the need to widen access to collections. In this context, the idea of re-mobilising museum collections taps into long-held beliefs and assumptions about the progressive functions of the museum. What is at stake in today's debates, however, is not so much the principle of access as its forms and the terms on which knowledge is to be shared. Here the role of digital technologies in uniting and sharing the knowledge contained in museum collections has been the focus of much discussion within the international museum community.[42] The idea of the museum as a 'distributive institution' (in Clare Harris's terms),[43] dedicated to making heritage available in new and accessible forms, raises many questions, not least about the extent to which Indigenous knowledge systems can be easily represented within the structures of conventional museum databases. In this book, Luciana Martins, Paul Basu and Claudia Augustat present compelling case studies of the re-mobilisation of colonial collections in decolonial times, in the context of forms of participatory research where digital methods are vitally important. At least two of these authors and their collaborators have here and elsewhere framed their projects, concerned with biocultural and ethnographic collections respectively, in terms of 'digital repatriation'.[44] The term is commonly used with reference to a wide range of collections, in archives, libraries, museums and botanic gardens. In the context of plant science, for example, the term 'digital repatriation' is routinely used by national funding agencies and in schemes for international science collaboration such as the UK's Newton Fund, as in the case of the Brazilian REFLORA programme, designed to create a 'virtual herbarium' through the digitisation of specimens held in overseas botanic gardens.[45] What makes the studies in this volume particularly valuable in this context is the priority they give to the agency of those to whom access is being given. The use of collections as a 'creative technology', to use Nicholas Thomas's powerful phrase, requires an active engagement with the voices and values of the communities represented in these collections.

A third call to action, again reflecting changes within museum practice as much if not more than the process of theorising about it, is

what Nicholas Thomas has called 'museum as method'. In a short essay first published in 2010, followed up by more extended treatment in his 2015 book, *The Return of Curiosity*, Thomas advances the argument that what have come to be routine aspects of curatorial work in museums, especially in ethnographic collections, form a loosely articulated but coherent and distinctive way of working – in other words, a research method.[46] Although this argument was originally directed towards anthropology, which steadily disengaged from the museum world for much of the twentieth century, it has a much wider significance for many other disciplines involving collections-based research. 'The museum as method' is an attempt to describe routine aspects of museum practice itself as research. These include an attunement to certain kinds of evidence, especially in the form of material culture; an openness to certain kinds of encounter with collections as they are stored or selected for exhibition; a commitment to identifying the specific meanings of objects through the acts of documenting and captioning; and an exhibitionary practice which encourages storytelling through juxtaposition. Alongside these features of museum practice, Thomas emphasises the collective experience of research in the museum world, in which discovery is not and never has been the product of lone research, but is instead always and necessarily a shared endeavour. In cross-cultural research, such as that undertaken by Thomas and his colleagues within the Pacific Presences project described above, this sharing embraced people from the communities of Oceania: here, encounters within museum stores provide a site for the encounter between Western and Indigenous understandings of material culture, in all their complexity. What matters in the model of 'museum as method' is not so much the resolution between these understandings as acknowledgement of their diversity and the value of telling the story of these differences through shared encounters with collections.[47]

Today, the managers of museum collections are confronted with these and many other calls to action, including those connected with the impact of global pandemics, environmental crises and the decolonisation of museum collections. It is significant that some of the contributors to this book describe their work as consistent with a wider decolonial agenda, requiring the sharing of museum collections. In the words of Paul Basu, for example, 'In order for the decolonial possibilities of colonial collections to be activated, the collections must be liberated from their institutional seclusion' (this volume, page 66). While the repatriation debate forms an important part of the context for such projects, the chapters in this book show that there are many ways in which museum collections have circulated, and may potentially

circulate, other than physical return. Looking to the future, in an age of renewed crisis and uncertainty in museums, such studies give us grounds for hope, as they demonstrate the value of an emphasis on the diverse ways in which collections become mobile. But this requires more than a shift in attitude. As Claudia Augustat has argued, the extent to which museum practice can respond to the decolonial agenda may ultimately depend more on reforms to their funding and institutional structures. (Augustat points specifically to the organisation of collections databases, the arrangement of museum spaces, and questions of resource and budget planning.)[48] In this book, our contributors explore a key aspect of the infrastructure of the modern museum – its collections – seeking to show the ways in which collections have in the past been much more mobile than often assumed, and pointing to some of the ways in which they can be re-mobilised in future.

Notes

1. Basu, 'Object diasporas'; Punzalan, 'Archival diasporas'.
2. Gänger, 'Circulation'. See also Lightman et al., *Circulation of Knowledge*; Livingstone, 'Circulation'; Raj, 'Networks of knowledge'; Raj, *Relocating Modern Science*; Secord, 'Knowledge in transit'.
3. Sarr and Savoy, *Restitution of African Cultural Heritage*.
4. For example, see Blais and Markovits, 'Introduction'; Byrne et al., *Unpacking the Collection*; Coote et al., 'When commerce, science, and leisure collaborated'; Cornish and Driver, '"Specimens Distributed"'; MacGregor, *Naturalists in the Field*; Manning and Rood, *Global Scientific Practice*; Parry, 'The collection of nature'; Penn et al., 'Mapping the history of botanical collectors'.
5. Thomas, 'Introduction: Presence and absence'.
6. Thomas, 'Introduction: Presence and absence', 19.
7. Basu, 'Object diasporas', 37.
8. The Mobile Museum project website is at http://www.rhul.ac.uk/mobilemuseum.
9. Driver and Ashmore, 'The mobile museum'.
10. For example, see Forbes Watson, 'On the extension of commerce'.
11. On this, see especially Robertson, 'South Kensington Museum in context'.
12. Conway, *Travels in South Kensington*, 27.
13. Dutta, *The Bureaucracy of Beauty*, 49.
14. Kriegel, *Grand Designs*.
15. Robertson, 'South Kensington Museum in context'.
16. Gosden and Larson, *Knowing Things*, 1.
17. Jardine et al., 'How collections end', 4.
18. Porter, 'Catalogues for an entropic collection', 217.
19. See, for example, Bell, 'The sorcery of sugar'; Philp, 'Hedley takes a holiday'.
20. See also Konishi et al., *Indigenous Intermediaries*.
21. For examples of this work, see Thomas, *Expedition into Empire*; Thomas and Harris, *Expeditionary Anthropology*; Bell and Hasinoff, *The Anthropology of Expeditions*; Thomas et al., *Artefacts of Encounter*.
22. Thomas, 'What is an expedition?', 7.
23. For some important studies which have informed this argument, see Coote, *Cook-Voyage Collections*; Dritsas, 'From Lake Nyassa to Philadelphia'; Hill, 'Travelling objects'; Kohlstedt, 'Museum perceptions and productions'; Owen, 'Collecting artefacts'; Simpson, 'Medical collecting'.

24. Lubar et al., 'Lost museums'. In 2011, the UK's Museums and Galleries History Group organised a Study Day on 'London's lost museums'.
25. For recent work on the India Museum, see Ratcliff, 'The East India Company' and MacGregor, *Company Curiosities*; on the London Missionary Society Museum, see Wingfield, '"Scarcely more than a Christian trophy case?"'; on the Kew Museum, see Cornish, 'Botany behind glass'; on Haslar, see Simpson, 'Medical collecting'.
26. Thomas, 'Introduction: Presence and absence', 19. See also Bell, 'A bundle of relations'.
27. See https://backdoorbroadcasting.net/2019/05/collections-in-circulation-conference/ (accessed 25 May 2020).
28. For example, see Harrison et al., *Reassembling the Collection*.
29. Jardine et al., 'How collections end', 26. For a French perspective on historical study of scientific collections, Daugeron and Le Goff, *Penser, Classer, Administrer*.
30. For example, Hans Sloane: see MacGregor, *Sir Hans Sloane*; Pickering, 'Putting Nature in a Box'; Delbourgo, *Collecting the World*.
31. Nichols, 'A century of circulation'; Nichols, 'Exchanging anthropological duplicates'; Feest, 'The ethnographic collection of Johann Natterer'.
32. On the idea of the scientific drawing as a 'proxy specimen', see Rudwick, 'Georges Cuvier's paper museum'.
33. Thomas, *The Return of Curiosity*, Chapter 2.
34. Salick et al., *Curating Biocultural Collections*.
35. Savoy, 'What our museums don't tell us'.
36. Milosch and Pearce, *Collecting and Provenance*.
37. See, for example, Sculthorpe, 'Provenance and place'.
38. Rodini, 'Mobile things', 248.
39. Among a vast literature, see especially Hill, *Museums and Biographies*; Seip, 'Transformations of meaning'.
40. Joyce and Gillespie, 'Making things'.
41. Adams, 'Magic and memory', 286.
42. Bell et al., 'After the return'.
43. Harris, 'Digital dilemmas'.
44. Fonseca-Kruel et al., 'Biocultural collections', 224–5; Basu, 'Reanimating cultural heritage'.
45. Legrand and Stone, 'Science diplomacy', 403.
46. Thomas, 'The museum as method'; Thomas, *The Return of Curiosity*, Chapter 2.
47. Thomas, 'Introduction: Presence and absence', 22–6.
48. Augustat, 'Dealing with the colonial past'.

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1
Plant artefacts then and now: reconnecting biocultural collections in Amazonia

Luciana Martins

Biocultural collections are a vital means of preserving, transmitting and generating environmental knowledge and Indigenous knowledge.[1] Composed of botanical, zoological and ethnographic objects from around the world, these collections preserve a wealth of knowledge and documentation about human cultural practices related to the uses of animals and plants. Inextricably linked to global exploration, colonialism and imperial expansion, historical biocultural collections have often been misrepresented or neglected in terms of research, and their application to contemporary problems overlooked. In contrast, in the last 20 years, ethnographic collecting institutions have made important advances in digital repatriation, developing ethnomuseological methods to explore it 'as the intersection of archival interests, Indigenous information management systems, archival standards, and divergent notions of access and privacy'.[2] A raft of collaborative projects reconnecting Western ethnographic collecting institutions with Indigenous peoples around the world – such as the Inuvialuit Living History Project in Canada, the Plateau Peoples' Web Portal in the United States, Digital Dynamics Across Cultures in Australia, and [Re:]Entanglements in Nigeria and Sierra Leone, to name but a few[3] – have endeavoured to develop participative visual and digital methods that seek to enable colonised groups to regain control over how cultural materials are used in digital and physical exhibitions and what stories are told about the objects, and to explore their significance in the present.[4]

While progress has been made in the reinterpretation and reactivation of ethnographic collections, the managers of natural history collections have been relatively slow to develop specific tools for integrating historical, environmental and Indigenous knowledge. As Anna Tsing suggests, 'instead of merely cataloguing diversity, we need to tell the histories in which diversity emerges . . . Diversity is created in collaborative synergies; it is always becoming.'[5] As she further argues, 'plants and animals are part of a human disturbance regime; they have a contaminated history'.[6] Increased understanding of current use of plant resources therefore depends on the integration of historical and contemporary biocultural data. Biocultural collections, combined with the contemporary knowledge of the source communities, provide insights into the nature and drivers of socio-environmental change since their collection.

Creating digital access to biocultural collections is an important route to developing these new uses, but ensuring digital formats give equal weight to different knowledge systems, including those of the natural sciences, social sciences and humanities, and Indigenous knowledge, is a major challenge. Such work requires confrontation of museums' neocolonial legacy in the twenty-first century by new co-curatorial practices with Indigenous communities. But this is further complicated: biocultural heritage is different from cultural heritage, involving the observance of good practice related to the 'sovereign rights of States over their natural resources' in areas within their jurisdiction, as recognised by the Convention on Biological Diversity. This mandates 'the equitable sharing of the benefits arising from the utilization of knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for conservation and sustainable use of biological diversity'.[7]

Our project, Digital Repatriation of Biocultural Collections: Connecting Scientific and Indigenous Communities of Knowledge in Amazonia, addresses this challenge through engagement with the biocultural collections amassed by nineteenth-century botanist Richard Spruce. Funded by the British Academy Knowledge Frontiers programme, our interdisciplinary, international team includes Indigenous and non-Indigenous researchers and museum curators from the UK, Brazil and Germany.[8] The project forms part of a research programme that Birkbeck, University of London and the Royal Botanic Gardens, Kew have been developing collaboratively since 2015, in partnership with the Botanical Garden of Rio de Janeiro, the Socio-Environmental Institute (ISA) and the Federation of the Indigenous

Organizations of the Rio Negro (FOIRN). The research programme aims to reanimate the objects through contemporary Indigenous knowledge, creating a major knowledge base system that will integrate them with the herbarium vouchers, manuscripts and correspondence Spruce sent to Kew and other British institutions. The knowledge base will seek to incorporate this database of expert scientific, historical and Indigenous knowledge with linkages designed to enable its retrieval in response to specific queries, allowing for new assemblages of data according to a wide range of users through the development of a specific ontology.[9] The current project therefore represents a further step towards this main goal.[10]

A focus on mobility and circulation can help to illuminate both the circumstances under which collections were assembled and the ways in which they may be reactivated. This chapter begins with an overview of Richard Spruce's collecting practice, through which a large part of Kew's Amazonian collection was formed. This brief historical account is followed by a reflection on how to retrieve the sense of flow out of this collection – how to mobilise its 'latent' knowledge. By reconnecting the collections with the peoples and places from where they originated, the project aims to reactivate past and present knowledge. As Joshua Bell remarks: 'A central goal of work with collections is to understand not only the processes that brought things to a repository, but also the life-worlds in which objects partook before they were collected and the life-worlds they subsequently move through as part of an institution.'[11]

Collections also move beyond institutions, as Felix Driver, Mark Nesbitt and Caroline Cornish point out in the Introduction to this volume. In what follows, we delineate the trajectory of the biocultural objects from the Upper Rio Negro to Europe, indicating potential paths for their virtual return.

An ethnobotanist avant la lettre

Richard Spruce spent 15 years collecting plants in the Amazon and the Andes (1849–64). His ethnobotanical collections are currently held mainly at the Royal Botanic Gardens, Kew and the British Museum in London. When Spruce departed for the Amazon in 1849, the term 'ethnobotany' did not exist. The term's coinage was much later, and is attributed to John W. Harshberger, a professor of biology at the University of Pennsylvania.[12] However, nineteenth-century naturalists such as Spruce regarded the Indigenous uses of plants as part of their

natural history. In this, they took inspiration from the writings of the philosophical travellers of the day, such as Alexander von Humboldt, the celebrated explorer of South America. Nevertheless, Spruce lacked the immense resources and patronage available to Humboldt. As he explained in the introduction to his meteorological notes, now held at the Royal Geographical Society archives:

> As I travelled at my own expense & risk and proposed to keep myself in funds by the sale of my collections of dried plants, I found it necessary to be very economical in my outfit, . . . nor would I afford to purchase any expensive instruments. I therefore took out with me only a pocket-sextant and artificial horizon (by Simms) which proved to be very good; a watch (by Dent) which should have been adequate for all ordinary astronomical purposes, but turned out very defective; & a single thermometer . . . [13]

The botanist George Bentham, who named and described many of the plants sent by Spruce, was his main intermediary in the UK, selling his herbarium specimens to other collectors in Europe and beyond. Arrangements were also made for Spruce to send William Hooker, Director of the Royal Botanic Gardens, Kew, herbarium specimens and artefact collections for Kew's newly created Museum of Economic Botany, which aimed to provide visitors with object lessons on the use of plants from all over the world.[14] As Hooker advised Spruce in a letter:

> You will not forget gums & resins & other vegetable products . . . You will send us no doubt the blow pipe or seed used by the Indians for shooting birds etc. & say what it is made of: – & you will bear in mind all useful vegetable products. Even the 'fishing net' is very suitable. You will find clothing of various vegetable materials.[15]

Spruce collected constantly on his travels in Amazonia. Alongside around 14,000 herbarium specimens, he amassed 350 ethnobotanical artefacts, wrote detailed reports on plant uses, and made drawings of peoples and landscapes. Among the Spruce collections now held at the Manchester Museum Herbarium, there is a diagrammatic map of the Uaupés river, locating the 18 Indigenous nations that inhabited the banks of the river.[16] Dating to 1853, the fading pencil notations, with the key to the nations reinforced in ink by Spruce himself, provide a unique record of the Indigenous occupation of the Upper Rio Negro in the mid-nineteenth century, a pivotal moment in its history.

In a note on the top right-hand side of the map, Spruce acknowledged that it was drawn 'according to Sres Chagas & Mello'. Chagas, a trader, was a very useful man, although 'a great scoundrel', as Spruce wrote to Alfred Russel Wallace, who also knew him.[17] Mello was one of Spruce's 'best friends' on the Rio Negro. Such men were crucial intermediaries in the business of exploration and collecting. However, as Spruce recognised, trade in that part of Brazil in the mid-nineteenth century also included slave-raiding of Indigenous boys and girls, which relied on the detailed geographical knowledge recorded on the map.

As Spruce explained in a 'hasty note' to William Hooker in the wake of his imminent departure 'with a crew of 9 Indians' for a journey to the mouth of the Uaupés river:

> I was so fortunate as to buy altogether [Nos. 122–143] in a lot of a trader who had ascended a long way up the River Uaupés; they include many things of great rarity, especially the stones worn by the Tucháuas or chiefs, which would fetch a pound a piece in Pará: I know persons who have been for years in quest of them without success.
>
> There are duplicates of nearly all the articles, and the owner refused to break the lot, or I should probably have been content with one for each. Perhaps you will like to take the whole for your Museum, although some of the articles contain scarcely anything of vegetable about them. Should you however prefer taking only a part of them, I shall be glad if you will reserve the rest for me . . .
>
> The box in which I send these things took an Indian carpenter a week to make, for he had two trees to cut down in the forest, & out of each a couple of planks to make. The wood is Marupá, which is much used throughout the Amazon & Rio Negro for making trunks. This box will afford you fine specimens of it. I have never yet seen it either in fruit or flower . . .
>
> I have been obliged to leave out the shield and stool for want of room – they will come next time.[18]

Spruce was right to be cautious about sending this lot to the Kew Museum, for William Hooker hastily replied:

> We have recieved [*sic*] your last sendings for the Museum from Rio Negro & I have paid the £20 in full for them. Some of them are not indeed quite so botanical as I could wish, but most of them have something vegetable belonging to them; & that is the apology for introducing into the Museum feathers monkey's teeth etc.[19]

A significant number of the objects made of teeth and feathers were donated to the British Museum in 1866, in addition to some duplicates, such as the shield, the quiver, fire-fans, necklaces, baskets and other ethnographic artefacts. As Caroline Cornish and Felix Driver note, this was a period both of reorganisation at Kew, following William Hooker's death in 1865, and the restructuring of the British Museum's ethnographic collection.[20]

Spruce, however, was genuinely interested in understanding how these biocultural objects were used, describing them in detail in his journals, letters and labels. After his seven-month sojourn in the region, Spruce was keen to revise his initial impressions, as he wrote in a letter to Hooker:

> As I have now spent several months among these Indians, I have seen the whole of these articles in use, and I have two corrections to make to the account I gave you of them. The *Murucú*, or spear, *is* really used in war, and the white stone is worn by *all* the men, and not merely by the chiefs (as I had been wrongly informed). Those of 'royal' descent alone, are allowed to wear a stone bored lengthwise instead of across.[21]

Spruce's collecting impulse was therefore not just accumulative. He made an effort to document and to revise his own interpretation of the uses of the objects. The same revisionary and documentary impulse can be seen in his sketches. Spruce's delicate pencil portrait of Anássado, a six-year-old Tariana girl, which survives at the Royal Society Archives, is a case in point (Figure 1.1). Careful to note that her eyes 'are too far apart', he provides the meaning of her name ('Grandmother of the Macaws'), her family ties, her location (Iauareté-cachoeira, a waterfall on the Uaupés river), drawing attention to her hairstyle and the fact that 'she wears the white stone bored lengthwise, like all of royal race'. As Spruce explained, in the list of objects he sent to Hooker, the piece of porphyry was perforated 'by means of slender strips of the skin of the stem of a species of *Alpinia* (called *Pacóva-sororóca*), twirled rapidly between the palms of the hands, with the addition of a little fine sand', said 'to be the work of weeks to bore one of them'.[22] The laborious work might therefore clarify the greater, royal value given to the stone bored lengthwise.

In addition, Spruce compiled vocabularies of 21 Indigenous languages across Amazonia, 'most of them used by tribes living beyond the frontiers of Brazil', as he related in an 1865 letter to his friend, botanist and pharmacologist Daniel Hanbury.[23] It seems he planned to

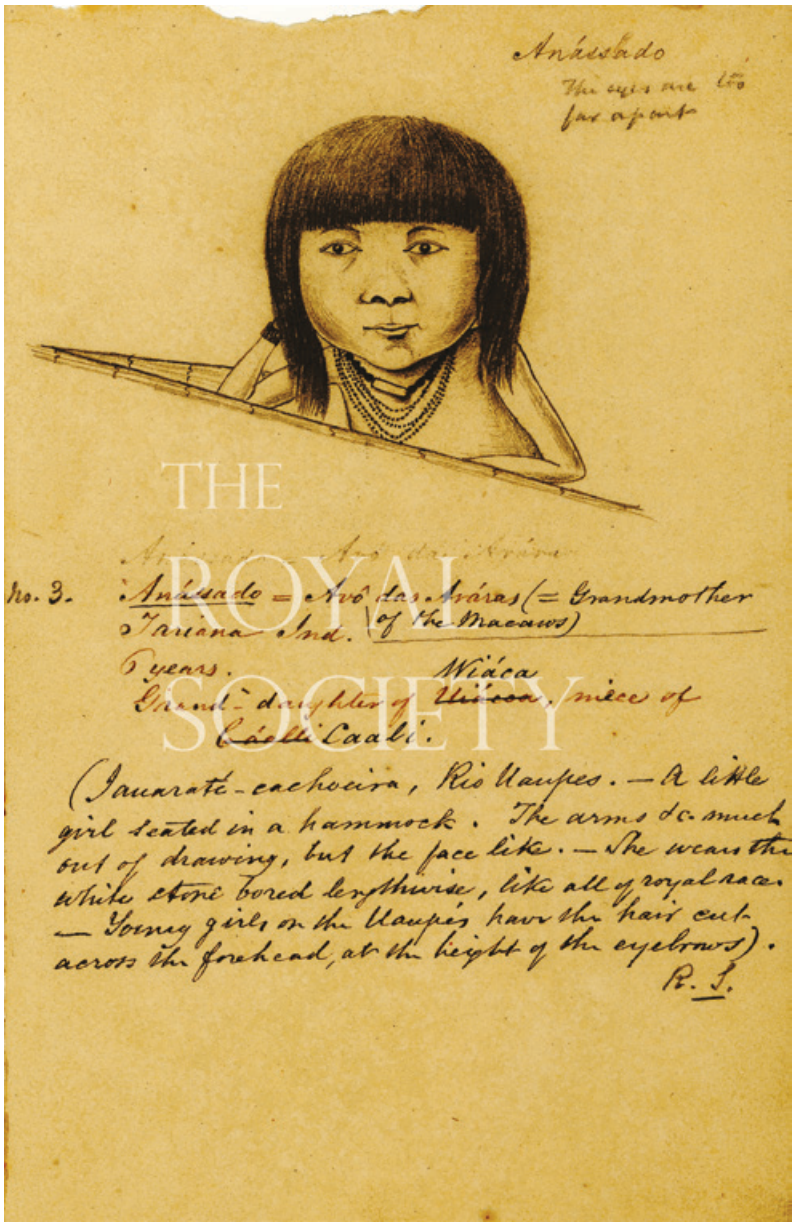

Figure 1.1 Portrait of Anássado, drawn by Richard Spruce (c. August 1852–June 1853), MS236/12. © The Royal Society.

send them to the Anthropological Society, together with an 'introductory account of Indian nations, their sites, manners & customs'. However, in the event they were never published.[24]

Spruce's engagement with the Indigenous peoples of the Uaupés – materialised in his attempt to plot them on his diagrammatic map, to draw their delicate portraits and to understand their language – attests to the relational, dialogic aspect of his collecting practice.[25] Writing to a friend in 1888, he said they 'are people of the most moral habits of any I met in S. America'.[26] He continued: 'They are clearly industrious, agricultural Indians, dwelling along large rivers, in which they bathe night & morning, building for themselves substantial houses.' Without such close and continuous engagement, it is unlikely that he would have been able to obtain the remarkable biocultural collections that he amassed in the region, which are an under-regarded legacy of his 15 years of travel. While other nineteenth-century explorers managed to amass similar collections of ethnographic artefacts, details of their uses and materials are more difficult to find in their collections. Like the German Theodor Koch-Grünberg in the early twentieth century, who was deemed to be a 'modern' anthropologist due to his ability to gain intimate insights into Amazonian Indigenous ways of life,[27] Spruce's skill in garnering detailed ethnobotanical information depended upon common understanding and trust between the collector, Indigenous peoples and intermediaries through personal engagement and empathy.

What is distinctive about Spruce's collecting practice is that he was remarkably systematic. He collected raw materials in the form of plant parts, and varied artefacts made from the same species. For example, in the case of the palm *Astrocaryum vulgare* (known in Portuguese as *tucum*), he collected fruits, rings made of the seeds, a rope and a spadix (Figure 1.2). Although one of the *Astrocaryum vulgare* voucher specimens at Kew was not collected by Spruce, it nevertheless bears a sketch of the fruit with a note 'fruit in Museum' (Figure 1.3). In Spruce's handwriting, this annotation provides evidence of the meticulous work he undertook at Kew during his five-and-a-half-month stay in the neighbourhood during his return to England (despite having severe cramps in his hands and arms, as he confided to Hanbury).[28] Diligently labelling his herbarium specimens, he was careful to cross-reference plants and artefacts, linking the botanical and the cultural. As the example of the cassava grater he collected for Kew's Museum attests (Figure 1.4), on many occasions, Spruce numbered each artefact, and registered the number in his notes, associating it with a particular herbarium voucher specimen.[29] Spruce was therefore ahead of his time, developing a methodology

Figure 1.2 Biocultural objects made of *tucum* (*Astrocaryum vulgare*) collected by Richard Spruce: (a) Fruits collected in São Gabriel da Cachoeira (EBC 34980); (b) Spadix collected in Pará (EBC 40022); (c) Rings made of the seeds, collected in São Gabriel da Cachoeira (EBC 35009); (d) Rope collected in Barra do Rio Negro (Manaus; EBC 35010). Courtesy: Board of Trustees of the Royal Botanic Gardens, Kew.

for ethnobotany 130 years before the collection of herbarium voucher specimens became routine.[30]

Today, Spruce's collections have huge potential as data for studies of Amazonian vegetation and ethnobotanical knowledge over the last two hundred years, providing a basis for analysis for future research in Brazil. In our current work, we are focusing on a small group of objects originally from northwest Amazonia, selected from Spruce's collections at the Royal Botanic Gardens, Kew and the British Museum in London. This regional focus enables us to extend the focus of our research to comparable collections, including the Koch-Grünberg and Robert Schomburgk collections at the Ethnological Museum in Berlin. Although Koch-Grünberg did not regard his expedition to the Upper Rio Negro in 1903 'as primarily a journey of collecting',[31] the instructions he received from his supervisor, Karl von den Steinen (Head of the South American Department of the Ethnological Museum), made the objective of his expedition clear: 'Your main task is to build up a systematic collection with particular consideration of series . . . Would you under any circumstances

Figure 1.3 Herbarium specimen of *Astrocaryum vulgare* collected by the French plant collector Paul Sagot in French Guiana in 1858 (No. 593; barcode K000526397). Courtesy: Board of Trustees of the Royal Botanic Gardens, Kew.

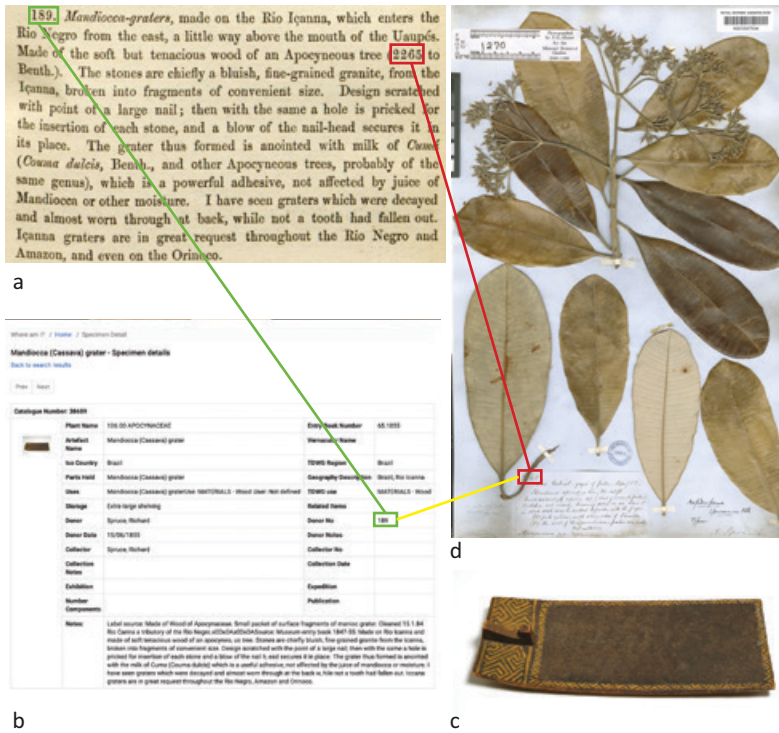

Figure 1.4 Example of cross-referencing of voucher specimen and artefact (a) Extract from Richard Spruce's 'Botanical objects communicated to the Kew Museum, from the Amazon or its tributaries, in 1853', *Hooker's Journal of Botany and Kew Garden Miscellany* 7 (1855): 277; (b) Kew Economic Botany Catalogue entry (EBC 38689); (c) Mandiocca (cassava) grater, collected in Rio Içana by Richard Spruce (EBC 38689); (d) Voucher specimen of *Aspidosperma spruceanum* Benth. ex Müll. Arg., collected in São Gabriel da Cachoeira in April 1852 by Richard Spruce (No. 2265; barcode K000587694). Images b–d Courtesy: Board of Trustees of the Royal Botanic Gardens, Kew.

give preference to a long stay among one single tribe than to brief visits to numerous tribes'.[32]

As Paul Hempel points out, the tension between von den Steinen's instructions and Koch-Grünberg's objectives reflects the methodological shift in anthropology at the turn of the century from the gathering of extensive and rare collections of material culture to the in-depth study of a single cultural group or area.[33] Despite complaining about the limitations that 'museum obligations' placed on 'actual research practice'

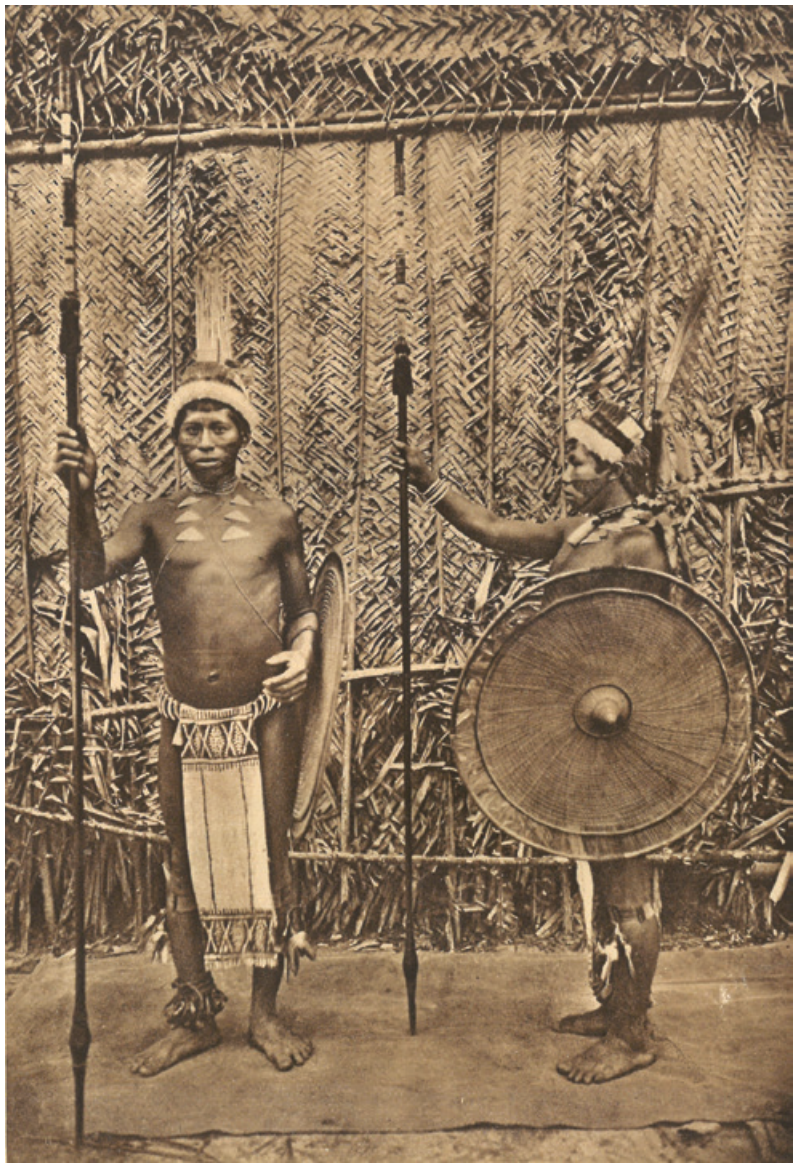

Figure 1.5 Tukano Indians with ceremonial shield and rattle-lance, Tiquié river, Plate VII in Koch-Grünberg, Theodor. *Zwei Jahre bei den Indianern Nordwest-Brasiliens*. Stuttgart: Strecker und Schröder, 1921.

during fieldwork, Koch-Grünberg's Rio Negro collection 'consisted of nearly 1300 objects, 1000 photographs and word lists from 40 languages and dialects'.[34] Given that Koch-Grünberg travelled to the same Upper Rio Negro region as Spruce did, but 50 years later, his collection complements Spruce's. It also includes artefacts not collected by Spruce, and photographs documenting the way that some artefacts were used, providing further material for a diachronic study of these artefacts (Figure 1.5).

Our research on these two Amazonian collections revolves around the following questions: In what ways can effective collaborative forms of production of socio-environmental knowledge emerge from cross-cultural research practices? What difference does it make to our understanding of these objects if we consider their mobility through different spatio-temporalities – those enmeshed in field practice but also in the metropolitan archive? Can digital technologies be used to integrate Indigenous knowledge systems into the very core of practices of display, curation, and the reuse of objects and knowledge for multiple audiences?[35] Can biocultural objects from different collections be integrated meaningfully without erasing their different stories, taking into account not only what they were made to be, but what they have become?[36]

By investigating a specific set of objects from a specific location – northwest Amazonia – and relating them to specific cultural dynamics and environmental features, our aim is to offer our project as an example for comparison, instead of a model to be followed.[37] As with any case study, the intention is to provide a point of reference or comparison, through which researchers working on other regions and other collections can better understand their own methods and findings.

Situating mobility

There are a variety of ways of 'liberating' colonial collections from their institutional seclusion, as Paul Basu argues in his contribution to this volume (page 66). For the purposes of this chapter, I highlight four key interrelated points associated with the mobility of these collections that reactivate their social relations. First, for ecological and socio-cultural reasons, there is a direct geography of artisanal specialisation among ethnic groups in northwest Amazonia.[38] Such specialisation defines a formalised network of inter-community trade, or an 'internal' mobility, which existed in Spruce's time and which still survives in the present. For

example, the Tukano are known for their wooden stools, the Tuyuka and Bará are exceptional canoe-makers, the Hupda make the baskets used to carry cassava, the Kubeo specialise in funeral masks, and the Desana and Baniwa concentrate on basketry of various types and uses, while the latter are also known for their manioc graters. Curare poison and pan pipes are made by the Maku peoples and the Makuna.[39] Our research explores how to visualise this network, connect artefacts and relate them to particular socio-environmental dynamics.[40]

However, some artefacts are part of a wider cultural complex, that is, they 'belong' to more than one ethnic group. So, the second point to make here concerns the need to be attentive to the nuances of ethnic attribution of provenance. As Aloisio Cabalzar puts it:

> The Baniwa of the Içana river started trading their baskets under the trademark 'Arte Baniwa', and not long after this they started to trade a spice made up of grinded and smoked peppers mixed with salt as 'pimenta Baniwa' [recently used as an ingredient for an Irish beer]. There is nothing exclusively 'Baniwa' about these products, all the other ethnic groups of the Upper Rio Negro produce the same spice and the same baskets. The other ethnic groups feel that the Baniwa are representing these artefacts as being something of the Baniwa instead of belonging to the 23 different groups of the Upper Rio Negro, and making a profit of it. This causes some friction between the Baniwa and the others.[41]

We therefore need to develop research tools that can capture these nuances.

The third point relates to culturally sensitive materials, and how to deal with them, both in a digital portal and in a physical museum display. An example is the sacred trumpet, an instrument that is handled exclusively by men during their *Jurupari* ceremonies.[42] During an interactive workshop held in Kew in 2015, João Paulo Lima Barreto, a Tukano researcher, advised us that, according to local tradition, the trumpet should not be seen by any women.[43] The British Museum followed the advice promptly, tagging it as a sensitive item in their database. However, as times are changing and Indigenous societies are dynamic, the demand of equal rights for Indigenous women might call for some flexibility regarding the maintenance of particular patriarchal traditions. The question of how we should deal with culturally sensitive objects is thus not straightforward. Discussing strategies for decolonising the museum, Jennifer Shannon argues that it is better to display a concealed

object than no object at all.[44] Citing the example of the display of a mask at the University of British Columbia's Museum of Anthropology, which was wrapped in a glass case but flanked by two labels with contrasting points of view from representatives of the source community – one stating that the display of these masks was forbidden, and the other saying that it was fine to display them as long as the masks were not made for ceremonial purposes – Shannon highlights the importance of bringing to the public eye the postcolonial dynamics of collaborative processes.[45] In this way, such display creates a space for dissonant voices to be heard, allowing for different meanings and histories to emerge.

The fourth point relates to the life cycle of these artefacts. As André Martini reminds us in his study of the physical repatriation of sacred ornaments from the Indian Museum in Manaus to the Upper Rio Negro communities, since artefacts were kept distant from their original place for a very long period of time, the result was that they were deemed dead for the Tukano, having lost their specific role in the Indigenous society and the world.[46] A similar reaction was recently reported by the ethnobotanist Juliana Lins during her preliminary project fieldwork on the Upper Tiquié, when she showed some photographs of Koch-Grünberg's collection of artefacts to Indigenous communities.[47] According to an elderly Desana *kumu* (traditional healer), some of the objects, such as the ceremonial shield, were considered dangerous because they had been taken away against their will. In order to be reintegrated into their society, the artefacts had to undergo a series of rituals to bring them back to life. From 2009 to 2013, the Goeldi Museum in Manaus developed a co-curatorial digital repatriation project based on its own Koch-Grünberg collection; as was reported, when a Baniwa 'master of music and dance', Luiz Laureano da Silva, encountered the ritual objects that were no longer produced in the region, he greeted them fondly with a '*Olá vovô*!' (Hi, Grandpa!).[48] Following a patrilineal relationship, the artefacts were regarded as part of the Baniwa family. When visiting the museum, the Baniwa were drawn to them, feeling the need to caress and touch them, as if meeting a cherished relative that had been away for too long.

A comparable sense of tactility was evident during the visit of Indigenous researchers from the Upper Rio Negro to the collections in Berlin and London in June 2019 (Figure 1.6). While the initial plan was to invite only three Indigenous researchers to Europe, the Indigenous researchers themselves highlighted the need to include two more people in the team: a *baya* (chant specialist), and a *kumu*. Responding to their request, we included in the team the *baya* Guilherme Pimentel Tenório (Tuyuka), and the *kumu* Tarcísio Borges Barreto (Tukano). As they

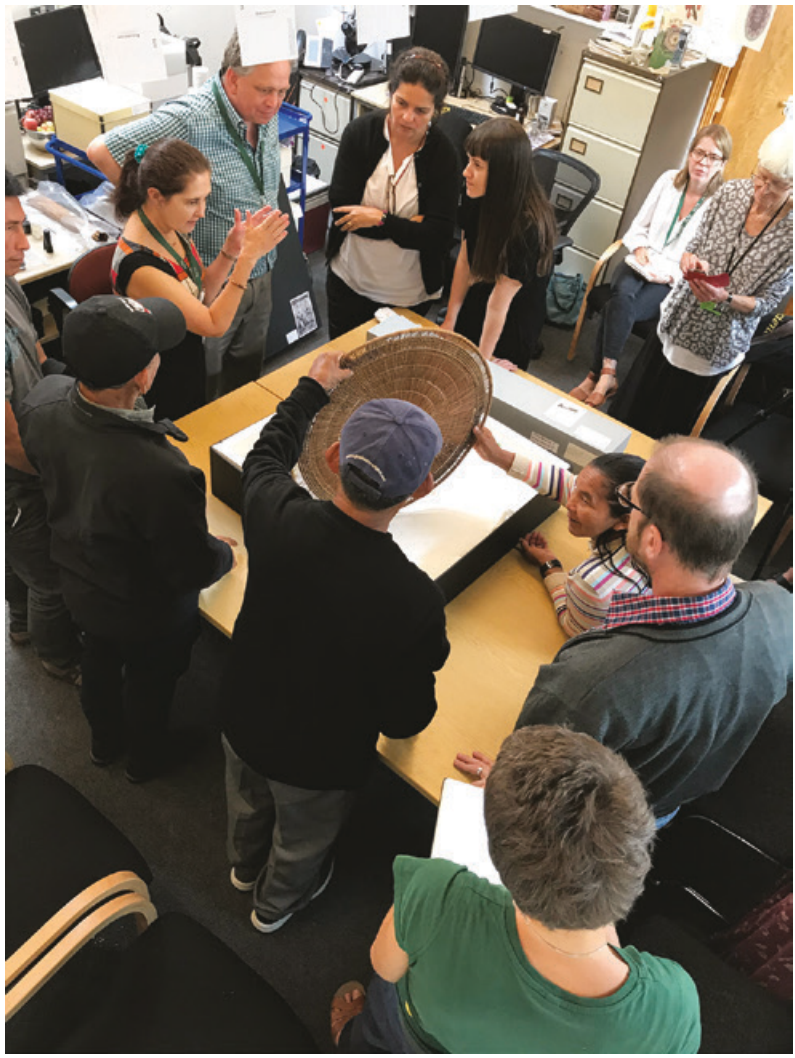

Figure 1.6 Indigenous researchers discuss a ceremonial shield during the project workshop at the Royal Botanic Gardens, Kew, June 2019. Photograph: Luciana Martins.

explained to us, ceremonies to prepare the team to encounter the objects that had left their 'home' so long ago would protect team members from the eventual evil that the contact with the old objects might bring. In addition, through the proper chants, the objects' cosmological force could return to the Rio Negro mountains, reinforcing the Indigenous ancestral

culture. The night before leaving Berlin, the *kumu* Tarcísio Borges Barreto dreamt of these mountains, which he took as an indication of the safe return of the objects' 'souls'. Amazonian peoples, argues Stephen Hugh-Jones, 'live in different object worlds' within their cultures, which brings a need to understand, respect and embrace different ontologies.[49] As Hugh-Jones goes on to explain, Tukanoan creation myths differ from other Amazonian myths 'both because they do indeed tell of a creation from nothing, of gods who bring the world and its contents into being through their thoughts' and – importantly in the context of this chapter – 'because their main focus is on objects and artifacts rather than on animals'.[50] Rather than 'objects', the Indigenous groups from the Upper Rio Negro refer to artefacts as 'Instruments of Life and Transformation', key elements of their primary creation myths.[51]

This leads us to a key methodological step of this project, which is to extend the focus from objects to their making, enabling us to follow up the life stories of the materials used to create the objects, linking them to particular ecologies.[52] Some of the objects in these collections are no longer used in the region, especially the ones employed in rituals, which were deemed demoniac by the Salesian missionaries, and therefore forbidden.[53] The missionaries even destroyed most of the *malocas* (longhouses), a central element for the social organisation of the Indigenous peoples of the Upper Rio Negro, where they lived, kept their instruments and performed their ceremonies.[54]

Our project seeks to facilitate the engagement of the Indigenous researchers and practitioners with the historical artefacts through learning; that is, the artefacts will be used as sources of inspiration and motivation for the making of new artefacts. This process will be documented on video, which will be available on the project website. Furthermore, the new artefacts have the potential to be reinserted in the life of the Indigenous communities and reassembled into museum collections, bringing our research full circle. During the workshop at Kew in 2019, the Indigenous researchers highlighted the need to produce, in addition to a proposed website, printed pedagogic materials to be used in community schools in remote regions, where WiFi and electricity are scarce and unreliable. Responding directly to this identified need, the project plan has been revised to include the production of a teaching and learning toolkit based on the biocultural collections. Designed for use within Indigenous community schools, these teaching materials will disseminate information about artefacts no longer produced in the region, together with the biocultural knowledge associated with them.[55] The production of this toolkit in Portuguese, with the main terms

translated into *Ye'pamahsã* (Tukano) language, fits within the larger context of current linguistic projects in northwest Amazonia, which aim to strengthen and enhance Indigenous languages.

In this way, the project aims to ensure that the knowledge and skills associated with traditional craftwork are passed on to future generations, so that objects can continue to be produced within their communities, providing livelihoods to their makers and reflecting creativity. At the same time, the aim is to enhance the value of Indigenous craft, culture and knowledge nationally and internationally. The latter responds to the pressing need to raise awareness among the wider Brazilian population of the critical role of Indigenous communities as custodians of Amazonian biodiversity and ecosystem services.

As the project evolves, we are working iteratively to develop a digital collection of selected Upper Rio Negro artefacts that will include cross-referenced data from Kew, the British Museum and the Ethnological Museum in Berlin and contemporary Indigenous knowledge. In addition, besides the making of new artefacts, in a second workshop to take place in 2020 in the Upper Rio Negro, we aim collaboratively to develop protocols for the viewing, circulation and reproduction of these materials.[56] As an incentive to further collaborations through discussions in the region itself, we are also including on the website a directory of historical biocultural collections from the Amazon held by collecting institutions outside Brazil. Drawing upon this experience, we are working on a report outlining our findings and recommendations for developing multi-institutional, international and interdisciplinary digital repositories of biocultural collections co-curated with Indigenous researchers.

Conclusion

Since Spruce's time, the Indigenous groups of the Rio Negro have experienced significant pressures and changes, including those from slavery, messianic movements, a long period of forced catechisation by Salesian missionaries, and wider integration into the market and urban networks. In Brazil today, Indigenous peoples and their territorial rights are increasingly at risk, with new constitutional amendments and decrees that undermine the achievements of the 1988 Brazilian Constitution, which championed human rights and the protection of the environment (as recognised by the UN Human Rights Council).[57] This process has accelerated significantly in the past few years. Moreover, the institutional neglect of Brazil's cultural heritage is a case of undisputed concern, as

reflected in the devastating fire at the country's National Museum in September 2018, which led to the loss of an irreplaceable collection of Indigenous artefacts and research.

Fires are also causing considerable loss of biocultural diversity in Amazonia, with satellite images recently showing fierce flames engulfing the heart of the continent's forests and savanna. Although fires are endemic in the region, 'the unusually severe scale of fires corresponded to direct government encouragement', specifically in Brazil and Bolivia,[58] which favours agribusiness, mining and hydroelectric megaprojects detrimental to the globally significant richness of biodiversity, Indigenous cultural heritage and territorial rights.

In this frightful context, the re-mobilisation of biocultural collections in Global North museums and collecting institutions, through collaborative projects, becomes an important asset for Indigenous peoples in the Global South. As such, the artefacts that were collected within a framework of colonial science can emerge as relevant political tools of cultural resilience, enabling the recovery of social, cultural and environmental practices in Amazonia.

Acknowledgements

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Notes

1. Salick et al., 'Biocultural collections'.
2. Christen, 'Opening archives', 187. See also Bell et al., 'After the return'.
3. Inuvialuit Living History: http://www.inuvialuitlivinghistory.ca/about; the Plateau Peoples' Web Portal: https://plateauportal.libraries.wsu.edu/about; Digital Dynamics Across Cultures: http://vectors.usc.edu/projects/index.php?project=67; [Re:]Entanglements: https://re-entanglements.net (all accessed 13 February 2020).
4. Gubrium and Harper, *Participatory Visual and Digital Methods*, 172–3.
5. Tsing, 'Contaminated diversity', 95.
6. Tsing, 'Contaminated diversity', 96.
7. United Nations, *Convention on Biological Diversity*, Article 15(1) and Article 8(j).

8. The project team includes Luciana Martins (Birkbeck, University of London), Mark Nesbitt and William Milliken (Royal Botanic Gardens, Kew), Aloisio Cabalzar (ISA, Socioenvironmental Institute) and Viviane da Fonseca-Kruel (Jardim Botânico do Rio de Janeiro), with the support of Andrea Scholz (Ethnological Museum Berlin), Laura Osorio Sunnucks (British Museum) and Nildo Fontes (FOIRN, Federation of the Indigenous Organizations of Rio Negro).
9. A comparable knowledge base on Andean textiles was developed in the AHRC-funded project Weaving Communities of Practice (http://www.weavingcommunities.org, accessed 17 February 2020). See Brownlow et al., 'Andean weaving knowledge base'.
10. One of the 'shared' artefacts we have produced in the course of this research programme so far is a short film, entitled *The Many Lives of a Shield* (Luciana Martins and Bea Moyes, 2016), which is an early attempt to reflect on how to tell the story of one of the artefacts of the Spruce collection at Kew (https://vimeo.com/200369869, accessed 28 October 2019). Another one is a handbook of ethnobotany, the scope and content of which were developed during a workshop in São Gabriel da Cachoeira, in the Amazon, in November 2016. Published in Portuguese, *Ye'pamahsã* (Tukano) and Baniwa languages, the handbook responds to 'the local demand for botanical knowledge of the Amazon to be disseminated through both schools and local associations', as asserts Dagoberto Lima Azevedo, a Tukano researcher who participated in the workshop and who was responsible for the translation into his own language (one of the three officially recognised Indigenous languages in the municipality); Dagoberto Lima Azevedo, personal communication, October 2017; Cabalzar et al., *Manual de Etnobotânica*. For further outputs, see Fonseca-Kruel et al., 'Biocultural collections'.
11. Bell, 'A bundle of relations', 245.
12. Clément, 'Historical foundations of ethnobiology', 174.
13. Spruce, 'Meteorological observations'.
14. The Museum of Economic Botany at Kew opened in 1847; Cornish and Nesbitt, 'Western ethnobotanical collections'.
15. Letter from William Hooker to Richard Spruce, n.d., Director's Correspondence RSP/2/3: 149, Archives, Royal Botanic Gardens, Kew (Kew).
16. Martins and Cabalzar, 'O Rio Uaupés do Passado'.
17. Letter from Richard Spruce to Alfred Russel Wallace, 2 July 1853, Alfred Russel Wallace Family Papers, WP1/3/26, Archives, Natural History Museum. See also Wallace, *A Narrative of Travels*, 220.
18. Letter from Richard Spruce to William Hooker, 19 August 1852, Director's Correspondence 71/367, Archives, Kew.
19. Letter from Sir W. J. Hooker to R. Spruce, 31 March 1853, Director's Correspondence RSP/2/3/111, Archives, Kew.
20. The British Museum received another batch of ethnographic artefacts collected by Richard Spruce in 1960, further to the closure of two of Kew's museum collections. See Cornish and Driver, '"Specimens Distributed"'. On the relocation of ethnographic collections within the British Museum, see Wingfield, 'Placing Britain in the British Museum'.
21. Italics in the original. Spruce, 'Journal of a voyage up the Amazon and Rio Negro', 33.
22. Spruce, 'Botanical objects', 210.
23. Letter from Richard Spruce to Daniel Hanbury, 21 March 1865, Richard Spruce papers, Box 14, Archives, Royal Pharmaceutical Society (RPS).
24. Letter from Richard Spruce to Daniel Hanbury, 16 September 1866, Richard Spruce papers, Box 14, Archives, RPS.
25. See Ballard, 'Return of the past'; Bell, 'A bundle of relations'.
26. Letter from Richard Spruce to M. B. Slater, 3 March 1888, Spruce Letters and Newspapers, Manchester Museum.
27. Hempel, 'Theodor Koch-Grünberg and visual anthropology', 198.
28. Letter from Richard Spruce to Daniel Hanbury, 19 December 1864, Richard Spruce papers, Box 14, Archives, RPS. Through Spruce's correspondence with Hanbury, it is possible to infer that he lived at 5 Waterloo Place, Kew from 24 October 1864 until 10 April 1865.
29. See Knight, *Richard Spruce in the Amazon*.
30. For an account of the collection of voucher specimens becoming standard practice in ethnobotany in the 1980s, see Nesbitt, 'Use of herbarium specimens', 315.
31. Hempel, 'Theodor Koch-Grünberg and visual anthropology', 193.
32. Karl von den Steinen, 20 February 1903, Acta Koch Reise 1903/05, 190/03, quoted in Hempel, 'Theodor Koch-Grünberg and visual anthropology', 199.

33. Hempel, 'Theodor Koch-Grünberg and visual anthropology', 198–9.
34. Hempel, 'Theodor Koch-Grünberg and visual anthropology', 198; Koch-Grünberg, *Zwei Jahre bei den Indianern Nordwest-Brasiliens*.
35. Christen, 'Tribal archives'; dos Santos and Machado Dias Junior, 'Ciência da Floresta'.
36. Thomas, *Entangled Objects*; Clark, 'Australiana in the Museum of Economic Botany'.
37. Satsuka, 'Biodiversity in Satoyama conservation', 81.
38. Ribeiro, *Os Índios das Águas Pretas*.
39. Instituto Socioambiental, 'Rio Negro ethnic groups', https://pib.socioambiental.org/en/Povo:Etnias_do_Rio_Negro, accessed 26 October 2019.
40. Fonseca-Kruel et al., 'Biocultural collections'.
41. Aloisio Cabalzar, personal communication, June 2018.
42. Augustat, 'Sacred musical instruments'.
43. João Paulo Lima Barreto, personal communication during Digital Amazon Workshop at the Royal Botanic Gardens, Kew, July 2015.
44. Shannon, 'Projectishare.com', 69.
45. Shannon, 'Projectishare.com', 69.
46. Martini, 'O retorno dos mortos', 331–5.
47. Juliana Lins, unpublished report, June 2019.
48. Shepard Jr. et al., 'Objeto, sujeito, inimigo, Vovô', 778.
49. Hugh-Jones, 'Fabricated body', 35.
50. Hugh-Jones, 'Fabricated body', 35.
51. Hugh-Jones, 'Fabricated body', 36. This was also explained to us during the workshop at Kew in 2019.
52. Ingold and Hallam, 'Making and growing'.
53. The Salesians are a Catholic missionary order founded in Italy in 1859. In Brazil, they started their work in Mato Grosso in 1895. The Salesians first reached São Gabriel da Cachoeira in 1914. See Hemming, *Die If You Must*, 235–54.
54. See Hugh-Jones, 'Clear descent or ambiguous houses?'; Cabalzar, 'O templo profanado'.
55. A Birkbeck College Global Challenges Research Fund award supported the production of the toolkit.
56. The second workshop was planned to take place in April 2020, but in the wake of the Covid-19 pandemic, it was cancelled. A new date will be arranged once travel to the Rio Negro Indigenous Territory is permitted again.
57. Carneiro da Cunha et al., 'Forum: Indigenous peoples'.
58. Blair, 'Understanding the fires in South America'.

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2

Re-mobilising colonial collections in decolonial times: exploring the latent possibilities of N. W. Thomas's West African collections

Paul Basu

We are living in decolonial times. In a speech at the University of Ouagadougou in Burkina Faso in November 2017, the French President, Emmanuel Macron, spoke of the continuing legacies of European colonialism in Africa. He referred to subjectivities shaped by 'an imagination that confines us to our conflicts, sometimes to our traumas', and he proposed that culture might act as a 'remedy' that could 'enable us to change the vision we have of one another', creating 'new relations of friendship' based on a 'shared and future imagination'.[1] Extolling the virtues of cultural diplomacy, Macron was no doubt cognisant of the hypocrisy of invoking the curative possibilities of culture while ignoring other injurious legacies of colonialism in which 'a large share of several African countries' cultural heritage is kept in France', inaccessible to the majority of Africans.[2] 'Within the next five years', Macron pledged, 'I want to see the conditions put in place so as to allow for the temporary or definitive restitution of African cultural heritage to Africa.'[3]

Although Macron's speech was more qualified than was generally reported in the press, his public pronouncement supporting the repatriation of African artefacts acquired during the colonial era and currently held in European national collections sent a shockwave across the international museum sector. It was no longer only African intellectuals and politicians who were arguing for the return of cultural property, no longer only students and activists campaigning for the decolonisation of Western cultural and educational institutions. Here

was the president of a nation that once possessed one of the largest colonial empires, home to some of the most prestigious museum collections in the world, asserting that 'African heritage can no longer remain a prisoner of European museums'.[4]

Macron subsequently commissioned the Senegalese economist Felwine Sarr and French art historian Bénédicte Savoy to prepare a report on the restitution of African cultural heritage.[5] In their report, Sarr and Savoy seek to remove many of the ambiguities and complexities that have hitherto enabled European museums to defer decision-making around the repatriation of cultural objects to Africa. To restitute, they write, 'literally means to return an item to its legitimate owner', and, in this respect, they see little distinction between objects looted during colonial military expeditions and those acquired in the context of scientific missions – both are characterised as illegitimate forms of cultural extraction 'born of an era of violence'.[6] The authors argue that 'temporary restitution' – through loans, knowledge-sharing exchanges or exhibition collaborations, for example – merely obfuscates the issue. They write that such approaches do not break Western museums' 'monopoly of control concerning the mobility of objects' and should be regarded as transitory solutions at best.[7] Sarr and Savoy thus argue for 'definitive restitution' through the transfer of legal ownership of African cultural property currently held by European national institutions to national institutions on the African continent.

Sarr and Savoy's report is, of course, a polemic. Complicating factors are raised, but many questions are left unanswered. It is not clear, for example, why transferring collections from national museums in Europe to national museums in Africa would necessarily avoid merely substituting 'one form of physical and semantic imprisonment by another', as the authors themselves warn.[8] Does such a movement actually bring objects closer to the 'communities of origin' whose heritage they embody and represent? Indeed, in this age of mobility and diaspora, can we take for granted who exactly identifies with or claims this heritage, how they relate to it or, indeed, where they reside?[9] There is often no singular 'legitimate owner' of this cultural heritage; we find, rather, a plurality of competing legitimacies and legitimations. Sarr and Savoy are also aware that their argument invokes a conceptualisation of material culture at variance with much contemporary thinking about translocationality and inbetweenness, and which instead appears to reproduce the static and bounded logics of colonial paradigms that have long been critiqued.[10] Without doubting the moral imperatives at the heart of their polemic, the question is whether restitution through the legal transfer of property

between national institutions is the only form of 'museum mobility' that can contribute to the 'new relational ethics' that Sarr and Savoy place at the heart of their report. Restitution – and repair – might, we argue, take many forms and be pursued through a variety of means. This chapter considers alternative approaches to re-mobilising colonial collections – other ways of activating their latent decolonial possibilities.[11]

Museum affordances

This chapter is largely methodological in scope insofar as it explores how an expanded range of 'museum methods' might be used to re-mobilise historical collections and archives, not only in the sense of putting collections back into circulation, rendering things that have become static mobile once again, but also considering how that mobility may itself engender or invite further actions.[12] The investigation of these 'action possibilities' has been the subject of a three-year research collaboration entitled Museum Affordances.[13] As part of this project, we have been conducting a series of museological experiments to investigate the affordances of a particular ethnographic archive comprising artefacts, photographs, sound recordings, botanical specimens, fieldnotes and publications associated with a series of early twentieth-century anthropological surveys in West Africa. On the one hand, every collection reflects the unique circumstances through which it came into being; on the other hand, however, the historical materials with which we are working are also representative of many similar colonial-era collections hidden away in museum stores and archives, and the principles informing our approach can be applied more generally.

The theory of affordances is a central tenet in James Gibson's ecological approach to the psychology of perception, in which an environment, object or technology is perceived in terms of the actions it potentially makes possible.[14] As 'potentials for action', affordances remain latent in the properties of that environment or object, only fully coming into being when they are perceived and acted upon, often unreflectingly in the flow of action.[15] Affordances are emergent, relational entities, determined jointly by the distinctive properties of the object or environment, the specific circumstances in which those properties are perceived, and the abilities and intentions of the actor perceiving them.[16] It follows that, in a given situation, different actors may perceive quite different action possibilities in the same thing, depending on their positionality, capabilities and interests. Similarly,

different affordances may become perceptible at different times and in changing circumstances. The affordances perceived in an object by an anthropologist 110 years ago, and which perhaps motivated it being acquired for a collection, may be quite different to what the same object is perceived to afford in the present. Action possibilities are, therefore, intrinsically mutable and contingent, and we need always to consider *for whom* an affordance exists, *in what circumstances*, *with what objectives*, and to recognise that these are always framed in particular historical, cultural and political contexts.

In the Museum Affordances project, we have been concerned with what museums – as peculiar assemblages of things, spaces, people, histories and practices – make possible. More specifically, we are interested in exploring the decolonial possibilities latent in historical colonial collections, and how these perhaps 'hidden affordances' may be made visible and actionable through innovative museum practice in the present.[17] The project has focused on exploring affordances in three domains of the museum: collections; what we term 'interventions'; and exhibitions as specific forms of intervention. Interventions may encompass a very wide range of actions that interrupt or influence a museum object's biography: for example, packing an object carefully in acid-free tissue and placing it in a crate in an environmentally controlled store; photographing and distributing digital images of an object on social media; or, indeed, transferring the ownership of an object from a museum in Europe to a museum in Africa. Many of the latent possibilities of collections only become perceptible through interventions of one kind or another.

In order to explore some of the affordances of these domains, we have deployed distinct museum methods for each, which we define respectively as reassemblage, recirculation and reconfiguration. We use the prefix 're' in each case to make explicit that these same collections have perhaps already been assembled, disassembled, circulated and displayed many times in their histories, but also to signal our reflexive revisiting and revising of these earlier formations.[18]

In the context of this book, concerned with collections in circulation, the primary focus of the chapter is to describe some of the methods we have used to recirculate collections as we have explored their affordances through various museum interventions. These mobilisations are not arbitrary, but arise in response to the biographies of the collections with which we have been experimenting. Thus, in order to make sense of our interventions, it is necessary to understand how the collections were originally assembled and, indeed, why our first intervention was necessarily an act of reassemblage.

Assembling, disassembling and reassembling an ethnographic archive

As noted above, the collections with which we are working were initially assembled in the context of a series of anthropological surveys. These were conducted by the British anthropologist Northcote W. Thomas (1868–1936), who was the first government anthropologist to be appointed by the British Colonial Office. In this capacity, he made four extensive surveys: three in the British Protectorate of Southern Nigeria (1909–10, 1910–11, 1912–13), among Edo- and Igbo-speaking communities, and one in the British Protectorate of Sierra Leone (1914–15), mainly among Temne-, Limba- and Koranko-speaking communities. I have discussed the context of these surveys at length elsewhere.[19] It will, however, be useful to explain what kinds of materials these surveys generated and why they are particularly appropriate as the subject of our experiment.

The two decades between 1898 and 1918 saw huge methodological advances in the discipline of anthropology as its locus shifted from the proverbial 'armchair' of Victorian theoreticians, reliant on the field observations and collecting activities of travellers, to become a fully fledged field science in which trained anthropologists conducted long-term intensive fieldwork in the languages of their informants, 'living right among the natives', as Bronislaw Malinowski famously asserted.[20] This was also a period in which the discipline was concerned to professionalise itself and to demonstrate its value, both within the academy and to government. Thomas's West African surveys are important insofar as they represent the first serious attempt of British colonial authorities to employ anthropological expertise to gather knowledge of Indigenous 'customs and laws' intended to inform the implementation of so-called 'native administration'.[21] Whereas the nature of the entanglement of anthropology and colonialism has been the subject of considerable debate, there is no question that Thomas's tours were mandated by the Colonial Office and funded by the colonial governments of Southern Nigeria and Sierra Leone. This allows us to focus specifically on the decolonial affordances of a collection assembled directly through colonial agency as part of a project expected to be of benefit primarily to the colonial administration.

It is important to note, however, that the utility of Thomas's surveys was often called into question by colonial administrators themselves, who were generally antagonistic to the enterprise. From their perspective, the surveys were regarded as an initiative of Colonial Office bureaucrats in London and an unwelcome intrusion into the practical business of colonial governance. They resented the presence

of an interfering anthropologist in their territories, not least since they were required to cover the costs, which were not inconsiderable, from their annual budgets. It is also apparent that the colonial authorities had little idea of how to make use of Thomas's expertise, and it was largely left to the anthropologist to determine his own itineraries and research activities. As the Nigerian historian Adiele Afigbo has observed, rather than being directed to address specific problems, Thomas's surveys 'ranged like a rudderless ship over the whole sea of general ethnography'.[22]

In fact, Thomas was diligently enacting what was considered to be the best practice in anthropological research, following guidelines set out in *Notes & Queries on Anthropology* to record physical and linguistic differences between tribal groups, and documenting aspects of native life which were perceived to be on the cusp of extinction due to the incursion of European influence.[23] Methodologically, the emphasis was on collecting, whether specimens of language recorded on phonograph cylinders, physical characteristics captured in photographs, observations of cultural practices jotted down in notebooks, or indeed samples of local manufacture and 'primitive technology'. While Thomas did make inquiries into issues pertinent to colonial administration, his anthropological methods rarely produced intelligence that was perceived to be of immediate value to government, and the initiative was discontinued after the completion of his fourth tour. Based on this initial experiment, it appears that anthropology's vaunted 'governmental affordances' proved to be 'false' ones.[24] Despite its perceived failure, the legacy of Thomas's approach – which, incidentally, would also be dismissed by the inter-war generation of functionalist anthropologists – is the remarkably rich historical ethnographic archive available to us today.

The Colonial Office evidently had no interest in maintaining the materials gathered during Thomas's surveys as a coherent assemblage. Its commitment was limited to publishing and distributing a series of multivolume reports.[25] Consequently, Thomas's photographic prints and negatives, phonograph records, artefact collections, botanical specimens and unpublished fieldnotes were dispersed to various institutions.[26] While some parts of the archive – for example, the material culture collections, which are held by the University of Cambridge Museum of Archaeology and Anthropology – have remained in the same institutions for over a century, others have moved between institutions. We know, for example, that three sets of photograph albums from Thomas's Southern Nigerian surveys were produced. These were originally distributed to the Colonial Office Library in London, the Colonial Secretariat in Lagos

and the Horniman Museum in Forest Hill – the latter intended to provide scholarly access. These albums are now to be found in the UK's National Archives in Kew, the National Museum, Lagos and the University of Cambridge Museum of Archaeology and Anthropology. Thomas's glass plate negatives passed from the Imperial Institute in South Kensington to the Anthropology Department of the Natural History Museum, and thence to the Royal Anthropological Institute. His phonograph recordings passed within the University of Cambridge from the Museum of Archaeology and Anthropology to the Department of Psychology, prior to being transferred to the British Institute of Recorded Sound, which, as the National Sound Archive, became a division of the British Library. It is only now, through digital remediation, that we have been able to rearticulate objects, photographs, sound recordings and fieldnotes, and, for the first time, begin to appreciate the full significance of this encyclopedic archive.[27]

The multimedia nature of this dispersed archive allows us to consider the different affordances generated by different types of collections – exploring the distinct possibilities afforded by Thomas's sound recordings, for instance, as opposed to his photographs or fieldnotes. Having reflected on affordances unique to particular archival media, one can also examine how the recombination of sound, image, text and object gives rise to yet further possibilities. To give just one example of this work of reassemblage, it has been possible to reunite Thomas's unpublished typescript notes documenting a wrestling festival he witnessed in Otuo, in the north of present-day Edo State, Nigeria, with photographs of the various scenes he describes, sound recordings of songs and drumming performances he photographed, and indeed an example of the kind of drum (if not the actual drum) he recorded. Although all were initially assembled at the same event over the same few days in July 1909, in the 110 years since then, each of these archival objects has followed a quite different path, and it is only through painstaking research across a range of institutions that it has been possible to identify, locate and re-associate them.[28]

The *alukpe* drum that Thomas collected in Otuo can, of course, be appreciated in isolation as an example of a local musical instrument. However, its significance is amplified by being part of an ethnographic assemblage, including historical recordings, photographs and written descriptions. Together, this assemblage provides a powerful and multifaceted evocation of an important part of Otuo's cultural heritage, as well as of a particular historical event. As component parts in a distributed archival object, encompassing both 'tangible' and 'intangible' dimensions

of cultural heritage, the pages of Thomas's typescript, the wax cylinders, photographic prints and negatives, and the drum itself are of equivalent value. This levelling in the cultural and historical significance of different archival media is important to consider in relation to current discourses around the restitution of African cultural heritage, which have focused on antiquities and art objects, obscuring the immense value of other types of collections. Indeed, as we have recirculated such collections among 'originating communities', it is the prospect of seeing the faces of one's ancestors in a photograph, or hearing their voices in scratchy recordings, that usually elicits the most powerful responses, while interest in the artefacts is often more limited.

We have yet to discover any itinerary or diary that straightforwardly charts the dates, locations and materials assembled over the six years of Thomas's anthropological surveys. The work of reconstructing his journeys and associating photographs, sound recordings and artefact collections to particular locations has thus relied on rigorous archival and collections-based research (Figure 2.1). The importance of these most fundamental of museum methods cannot be overstated; it is the

Figure 2.1 Project researcher George Agbo working with collections at the University of Cambridge Museum of Archaeology and Anthropology stores, 2018. We made extensive use of Northcote Thomas's field photographs to identify and contextualise objects in the collection. Cambridge, UK. Photograph: Paul Basu.

intimacy with the archives and collections that such research affords that often gives rise to other actions, other affordances. One of our first tasks in the project was to systematically work through Thomas's photographic archive of over seven thousand prints and over five thousand glass plate negatives. The majority of the photographs were numbered sequentially by Thomas and thus, as we digitised them, it was possible to place them in the order in which they had been taken and to reunite prints with their negatives, where the latter have survived. Quite by chance, we also discovered Thomas's photographic registers in the archives of the Royal Anthropological Institute. These contain brief, but nevertheless invaluable, annotations for each image, including notes on locations, events and names of individuals photographed. We have been able to correlate this sequence of images and locations with information included in correspondence, fieldnotes and lists relating to sound or botanical collections, and have been able to reconstruct Thomas's itineraries with some precision. Time-consuming and laborious, this collections-based research nevertheless affords the possibility of returning to the same locations that Thomas visited over a century before, bringing back copies of the archival materials to their present-day communities.

Re-mobilisations

Having reconstructed N. W. Thomas's survey itineraries in Nigeria and Sierra Leone, and rearticulated the assemblages of photographs, sound recordings, artefacts, botanical specimens and fieldnotes that constitute their archival legacy, our interest turns to how we might explore and activate the latent affordances of these colonial collections. In their passive state – for example, as objects packed in crates, hidden from light and sight in an anonymous museum store – it could be argued that the collections afford very little. Of course, this state is not passive at all, but rather an active intervention affording the longevity of the objects. Had these archives and collections not been subject to such regimes of preventative conservation, it is doubtful whether they would have been available to us today. This raises the question, however, of why it is important that museum and archive institutions devote such energy and resources to conserving collections. Within the rubric of our project, it might be said that collections are conserved in anticipation of their future capacity to engender actions (learning, knowledge-making, relationship building, reparation), even if the precise nature of such affordances remains to be defined. These latent possibilities

represent the hidden affordances of the colonial archive. It is, we argue, the responsibility of museums and archives to expand the range of possibilities that collections might afford for different stakeholders, yet without attempting to determine or limit what these affordances may be. In decolonial times, the role of these institutions must surely be to relinquish control, epistemic and otherwise, and to actively extend intellectual as well as physical access to collections to enable stakeholders to discover such possibilities on their own terms in relation to their own interests.

For many people, museums and archives are not inviting places. There are multiple social barriers that stop communities 'reaching in' to these institutions, even if they are aware of material relating to their own cultural heritage that they contain. The Museum Affordances project has thus experimented with various ways of liberating the collections from their sequestered state and recirculating them in order to reach out to different communities who may be invested in them in some way. Through effecting 'archival returns', 'diasporic reconnections' and 'creative re-engagements', we have sought to open up pathways through which people can begin to reclaim these collections and explore what actions they make possible.

Archival returns

Much of our fieldwork during the Museum Affordances project has involved retracing parts of Northcote Thomas's itineraries in Nigeria and Sierra Leone, equipped with copies of the reassembled archival materials relating to each location. Such an intervention involves both temporal and spatial return. In the course of approximately 18 months of fieldwork it has not been possible to revisit every settlement in which Thomas worked during his six-year tenure as government anthropologist. We have, however, included a sample of locations from each of his four tours, including multiple locations in Anambra, Delta and Edo states in Nigeria and in Port Loko, Bombali, Tonkolili, Koinadugu and Falaba districts in the Northern Province of Sierra Leone.

Our fieldwork practice varies from place to place, depending on the nature of the location and on local protocols. Often, we will first meet with the local chief and senior members of the community to pay our respects, explain our project and seek permission to pursue the research. Typically, a meeting is then called at which community elders and others well versed in the history of the settlement join us. Communities generally have no knowledge of the existence of these rich ethnographic

archives relating to their settlements, or of the anthropological surveys that produced them. Thus, we introduce both our own project and that of Northcote Thomas. These meetings are usually carried out in public, and large crowds often congregate as we present Thomas's historical photographs and sound recordings, as well as images of artefacts he collected. The archival materials elicit great excitement, and community members clamour to see and touch the digital prints that we hand around. The photographs occasion the telling of the community's history, as well as stories relating to identifiable individuals, events or places that feature in the images. For many younger people, this is the first time that they have heard these stories, and the act of returning the archives thus affords opportunities for community members to learn about their own history from their elders (Figures 2.2 and 2.3).

Where appropriate, we also set up informal public exhibitions of Thomas's photographs, enabling a wider cross-section of the community to spend time examining and discussing them (Figure 2.4). This is especially important since public history-telling is often dominated

Figure 2.2 Bronze-caster Ehigie Ihama and colleagues compare the designs of a ceremonial sword (*eben*) that Thomas purchased in Benin City in 1909 with an example they produce and sell at their Igun Street workshop today. Benin City, Nigeria, 2018. Photograph: Paul Basu.

Figure 2.3 Elders David Ormoruyi Egomnwan and Ekhaguosa Aisien discuss Northcote Thomas's photographs of Idunmwowina with Paul Basu, while being videoed by other community members. Here, David Ormoruyi Egomnwan tells stories of Idahosa, the priest of Idunmwowina's Ake shrine when Thomas visited in 1909. Idunmwowina, Benin City, Nigeria, 2019. Photograph: George Agbo.

by male elders, and the exhibitions allow for the expression of other narratives or forms of engagement with the archive by women or members of lineages that may be excluded from dominant accounts. We reproduce whatever annotations Thomas made about each photograph as captions on the prints that we distribute and exhibit, and community members are frequently able to identify their ancestors. It is a privilege to share in these emotionally charged experiences, and to witness as people gaze upon their grandparents' or great-grandparents' faces, often for the first time. While we leave hard copies of the photographs with the community, many people use their mobile phones to re-photograph them and distribute them via WhatsApp and other social media platforms.

Following these more public displays of the archives, we often spend time working through the materials with individuals who either have family connections with those photographed or good knowledge of local history. These archival returns afford opportunities for dialogue and knowledge exchange. As well as returning the archival materials to communities, and explaining how and when they were gathered, our own understanding of them is enriched as we learn more about their historical

Figure 2.4 Informal exhibition of Northcote Thomas's photographs taken at Musaia, northern Sierra Leone, in 1914. Community members 'snap' images of their ancestors on their phones to share with their families. Musaia, Sierra Leone, 2019. Photograph: Paul Basu.

context and are able to supplement Thomas's short annotations with new information. These more intimate engagements with the archives are also more suited to working with Thomas's digitised audio recordings. Because the recordings were originally made through a sound horn on to wax cylinders using a phonograph, the signal-to-noise ratio is very poor, such that listening to them requires a great deal of concentration. Perseverance, however, is often rewarded by a breakthrough moment, when suddenly someone will discern what is being said or recognise the lyric of a song. These are some of the most remarkable and moving experiences of our fieldwork. Out of the garbled noise, the voices of the ancestors emerge and, for the first time in more than a century, their words can be comprehended. Indeed, as voices quite literally of the past, what they have to say often causes us to pause and reconsider our understanding of the period (Figure 2.5).

Thomas's surveys were undertaken soon after the 'pacification' of local polities by British colonial forces. While many of the recordings are of traditional songs and tales, others provide commentary on contemporary events, and include references to the coming of the 'white man' or 'government'. Sometimes this is invoked with the regret of the vanquished; at other times, however, the presence of Europeans

Figure 2.5 Community elders listen to Northcote Thomas's sound recordings made in Kamalo, northern Sierra Leone, in 1914. Kamalo, Sierra Leone, 2019. Photograph: Paul Basu.

appears to be welcomed. In one recording, made in 1910 in the Ibie language, for instance, we learned from translators in Okpekpe that the speaker celebrates a new-found freedom, under the British, to move about without fear of abduction – a reference to Nupe slave raiders who previously preyed upon the community.

While we call attention during fieldwork to the colonial context of Thomas's anthropological surveys, it is striking that community responses to the archives are rarely critical of colonialism or of Thomas. On the contrary, Thomas is frequently applauded for his efforts at documenting local culture and history in such detail. On a number of occasions, community members have remarked on the symmetry of our own visit and that of Thomas: how, over a hundred years ago, an anthropologist came to their community, made photographs and sound recordings of their ancestors, and, now, another anthropologist has come, bringing those photographs and recordings back. This sometimes translates into an enthusiasm to participate in – and even direct – our own fieldwork documentation. In one community, for example, the elders asked that we photograph the elders present just as Thomas had done with their great-grandparents, and to ensure that we record their names correctly – it having been noted that Thomas's phonetic transcription of their ancestors' names was sometimes incorrect.

Archival returns afford communities a range of affective reconnections with the past, both collectively and individually. Beyond mere nostalgia or a benign sense of the community's heritage, the collections also intervene in contemporary local politics. While a general critique of colonialism seems to be absent, the archives have the potential to touch rawer nerves in the community. As we work through Thomas's photographs, we may be quite unaware that a particular image will spark a heated debate. At Okpanam, in Delta State, Nigeria, for example, his photograph of an elderly woman – the *omu* or 'market queen' – wearing a red cap with eagle feather lent historical weight to the claim of the present-day *omu* of her right to wear this regalia, normally reserved for men holding the prestigious *obi* title – a right that had been contested.[29] In Mabonto, in Tonkolili District, Sierra Leone, we found ourselves embroiled in a contentious chieftaincy election as Thomas's photograph of Chief Ali Suri, the paramount chief in 1914, was seen to legitimise Ali Suri's descendant's claim to the office, which had been questioned. In some cases, especially among strongly Christianised communities in Nigeria, the reconnection with a 'pagan' past that the collections afford is not universally welcomed. People may be reticent to engage, and our well-intentioned offer of effecting an 'archival return' may itself become a matter of contention.

Diasporic reconnections

It is not for museums and archives to determine for whom a particular affordance might exist, nor how proximate stakeholders must be to a collection in order to stake a claim in it in some way. It would also be naive to assume that the descendants of the communities closest to the collections (in our case, the communities included in Thomas's anthropological surveys) are necessarily living in the same settlements, or even on the same continent, as their ancestors. It is not enough, then, to merely return copies of these archives to the places from which they came to explore their decolonial possibilities. Connecting these diasporas of objects, images and sounds to diasporas of people requires quite different forms of recirculation.

Perhaps the most wide-reaching approach we have adopted is to utilise online platforms and social media. Through the project's website and blog, its Facebook group and Instagram feed, we have endeavoured to conduct the research in public, providing lots of information about N. W. Thomas's anthropological surveys and their archival legacies, posting regular updates about our research activities, and inviting participation.

Through a series of annotated Google Maps, we have charted Thomas's survey itineraries, and have uploaded complete sets of the digitised photographs and sound recordings to project Flickr and SoundCloud sites, organising them according to location and tour.[30] These online resources continue to expand and develop as the project progresses, and they will remain an important legacy of the project once our funding has come to an end. We also communicate our research findings back to our institutional partners, adding our photographic documentation of Thomas's artefact collections, for example, to the online database of the University of Cambridge Museum of Archaeology and Anthropology, along with new associated information. We are producing new data sets to accompany Thomas's photographs and sound recordings. All this will enhance the accessibility and discoverability of the archival materials.[31]

As an indication of the impact of this online strategy, it is interesting to observe how widely Northcote Thomas's photographs now circulate among interest groups via social media platforms. When we began the project, very few of the photographs had been digitised, and online access was restricted to a small number of published images. As a result of the project, thousands of Thomas's photographs are now openly accessible with associated metadata, enabling people to discover them by place, named individuals, cultural practices and so forth. These images are now being recirculated by many others. A notable example is the multi-platform Ụ́kpụ́rụ́ site, which is run by Chiadikōbi Nwaubani, a young Igbo graphic designer based in London, which focuses on Igbo cultural heritage. At the time of writing, the Ụ́kpụ́rụ́ Twitter feed has 9,422 followers, while its Instagram feed has 4,215 followers; there is also a BlogSpot. Ụ́kpụ́rụ́ posts frequently feature N. W. Thomas photographs and associated information harvested from the databases of the University of Cambridge Museum of Archaeology and Anthropology and the Royal Anthropological Institute. These posts often instigate long discussion threads, as followers share their knowledge and responses to the images, as well as recirculating them further through their own social media networks.

Some of the most powerful – and problematic – photographs made by Thomas are so-called 'physical type' portraits. These head and shoulder shots were usually taken in pairs, with each sitter photographed facing the camera and in profile. Those made during Thomas's first tour often have a number plate held above the subjects' heads. For many, this genre of photography epitomises the dehumanising violences of colonial anthropology – reducing individual people to 'specimens' to be collected (vicariously, through photography), then compared and categorised

according to imagined racial or tribal characteristics.[32] Approximately half of the photographs made during Thomas's anthropological surveys are of this type. As noted above, the colonial framing of these photographs receives little comment or criticism when we return these images to the communities in which they were taken. For them, the portraits are valued primarily as precious images of grandparents and great-grandparents, and the formal poses of the subjects, intended to aid the dubious work of anthropological comparison, enable a different kind of comparison between the physical features of the ancestors and their descendants – something that elicits much comment.

'Diasporic' readings of the physical type portraits are quite different, especially among those whose connections with West Africa are further removed, but who may nevertheless identify strongly with the archive as a site of memory. For them, the physical type photographs reinforce senses of colonial violence and oppression. In order to explore this further, we made a film entitled *Faces|Voices*, in which we asked people of African heritage in London to respond to a selection of these portraits.[33] One of our interests in making the film was to explore whether other 'readings' of these images were possible beyond the colonial critique. Indeed, we found that when they were examined more closely, the photographs elicited a much wider range of responses, and that the same photograph was often interpreted quite differently by our various respondents. As the participants each voice what they perceive in the faces of those photographed, it is the ambiguity of the images that becomes most apparent. The inscrutability of the archive acts as a mirror, reflecting back viewers' own dispositions and positionalities (Figure 2.6).

Regardless of the indeterminate meaning of any particular photograph, the significance of the archives to respondents is clear. As Esther, a teacher of Afro-Caribbean heritage, explains in the film, despite the circumstances in which they were produced, 'any recording, any documentation of . . . African people, from my perspective as an African woman, is important because so much of our history has been subjugated, it has been maligned, it has been buried, it has been distorted'.[34] For Esther, the significance of these material legacies of Thomas's surveys is the evidence they provide of that 'buried' history; she describes them as 'traces . . . of whole worlds, . . . whole civilisations . . . and contributions to knowledge that we can learn from'. Paradoxically, these colonial archives afford the recovery of African cultural memories and social worlds that were lost through the structural violences that produced the archives in the first place. Ebony, a Black British artist, who also participated in the film, was less convinced that the decolonial possibilities of the archive

Figure 2.6 Confronting the colonial archive. Still from *Faces|Voices*, directed by Paul Basu and Christopher Allen, 2019.

had yet been realised. Acknowledging that the photographs have the ability to 'disrupt' or 'create dialogue, narrative and conversation', she argues that 'it's not a new conversation, it's not a new dialogue', and little has moved forward.[35] For this respondent, the decolonial affordances of the archive may no longer be hidden, but it is yet to be proven that such affordances are not false. A further mobilisation is required in order to see just how these archives can disrupt current conversations – or lack of conversations – about race, inequality and colonialism.

The point is made by yet another participant in the film, Kofi, a British–Ghanaian community activist, that the responsibility for taking this action belongs to the people themselves. It is not museums and archival institutions that should determine how these collections are mobilised by communities; rather, their responsibility is to create the conditions in which communities can access these resources – physically, intellectually, affectively. He reflects on the fact that these collections and archives are not integrated into formal educational systems, either in West Africa or the UK. Until this is changed, he argues that whatever decolonial possibilities these collections may afford remain as hidden as the collections themselves – hidden, that is, from the communities for whom they matter most. For Kofi, acquainting communities with the existence of these educational resources, and, crucially, providing communities with the skills to access and engage with them, are key dimensions of decolonial reparatory justice – more important, in his view, than the repatriation of collections or monetary compensation.

This educational agenda is the focus of a further initiative of the Museum Affordances project, in which we are working with the 'youth forum' of the South London Gallery, situated in Peckham, home to a large West African diaspora community. This initiative involves forum members, between 15 and 20 years old, working alongside three artists and two researchers in residence, all of whom have connections to West Africa, to explore the N. W. Thomas archives and collections. In parallel, the group is participating in a series of workshops facilitated by Autograph ABP, a gallery and archive specialising in Black photography, the Museum Conservation programme at UCL and the Igbo Studies Initiative, a London-based community organisation, to introduce the young people to a range of transferable heritage skills relating to photographic, artefact and sound collections. The initiative will culminate with the members of the youth forum curating their own exhibition and events programme at the South London Gallery, creatively interrogating this anthropological archive and its relevance for Peckham's multicultural communities today. The hope is that the experience will equip the participants with the skills and confidence to approach and, indeed, make demands on archive and museum institutions to explore the affordances of other collections, other 'buried histories', for themselves.

Creative re-engagements

Our third approach to re-mobilising these colonial collections involved recirculations of a different kind: less geographical than social, extending to a different constituency. In many West African urban centres (as in many other places throughout the world), younger people are often less interested in history, archives and museums than in the vibrancy of the creative industries and contemporary arts scene. We were interested, therefore, in fostering contemporary creative engagements with the legacies of Thomas's anthropological surveys, in order to explore both what these archives and collections afford for artists and how, in turn, artists' interventions make visible or amplify the decolonial possibilities of the collections for their audiences. The objective was not necessarily to privilege artists' particular responses, so much as to use their work to illustrate how the colonial archive may be creatively appropriated by a wide diversity of stakeholders. As Nicholas Thomas has argued, such artistic engagements demonstrate how a collection may be regarded as a 'creative technology', a technology that affords the making of 'new things'.[36] In decolonial times, we were interested, therefore, in what

creative people in Nigeria and Sierra Leone might make of a colonial survey's archival legacies.

With such ends in mind, we have experimented with different forms of collaboration in Benin City, Nsukka, Lagos and Freetown, as well as with 'diasporic' artists in London. In Benin City, for example, we collaborated with Enotie Ogbebor at Nosona Studios, working with a collective of young artists on materials assembled during Thomas's 1909–10 tour of Edo-speaking areas of Nigeria. This involved running an initial workshop introducing the artists to the archives and collections, as well as to the circumstances in which they were made and collected. None of these artists had previously engaged with archives, and so we also introduced them to the work of artists associated with the so-called 'archival turn', including African artists such as Sammy Baloji and António Ole. We then solicited proposals from the workshop participants, commissioned a piece of work from each, and maintained close contact with the artists as they developed their ideas and produced their work over a number of months (Figure 2.7). The collaboration culminated in a

Figure 2.7 Artist Ojevwe Onomigbo works on a collage reproducing Northcote Thomas's photograph of the Ovia masquerade at Iyowa, 1909. The collage is created from a combination of contemporary newspaper cuttings and torn-up copies of Thomas's fieldnotes and typescripts about the masquerade. Nosona Studios, Benin City, Nigeria, 2019. Photograph: Paul Basu.

month-long exhibition at Nosona Studios, in which the artists' work was presented alongside large-format prints of images from the N. W. Thomas archive.[37] The exhibition opening doubled up as a reception for a meeting of the Benin Dialogue Group that was taking place in Benin City at the same time. This is an international forum of European museums and representatives of the Royal Court of Benin, the Edo State Government and the National Commission for Monuments and Museums, formed to discuss the restitution of Benin Palace treasures looted during the 1897 Punitive Expedition and the establishment of a new Royal Museum in Benin City.[38] The event provided an important opportunity for the artists to present and discuss their work, and to demonstrate how creative collaboration can contribute to debates around restitution.

At Nsukka, we have engaged in a similar process, this time collaborating with more established artists associated with the Department of Fine and Applied Art at the University of Nigeria, the foremost university in the Igbo-speaking region of Nigeria. This collaboration focused on the materials gathered during Thomas's 1910–11 and 1912–13 Igbo surveys. One of the characteristics of the approach of 'Nsukka School' artists has been the incorporation of traditional Igbo *uli* designs into contemporary works. These combinations of abstract and figurative designs were originally part of a body-painting tradition carried out by women using plant dyes. The *uli* motifs were also reproduced in large-scale wall paintings, also carried out by female artists. Thomas photographed many examples of such wall paintings – indeed, his are some of the earliest photographs of *uli* work – and these have provided a new repertoire of traditional images for the Nsukka artists to work with in a variety of media, including textiles, even inspiring a new fashion collection. Particularly impressive have been the contributions of faculty members from the Department of Music, who have worked with Thomas's Igbo sound recordings. Samson Uchenna Eze has, for example, transcribed the music and lyrics of a selection of songs that Thomas originally recorded in Awka in 1911, researched them, and then worked with a local ensemble to re-record them (Figure 2.8). This has transformed our understanding of the significance of the recordings, not only for local communities, as discussed in the section on archival returns, but also nationally, as Eze explains:

> The educational value of Thomas's recordings is huge, especially as a body of indigenous instructional material amid calls for the decolonization of musical arts education in Nigeria. The recordings led me to consider how ordinary people responded to colonial

Figure 2.8 An ensemble from Awka, Anambra District, Nigeria, recreate traditional songs originally recorded by Northcote Thomas in 1911 under the direction of Samson Uchenna Eze. Awka, Nigeria, 2019. Photograph: George Agbo.

> oppression through song. The songs are an important historical source for understanding the experience of colonialism 'from below'. . . . Research for this project has spurred me to rethink my own Igbo culture and heritage, and to consider the important place of indigenous music traditions in building national consciousness.[39]

Lagos is, of course, one of the most vibrant centres of contemporary art on the African continent. Our collaboration here was with the artist Kelani Abass, who had already been exploring archival materials relating to his late father's printing business in his work. This was a three-way collaboration, which also involved the National Museum, Lagos, which holds the only substantial collection of materials from Thomas's anthropological surveys to be retained in West Africa – an incomplete set of photograph albums, originally deposited at the Colonial Secretariat in Lagos, documenting his three tours in Southern Nigeria. Over several months, Abass produced two remarkable series of works under the title *Colonial Indexicality*, in which he explores both the materiality of these fading and disintegrating albums and the traces of the bureaucratic ordering practices of the anthropological survey, reflected particularly

in the ubiquity of numbers and annotations attached to each image.[40] Abass's provocative and accomplished works were displayed alongside a selection of the historical albums and large-format prints of pages from the albums in a hugely successful five-week exhibition at the National Museum. The museum had never previously created an exhibition focusing on its archival holdings, fearing that audiences would not be interested. By curating a dialogue between art and archive, however, the exhibition drew large audiences and critical acclaim, highlighting the importance of these endangered archives and their relevance today.[41]

Conclusions

At the time of writing, the Museum Affordances project is ongoing, and it would be premature to draw conclusions about the longer-term decolonial possibilities engendered by our attempts to re-mobilise these particular colonial archives and collections. If the hitherto hidden affordances of these collections have become more perceptible as a consequence of our efforts to recirculate them through a variety of interventions, it remains to be seen whether they will give rise to further actions and indeed begin to 'disrupt the conversation'. The initial indications are promising, and we remain convinced that these material legacies of an anthropological project that was originally intended to support the operation of colonial power might yet contribute to projects seeking to redress the continuing injustices and inequalities produced through that power.

In our work so far, it is evident that in order for the decolonial possibilities of colonial collections to be activated, the collections must be liberated from their institutional seclusion. This requires an investment of imagination, as well as resources, to expand our 'museum methods' and to experiment with new ways of reassembling, remediating, recirculating and reconfiguring collections so that a wider range of stakeholders and communities can access them on their own terms, in pursuit of their own goals. Restitution in the form of the transference of legal ownership from national institutions in Europe to national institutions in Africa is, no doubt, part of the solution and entirely appropriate in certain cases. It is possible, however, that this 'definitive restitution' at the level of the state is largely a symbolic act and, in many cases, does not actually bring collections closer to the people whose cultural heritage they ultimately embody. There are other ways in which Western institutions can relinquish their 'monopoly of control' over archives and collections, mobilising them for the benefit of a diversity of stakeholders in multiple

locations, each with a legitimate claim. In decolonial times, we are called to think beyond binary logics, and beyond nation states. This is surely the time for a translocational museology, a time for keeping collections in motion.

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Notes

1. Élysée, 'Emmanuel Macron's speech'.
2. On culture as cure, see Butler, 'Heritage as pharmakon'.
3. Élysée, 'Emmanuel Macron's speech'.
4. Quoted in Sarr and Savoy, *Restitution of African Cultural Heritage*, 1.
5. Sarr and Savoy, *Restitution of African Cultural Heritage*.
6. Sarr and Savoy, *Restitution of African Cultural Heritage*, 29, 12.
7. Sarr and Savoy, *Restitution of African Cultural Heritage*, 28, 38.
8. Sarr and Savoy, *Restitution of African Cultural Heritage*, 39.
9. See, for example, Hall, 'Cultural identity and diaspora'; Bhabha, *The Location of Culture*; Appiah, *Cosmopolitanism*.
10. Sarr and Savoy, *Restitution of African Cultural Heritage*, 30. On translocationality and inbetweenness, see Munkelt et al., *Postcolonial Translocations*; Puzon, 'Translocality'; Basu, *The Inbetweenness of Things*.
11. Basu and de Jong, 'Utopian archives, decolonial affordances'.
12. Basu, 'Object diasporas, resourcing communities'. On museum methods, see Thomas, *The Return of Curiosity*, 65–113.
13. Museum Affordances: Activating West African Ethnographic Archives and Collections through Experimental Museology is funded by the UK's Arts and Humanities Research Council, 2018–21 (AH/P014615/1). This multi-partner project has been led by Paul Basu (Principal Investigator), George Agbo (Postdoctoral Research Associate) and Katrina Dring (Collections Assistant), and has relied on an extensive network of research assistants and collaborators in Nigeria, Sierra Leone and the UK, whose contributions are gratefully acknowledged.
14. Gibson, *Ecological Approach to Visual Perception*.
15. Heft, 'Affordances, dynamic experience'.
16. Knappett, 'The affordances of things'.
17. On perceptible, hidden and false affordances, see Gaver, 'Technology affordances'.
18. See, for example, Byrne et al., *Unpacking the Collection*; Harrison et al., *Reassembling the Collection*.
19. Basu, 'N. W. Thomas and colonial anthropology'.

20. Roldán, 'Malinowski and the origins of the ethnographic method'. This narrative of the development of anthropological field methods is, of course, a simplification. What came to be codified as 'ethnographic methods' have many precursors in the ethnological inquiries of missionaries, administrators and other travellers in what Hulme and McDougall term 'the margins of anthropology' (Hulme and McDougall, *Writing, Travel and Empire*).
21. Ormsby-Gore, 'The meaning of "indirect rule"'.
22. Afigbo, 'Anthropology and colonial administration', 34.
23. Urry, '*Notes and Queries on Anthropology*'.
24. Gaver, 'Technology affordances'.
25. Thomas, *Edo-Speaking Peoples of Nigeria*; Thomas, *Ibo-Speaking Peoples of Nigeria*; Thomas, *Anthropological Report on Sierra Leone*.
26. While Thomas's photographic and sound recording activities were formally part of the anthropological surveys, his material culture and botanical collecting practices were more loosely connected. He initially made ethnological artefact collections under the impression that they would be acquired by the British Museum. Having sent an initial batch of approximately two hundred objects to the British Museum in April 1909, however, Thomas received a reply from C. H. Read, Keeper of Ethnography, stating that there was little interest in them. This was partly due to the type of collecting practice that Thomas was pursuing, including commissioning specimens of local manufacture to be made specifically for collection. In a letter of 12 August 1909, Read wrote, 'I am by no means sure that I want these modern things made to order as it were' (Correspondence files, Department of Prehistory and Europe, British Museum). Thomas subsequently offered the collections to the Pitt Rivers Museum, which acquired 36 items from the initial consignment. The University of Cambridge Museum of Archaeology and Ethnology eventually acquired the remainder of Thomas's initial consignment and subsequent collections from his 1909–10 tour. For his second, third and fourth tours, the Museum of Archaeology and Ethnology provided Thomas with grants towards the costs of forming collections. Thomas's increasingly extensive botanical collections were made directly for the Royal Botanic Gardens, Kew. He even made collections of fish for the Natural History Museum, London.
27. Geismar, *Museum Object Lessons*.
28. Basu, 'Otuo wrestling festival, July 1909'.
29. Agbo, 'Omu and the red cap controversy'.
30. https://re-entanglements.net/itineraries/.
31. Issues of copyright and protocols around access to cultural knowledge, images and collections have been discussed in various contexts (for example, see Geismar, *Treasured Possessions*; Martins, 'Skin, paper, tiles'; Christen, 'On not looking'). We are sensitive to such matters in our work with the N. W. Thomas archives and collections, and we are guided by the Nigerian and Sierra Leonean communities with which we engage.
32. Edwards, 'Photographic "types"'.
33. Basu and Allen, *Faces|Voices*.
34. Basu and Allen, *Faces|Voices*.
35. Basu and Allen, *Faces|Voices*.
36. Thomas, *The Return of Curiosity*, 117.
37. Basu, 'Benin City'.
38. Staatliche Museen zu Berlin, 'In cooperation with the Ethnologisches Museum'.
39. Basu, 'Revisiting some Awka folksongs'.
40. Basu, 'Colonial indexicality'.
41. O'tsemaye, 'In dialogue with history'.

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3

Circuits of accumulation and loss: intersecting natural histories of the 1928 USDA New Guinea Sugarcane Expedition's collections

Joshua A. Bell

Three photographs

Three distinct events are documented in black and white in three photographs from 1928. The first photograph (Figure 3.1) is a close-up portrait of an unnamed Papuan from Vanapa looking directly at the camera, his face furrowed, perhaps from the tropical sun or from concentrating on the camera. He wears a necklace of Job's tears, and another individual stands behind him. Vanapa is a river north of Port Moresby, and this man may have been visiting the city or have been a labourer. Printed on photographic paper, the image has the caption typed on the back with 'K-4' written in pencil. The second image (Figure 3.2), printed on postcard stock, is a full-length portrait of an unnamed Yonggom/Muyu man (erroneously labelled pygmies and negritos) bedecked in an array of ornaments.[1] From the image's typed caption on its reverse, we know that he lived in or near a community recorded as Karemgor. The man stands next to a stand of sugar cane (*Saccharum officinarum*) and holds a white card with the number 25 printed on it (not visible in the image) while he looks into the camera. The final photograph (Figure 3.3), also printed on postcard stock, is lighter in tone and shows two men, both of whom look at the photographer. One man stands arms behind his back, wearing a necklace, with a bilum hanging on his chest, and wears nothing else but a penis gourd. Another man holding an unknown object (perhaps an object of trade?) looks back over his shoulder at the photographer. Behind the

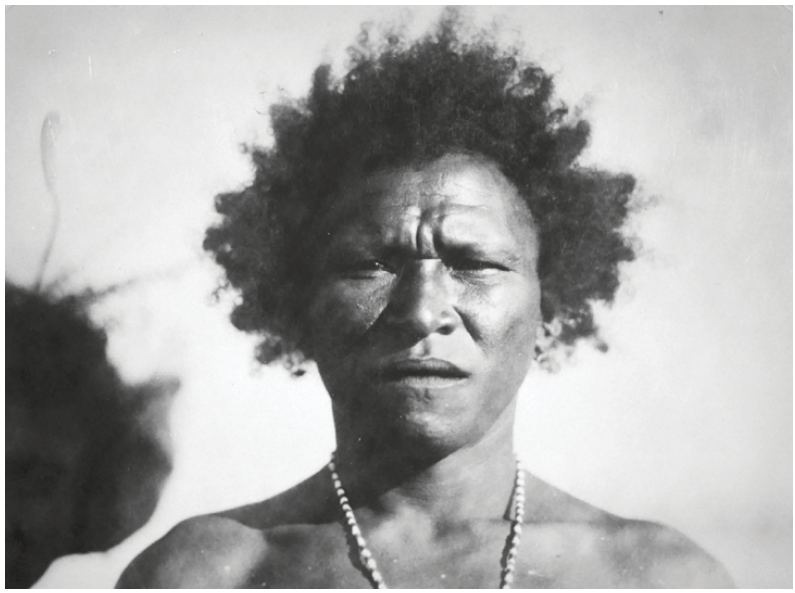

Figure 3.1 'Native man from Vanapa near Port Moresby, June 26 1928'. Courtesy: Joshua Bell.

men, a house is visible, along with some carvings and what appears to be a fishing weir.

All of these photographs were taken in 1928 by Dr Elmer Walker Brandes,[2] principal pathologist at the United States Department of Agriculture (USDA) and leader of the USDA's New Guinea Sugarcane Expedition.[3] Each image is part of a series that documents the encounters that mediated and helped facilitate the expedition's scientific work and collecting. Photography was one of the key means by which the expedition collected aspects of the environment that they came to document.[4] Today, these materials are instrumental in helping to reconstruct aspects of the cross-cultural dynamics that made such expeditions possible. In the process, more nuanced and inclusive accounts of these encounters can be written, and the otherwise obscured role of Indigenous communities can be brought into sharper focus.

While each of these photographs encapsulates a series of circulations momentarily frozen through photographic technology (I will return to these below), it is another series of movements – that of these three image-objects themselves – that I want to dwell on here. Following the expedition, they circulated in and out of an unknown array of persons and localities, beginning with the expedition and ending up on eBay,

Figure 3.2 Film Pack X-5. 'Sugar Cane No. 25, taken in the pigmy village of Karemgor on the right bank of the Fly River, July 25, 1928'. Courtesy: Joshua Bell.

Figure 3.3 LL7. 'Two natives, one poised for flight, in village along the upper Sepik, August 30, 1928'. Courtesy: Joshua Bell.

where I purchased them in July 2013 from a dealer specialising in 'vintage items'. While 'Film Pack X-5' was published in 'Sugar cane: Its origins and improvement' with the caption, 'Sugarcane and a sugarcane grower in the interior of New Guinea',[5] the other images appear not to have been published previously. However, duplicates of these photographs appear in the expedition's albums (the numbers on each photograph refer to the series of which they are a part). I raise the trajectories of these images to foreground the ways in which things circulate in unexpected ways.

The New Guinea Sugarcane Expedition

Relying on colonial infrastructures, and made possible by an international mixture of governmental and commercial sponsors, from May to August 1928 the expedition's four male core members travelled through what is now Papua New Guinea.[6] The expedition's main goal was to locate new species of sugar cane with which to make a hybrid sugar cane resistant to the debilitating mosaic virus, then crippling the Louisiana sugar-cane industry and threatening the global sugar industry.[7] However, as Brandes remarks in his 1929 *National Geographic* article, 'Primarily, of course,

we came for cane; yet, important as that quest was, it was only natural that the strange tribes we bartered with were even more interesting than the plant life we found.'[8] To this end, the expedition amassed an array of collections that entangled them with anthropology and the booming popular travelogues of the 1920s.[9]

To date, my research has uncovered the following collections created by the expedition: 141 sugar-cane clones of *officinarum*, 10 *robustum*, 7 *spontaneum*, 5 (recent) hybrids of *officinarum-robustum* and 1 clone of the new species *Saccharum robustum* (Brandes & Jeswiet ex Grassl), as part of more than a thousand botanical specimens;[10] an unknown number of other natural history specimens (birds, insects, mammals); some 428 ethnographic objects; and roughly two thousand photographs, as well as four thousand feet of 35 mm film. These collections are now dispersed between the Smithsonian's National Museum of Natural History, the National Anthropological Archives, the National Archives of the United States, the National Geographic Society's archives, the National Herbarium, Wageningen, Netherlands, the Hawaii Agriculture Research Center, the Bishop Museum, and the families of the expedition members.[11] Much of my work on the expedition to date has revolved around triangulating these dispersed collections. The collection of the expedition's entomologist, C. E. Pemberton, is a case in point.[12] While the Hawaiian Planters Association, Pemberton's employer at the time, received his printed materials, his entomology collection ended up at the Bishop Museum (where he had an honorary association), and his cultural objects and photographs are with his daughter. The expedition's collections have risen and fallen in prominence, been circulated inside and outside of institutions, been forgotten, destroyed and saved, but in the end have always been in motion.[13]

Within this confluence of influences and anticipated public venues, the photographs I began with (as well as the multitude that the expedition took) served many purposes, and materialise different overlapping sets of circulations. Briefly, two main sets of circulations are: (1) the Indigenous constellation of relations materialised in artefacts, persons and rituals that helped define the worlds of these men and their communities,[14] but which the expedition misread as stasis and isolation; (2) the circulations created by British, German and Australian colonialism that built on these networks, both disrupting them and extending them in new ways through the establishment of missions, the plantation economy and colonial government.[15] Added to these overlapping sets of circulations are those of the expedition itself, and the specimens that resulted. Each of these photographs is an example of the cross-cultural collaborative

performance of science that occurred throughout the expedition, involving multiple agencies expressed in different registers.[16]

These images are articulations of some of the metaphoric beaches, in Dening's formulation,[17] on which the expedition's members engaged with Papuans to create the intersecting natural histories which formed the expedition and its legacy. But, as with all the expedition's collections and inscriptions, these photographs are replete with silences. In each case, the names of the men depicted are unknown, while the photographs themselves became circulating proof of the expedition's discoveries. Furthermore, in the case of 'Film Pack X-5', the numeric inscription given to the sugar cane (PI 77345 *Saccharum officinarum* No. 25) stayed with the resulting proliferation of samples of living cane and herbarium specimens which radiated out into the world.

So, while much was accumulated by the expedition in the way of material things (specimens and artefacts) and knowledge produced, there was also loss. Here, I am thinking of loss in terms of the effacement of the social relations from which these materials and knowledge emerged, and the local knowledge that was integral to their being acquired.[18] While it is a well-worn truism that translation, which I take as a way of thinking about one modality of these circulations, involves transformation of meaning and value,[19] we need also to allow for the possibility of recuperating what is lost in these transformations. As Dening reminds us,[20] we must empower our imaginations to 'see these absent things, to hear these silences' which are inherent to all histories.[21] Part of this work involves what Campt has referred to as 'listening to images', which 'is constituted as a practice of looking beyond what we see and attuning our senses to the other affective frequencies through which photographs register. It is a haptic encounter that foregrounds the frequencies of images and how they move, touch, and connect us to the *event* of the photo.'[22] Focusing on the quotidian, this method works to 'rupture the sovereign gaze of the regimes that created them',[23] and open these images, and the events from which they emerged, to other ways of understanding that help recuperate the agency of Indigenous and other subaltern actors.[24]

In what follows, I elaborate on the circulations and their transformations to help recover the labour of New Guineans in the USDA Expedition. This project is one of informed imaginative reconstruction that seeks to unsettle the asymmetrical accounts of the expedition's science. In doing so, I hope to, on the one hand, disrupt the imaginaries of New Guinea communities as timeless, and thus help challenge the dispossessions that continue to occur, while, on the other hand, shedding light on the

intersecting circulations that defined expeditions such as the one discussed here, whose legacies still resonate in known and unknown ways.[25]

Intersecting natural histories of the USDA Sugarcane Expedition

An essential starting point for the discussion of the USDA Expedition's intersecting natural histories and their circulations is the understanding that nature is emergent and made through labour. In the context of settler-colonialism, this is a messy process replete with displacements of Indigenous ontologies and realities.[26] These displacements form part of existing ideologies of nature under capitalism,[27] which were perhaps most starkly demonstrated in the mid-twentieth century, when expeditions were a celebrated form of knowledge creation. These displacements, although inherent to science,[28] are particularly pronounced in the collection of specimens and their movement into institutions.[29] Ethnographies of collecting and expeditions have emerged as a key means by which to reveal and understand these dynamics.[30] As the contributors to *The Brokered World: Go-betweens and global intelligence, 1770–1820* remind us, the production of scientific knowledge in Europe has for several centuries involved multiple intermediaries who possessed their own agendas and mobilities.[31]

The importance of this perspective is such that we can no longer talk of science inside and outside of the metropole; moreover, expeditions, which themselves are the result of an assemblage of human and nonhuman actors, also highlight the multiple agencies at play in science. This work has elucidated the personal relations and tensions entangled in science[32] and the hybrid knowledge that resulted.[33] Reliance on local labour was fundamental to the development of field sciences, as was its subsequent effacement.[34] Mueggler has taken the indigenisation of science further in his accounts of the labour, assistance and relations between Chinese and English botanists.[35] Bringing the Indigenous perspective into view, he demonstrates how alliances afforded the collecting undertaken by Europeans, and the knowledge that resulted from this process. These perspectives are built upon and extended by two recent edited volumes that point, on the one hand, to the indispensable role of Indigenous intermediaries in various situations of colonial encounters,[36] and, on the other hand, to their mobility through multiple contexts.[37]

The creation and movement of specimens out of New Guinea increased by the mid-twentieth century as Europeans dominated regional

and world systems of trade.[38] These networks were built on existing Indigenous relations and could not have occurred without intermediaries. These intersections occurred within a wider spectrum of nature-making and valuation that involved the bird of paradise trade (as discussed in Chapter 9), alongside those of sandalwood, sea cucumber and pearl shells, not to mention the larger transformation of 'wild' Papua into a land full of productive copra, rubber, coffee, sisal and cotton plantations.[39] These new relations not only reconfigured local ecologies but were also part of a wider programme to transform the minds and bodies of Papuans through the labour regimes they demanded,[40] and the new material desires they helped initiate.[41] As articulated by the writer and long-term Papuan resident Beatrice Grimshaw, it was only knowledge that was needed to help European residents convert 'Papua's rarities, animal and vegetable' into capital.[42] Expeditions provided knowledge that was essential to the making of specimens and capital for and by Europeans, while obscuring the local labour needed to carry out their work.

With this in mind, multiple natural histories intersect in the USDA Expedition – all of them predicated on the circulation of things, and the attempt either to understand and document these movements, or to deny them. They are: global history of sugar cane, biological control, difference and discovery. The first of these histories – the global movement of sugar cane – involves a set of circulations with a deep timescale. Prior to the expedition, Brandes and colleagues had deduced that New Guinea was one of the centres of its domestication. The history of this grass is intimately intertwined with the movement of people through Oceania, and indeed of people and things more globally.[43] New Guinea presented economic botany with a locality in which to discover wild or, as it was termed, 'primitive' sugar cane. These living specimens could then be used to cultivate new varieties of 'noble cane' used globally by the sugar industry.[44] During the 1928 expedition, Dr Jacob Jeswiet, a Dutch sugar scientist who pioneered hybrid cane in Java, discovered the new species *S. robustum* Brandes & Jeswiet ex Grassl, which entered into the global hybridisation efforts. Jeswiet was intimately involved in the hybridisation of cane, which he termed 'nobilisation'.[45] His major contribution was the creation of the variety Proofstation Oost Java (East Java Research Station, POJ), which became a global standard for sugar-cane production. By the 1920s, the breeding and planting of sugar cane was increasingly being done on a new scale in the United States and abroad, with transformative environmental and social effects.[46] Sugar cane obtained during the expedition circulated as both living specimens and as herbarium specimens around the world.[47]

These movements also involved the mosaic virus.[48] Spread through aphids, infected seed cane and by machine, 'yellow stripe', as mosaic was originally known, manifests itself through the stunting of growth and sugar production.[49] In the 1920s, this virus was debilitating the sugar-cane industry in the United States (particularly in Louisiana), and affecting the various industries dependent on sugar cane. Companies such as Celotex, which relied on spent sugar-cane fibre to make particle board for buildings, faced the potential collapse of their industry. As a result, Celotex became a major corporate sponsor of the USDA Expedition, helping with contacts and supplying them with their seaplane.[50] Brandes built his career on understanding mosaic in its various varieties. First working on mosaic in tobacco in 1919, he eventually became Director of the USDA's Plant Pathology Division. His hope was to breed new varieties of cane resistant to mosaic, and his belief was that, 'It is almost certain that where [sugar cane] is indigenous, the various maladies that afflict it are present also and that in nature's scheme of things the struggle for existence would result in the survival of varieties endowed with natural immunity.'[51]

A second closely intertwined natural history is that of parasitism and biological control.[52] Those corporate and governmental agriculturalists concerned with mosaic were equally concerned with how to manage the other pests (viral and biological) that afflicted sugar cane. It was the role of expedition member C. E. Pemberton, an entomologist employed by the Hawaiian Sugar Planters Association, to locate parasites that could be used to combat the New Guinea sugar-cane weevil (*Rhabdoscelus obscurus*). Emerging from the south coast of New Guinea, this weevil appears to have spread out to its current range – Celebes, Queensland, Polynesia, Micronesia and Hawai'i – with the spread of sugar cane.[53] The infestation in Hawai'i occurred in 1865,[54] and in Queensland by 1896.[55] Pemberton's work built upon the legacy of his mentor Dr Frederick E. Muir at the Hawaiian Sugar Planters Association.[56] In 1909 and 1910, Muir travelled to New Guinea seeking parasites of the New Guinea sugar-cane weevil. He located and brought back to Hawai'i the tachinid fly (*Ceromasia sphenophori*), which was quickly bred and released in the islands.[57] Through this and related work, Pemberton and the expedition worked to transform environments, foodways, persons and their relations. In doing so, we see that they were engaged in the creation of a new and often unequal set of alliances between humans and nonhumans in the making of new companion species.[58]

A third intersecting natural history is that of racial difference. Perceptions and the creation of racial difference were inherent to the

performance of colonialism in both the territories of Papua and New Guinea, where communities were portrayed as being closer to nature, and where Europeans celebrated their technological achievements.[59] The projection of civilisation was a tool by which to justify dispossession of communities. While the USDA Expedition's collections were deployed in different public and private settings – museums, laboratories, lecture theatres and homes – for various ends, each emerged from, and participated in, a larger conceptual conflation of 'noble' sugar cane (*S. officinarum*) and its previously unknown wild progenitor (*S. robustum*) with the perceived primitive nature of communities encountered by the expedition.[60]

The expedition used existing textual and visual tropes of the wild, savage and neolithic to describe landscape and communities, and amplified them through their work.[61] For example, the Yonggom/Muyu communities encountered on the Upper Fly River were cast as pygmies or negritos, a colonial imaginary, which stressed the antiquity, gentle nature and doomed future of this globally dispersed community (Figure 3.2).[62] These projections obscured the Yonggom/Muyu's cultural achievements and regional interaction with European and Malay bird of paradise hunters, colonial officials and missionaries,[63] and configured them as pre-cultural equivalents to the wild pre-domestication sugar cane sought by the expedition.[64] In comparison, communities of the Lake Murray – Middle Fly were portrayed as the Yonggom/Muyu's savage counterparts, said to be members of a lost tribe.[65] They were described as so bewildered by the expedition's plane and technology that they purportedly projected on to them supernatural status.[66] This imaginary is most visible in the work of Frank Hurley, who retitled his 1921 documentary *Pearls and Savages* as *The Lost Tribe* while screening the feature in New York City.[67] These imaginaries continue to circulate in Papua New Guinea today.[68]

Finally, informing all of these natural histories is the rhetoric of discovery and newness. During the 1920s, with the rise of consumerism throughout the Global North, the celebration of newness reached unprecedented heights with the mass embrace of radio, film technology, automobiles and aviation. Accelerated by this collapse of time and space, the conjunction of these technologies enabled new modes of visuality and subjectivity, transforming travel, the enactment of science and popular entertainment.[69] These perceptions and technological possibilities led to an efflorescence of travel to 'unknown frontiers', and to the frequent denial of the historicity of communities encountered.[70] As a trope inherent to capitalism and, by extension, economic botany, this rhetoric relentlessly reconfigured the value of what was encountered.[71] In the case of New

Guinea, the emphasis was on places as frontiers where time is distorted. 'Frontiers', as Tsing notes, 'energize old fantasies, even as they embody their impossibilities'.[72] The USDA Expedition sought to expand on this evolving space of frontier by building on the work of patrol officers Ivan F. Champion and C. H. Kairus, who led an expedition in 1926–7 across New Guinea via the Fly River and Sepik River.[73] The expedition did this through the new technology of aviation, which was personified in its film camera operator and pilot Richard K. Peck.[74] Although planes were beginning to be used by miners operating out of Lae, and Hurley had travelled along the coast in the early 1920s, the USDA Expedition's seaplane promised to help reveal new aspects of the Papuan frontier.[75] These desires for exploration along the Middle and Upper Fly appear to have been a driving force behind Brandes's decision to have the USDA Expedition travel there, in contrast to staying in the sugar-cane-rich, but less adventurous, region of the Central Province. Moreover, the plane, along with the expedition's other technology, became an important backdrop by which to project notions of modernity.[76]

Within these intersecting natural histories of the USDA Expedition, we see the misrecognition of the inequalities involved in the labour of science, and the immediate as well as longer-term extraction that was involved. I want to turn now to how the products of the expedition contain traces through which one can write more inclusive narratives.

A chronology of the USDA Expedition

Any account of the USDA Expedition and its New Guinean intermediaries is complicated by the dispersal of the expedition's textual accounts. I have pieced together what follows from extant sources.[77] After several weeks 'interviewing government officials in Sydney and Canberra [and] consulting members of the Colonial Sugar Refining Company', Pemberton and Jeswiet arrived in Port Moresby on 26 May 1928.[78] While waiting for Brandes and Peck, who arrived on 17 June with the expedition's plane, they collected botanical materials around Port Moresby and on the Laloki River.[79] It was during this time that Jeswiet discovered *Saccharum robustum* along the Laloki.[80] Upon Brandes and Peck's arrival, the group explored the region around Port Moresby, and provisions were loaded upon auxiliary ketch *Vanapa*, piloted by a Captain Dean. It was most likely at this point that they encountered the person in the first photograph discussed (Figure 3.1). He may have been a labourer working on the docks, or just passing through, when he was photographed by Brandes. Brandes

commissioned the *Vanapa* to transport the expedition's equipment to Everill Junction on the Strickland River. The site of a former temporary police base, Everill Junction was the expedition's base of operation in the Lake Murray–Middle Fly region.[81] Carrying a hundred returning signed-off men to the Daru area, before heading up the Fly River, the ship also carried eight armed unnamed Papuan constabulary, and their commanding officer, Assistant Resident Magistrate Champion, and the camp manager Roy Bannon, who supervised eight Papuans, including Geno Kopi, the cook; Euki, 'a reputed wash-wash boy'; Emere, 'a slight, furtive individual picked for his lack of weight as "crew of airplane" '; and Nape, 'my personal boy, truculent but a straight, well-muscled fellow clever with the bow and arrow'.[82]

While waiting for the *Vanapa* to arrive at Everill Junction, the scientists collected cane in and around Motuan villages near Moresby (17 June–7 July; 15–21 July) and travelled to the government station of Kikori in the Papuan Gulf by plane (8–13 July). Here, they visited numerous gardens and, with the cooperation of landowners, collected sugar cane and took photographs. While Brandes and Pemberton are largely silent as to who accompanied them, they did not wander alone, and were accompanied either by a representative of the government or by Percy Leigh.[83]

On 21 July, the scientists flew to Everill Junction and began visiting different localities around Lake Murray–Middle Fly and the Upper Fly (21 July–7 August).[84] It was during this period that Brandes, Peck and Champion visited Yonggom/Muyu communities (Figure 3.2). On their departure, the expedition descended the Fly River, visiting communities by boat and plane (Orionio, Adura, Morigio, Weridai, Okani, Goaribari, Kunni-Kunni, Kairi and Kikori) en route to Moresby (7–18 August). The group then divided, with Jeswiet, Pemberton and Champion travelling to the Rigo district.[85] With the help of a hundred carriers, they visited 34 communities while collecting botanical specimens.[86] Meanwhile, Brandes and Peck flew to Lae (24–5 August), and picked up the German Father Joseph Kirschbaum at the Marienberg Mission Station on the Sepik (26–8 August).[87] With Kirschbaum's assistance, Brandes and Peck visited Ambunti (29 August, 31 August–1 September), and an unnamed village on the upper Sepik (30 August). It was here that they photographed the two natives, 'one poised for flight' (Figure 3.3). They then travelled to the western Iatmul community of Nyaurangai (31 August) and unnamed communities on the lower Sepik River (31 August) before returning to Moresby via Madang (2–3 September). Reunited in Moresby, expedition members prepared the sugar-cane cuttings, and travelled by steamer to Sydney, and then to their respective homes.[88]

Hidden labour and the circulations of the USDA Expedition

While the USDA Expedition's New Guinea intermediaries are largely absent in the written accounts of expedition members, they are present in their visual record of still and moving images. While Peck and Brandes were responsible for shooting the expedition's 35 mm film, all of the principal expedition members took still photographs with Graflex and Kodak cameras for professional and personal reasons. While to date the full range of images made by the men remains unclear, some generalisations can be made. Brandes's and Peck's images range from portrait shots of local people to images documenting the expedition and sugar-cane collecting, while Jeswiet's and Pemberton's images tend to focus on sugar cane, gardens and their scientific work. Brandes appears to have compiled an album of the trip, a copy of which survives in Pemberton's daughter's possession. She also holds another album put together by Pemberton. These albums provide an unparalleled chronological visual narrative only partially found in the extant National Geographic Archives, the National Anthropological Archives, the Archives of the Hawaiian Sugar Planters' Association and the USDA Expedition's film.[89]

Published and unpublished photographs taken by Pemberton and Jeswiet echo 'Film Pack X-5. Sugar Cane No 25' (Figure 3.2), with individuals and groups standing in front of bundles of sugar cane with a small numbered reference card of the specimens collected. Many of these photographs have the name of the cane variety, and at times of the individual – none of this is carried forward outside of the albums in other publications. Figure 3.4, taken by Jeswiet, is a case in point. In the National Anthropological Archive, where a copy of the image is held, the glass plate is part of a series of reshoots and is devoid of caption information.[90] However, the image was published in the *National Geographic* with the following caption: 'Despite crude implements, Papuans cultivate many plants: In a forest clearing near Rigo grows this garden, in which are grouped, in disorderly fashion, taro, cane, yams, and bananas'.[91] While locality information is present, no mention is made of the identity of the three men. In Pemberton's album, the print has the following written on the back: 'P163 Garden with mixed group in Gérèssi with Lewa Galo in the foreground. 24-8-1928.' Lewa Galo appears alone in another image, posed with a piece of cane.

While this captioning may have to do with Pemberton and Jeswiet's interest in this information (Brandes's fieldnotes were destroyed), it also

Figure 3.4 A reshoot of a glass plate in the National Anthropological Archives collections at the Smithsonian. Courtesy: National Museum of Natural History.

appears to be part of the slower work of the pair while in Rigo. During this portion of the trip, the men actively used a translator and/or assistant, such as Geno Kopi (see below), to help acquire information.

The presence of this information points to a populace more closely enmeshed in the colonial economy, and to the help of Papuan constables along with Patrol Officer Champion. It also speaks to the different perceptions of the hostility of the regions, and to the men's ability to take their time to talk to groups where communication was more easily done through colonial pidgins. Commenting on the collecting of names in an unspecified locality (I suspect on the Upper Fly River), Brandes reveals what appears to have been the general methods of acquiring these names: 'By dint of pantomime and much intelligible shouting back and forth, it was hopefully through that the native names of these varieties, together with names of a half dozen others in the same garden, were finally obtained.'[92] Collecting local names was one way that expedition members tried to discern relations between cane varieties.[93] As noted by Pemberton: 'Every native tribe had distinctive names for each variety of cane; the diverse tribes usually having different names for the same canes. They showed remarkable ability in the differentiation of the various kinds of cane and in recognising the relation between striped

and unstriped forms of the same variety.'[94] This knowledge slips out of circulation as the canes move outward from New Guinea.

Despite their centrality, one of the main reasons that the USDA Expedition's Papuan assistants and intermediaries were largely neglected in letters, official reports and publications was the then pervasive paternal racism of the colony.[95] This paternalism manifested itself in the various regulations concerning dress, housing and movement of Papuans. Papuans were, as was the case with local communities elsewhere, intimately involved in the running of the British Empire.[96] Their involvement stretched beyond the formation of the Protectorate in 1884, increasingly formalised as the administration of the region grew. The establishment of the Armed Native Constabulary force (AC) (1890), and the creation of Village Constables (VC) (1892), brought into public service a then nascent group of Papuan intermediaries.[97]

Within Papua, colonial officials and travellers began to characterise the temperament, and thus the employment potential, of different communities. Here, a prevailing trope was where communities lay on the spectrum of civilisation, and thus of trust and employment.[98] Over time, these men invariably either met with Europeans visiting their communities, or helped to ease their movement in the region. Men were also recruited as carriers, boat crew, household servants, cooks, clerks and interpreters, and in an array of other jobs. As noted, this is probably the role of the unnamed man from Vanapa (Figure 3.1). Papuans living near urban colonial centres typically held various jobs, as the exceptional career of Ahuia Ova's autobiography reveals. Born in Poreporena in around 1877, Ahuia was first employed as a house servant in Port Moresby, where he 'cooked food, and . . . waited at the table (as a steward) and made the beds and did all the house-work, laundry as well'. For this he was paid 'one pound per month and one bag of rice besides'.[99] Following this, he worked as a cook boy and served as a village constable, court interpreter, interpreter for different resident magistrates and central court interpreter, alongside working with a series of anthropologists: Seligman in 1910, and Malinowski in 1914.[100] While motivations varied, these positions offered the chance for novel experiences and material rewards for young men, and the possibility of social and political advancement in one's village upon return, or of escape from the demands of village life.[101]

The employment histories, backgrounds and motives of the Papuans working with the USDA Expedition remain elusive, with the exception of Geno Kopi. Pemberton notes in his journal how he signed Kopi on to the USDA Expedition on 15 June in Port Moresby. Kopi was

from Kapa-Kapa, a community east of Port Moresby which had for some 50 years been involved with the London Missionary Society, and thus the colonial labour system in and around Port Moresby.[102] Subsequent to the expedition's end, Kopi stayed working for Pemberton, helping to collect insects and cane in the Port Moresby region, and in New Britain until 1929.[103] He appears in several photographs taken by Pemberton and Jeswiet, and he appears to have accompanied them on various outings while at Everill Junction in the Lake Murray–Middle Fly region. Indeed, he and the other Papuans employed throughout the duration of the expedition were critical for the functioning of the USDA Expedition in and around their base camp at Everill Junction. Kopi and his companions helped to ensure the infrastructure of the camp, while armed Papuan constabulary and Champion ensured the camp's safety and helped with local transportation. Both appear to have helped collect and/or at the very least document specimens.

Again, Geno is an exception to the general rule of not naming intermediaries. Figure 3.5, another glass slide in the National Anthropological Archives collection, is from an undated lecture, presumably given by Brandes, entitled 'Production of Improved Sugarcane

Figure 3.5 Several intermediaries near Lae. Glass slide in National Anthropological Archives/Human Studies Film Archives. Courtesy: National Museum of Natural History.

Varieties from Primitive, Wild and Native Garden Canes'. The caption given for this lecture is 'Tame natives of the north coast with examples of garden varieties collected by the explorers'. In Brandes's album, the image appears with the caption 'FF-3 Group of natives with some of our collected samples of sugar cane taken along the lower Markham. Aug. 25, 1928.'

The photograph was published in *National Geographic*, where it is attributed to Brandes, and published with the following description: 'Wussi River men collect cane for the Expedition: Because the natives were in contact with German traders and officials when, in pre-war days, Germany controlled North-East New Guinea, they speak a few words of German. They call small coins "marks."'[104] Several of the men in the image appear in other photographs taken that day, posing with cane samples or standing in front of Lae's airfield, where they had landed. The men also appear in a short sequence of film shot by Peck of their aeroplane being moved. The absence of their names on any inscription, I believe, speaks to Brandes's and Peck's haste to keep moving and collect quickly.

With their positions marked through their clothes and firearms, the Papuan Constabulary undoubtedly had an influence on the exchanges that took place with the USDA Expedition, and on the willingness of communities to engage with it. Constables helped build the collections, through their actions, linguistic abilities and/or local knowledge. For example, several of the natural history specimens at the National Museum of Natural History donated by Brandes may have been the result of these men: the roughly treated underside of the skins of four female common spotted cuscus (*Spilocuscus maculatus*) suggests hasty preserving of skins at the camp following butchery;[105] the egg of the southern cassowary (*Casuarius casuarius*) (Specimen 3244) may have been an egg that was saved following the discovery of a nest (which typically is composed of between three and eight eggs). The case of a crocodile shot on 25 July at Everill Junction by the Papuan Constabulary is suggestive of these possibilities. When I met with Pemberton's daughter, she showed me a table top made from a crocodile's stomach, which was part of his personal collection. The shooting was commemorated in a photograph, as well as one of the crocodile's skin being dried. It seems highly likely that the table top derives from this encounter. While conjectural, these examples hint at the ways the collections emerged as the product of sets of knowledge and agencies worked out on-site between Papuan collaborators, both those working for the colonial state and those being engulfed by it.

An unknown in this analysis is how the communities encountered by the USDA Expedition understood its interest in sugar cane, and

other biological specimens, although the encounters may have been understood quite differently by communities used to selling and buying knowledge, rituals, songs and objects.[106] In all of the localities visited by the expedition, the landscape was understood to be inhabited by a range of nonhuman beings through which relationships were negotiated and relationally emerged.[107] Sugar cane partook in these relations as part of communities' varied food sources. While the expedition acknowledged the astute botanical knowledge of communities, they had no sense of these relationships. For their part, these communities most likely saw their exchanges with the expedition as means to extend, and establish new relationships. While it is unclear how communities understood the collecting, the gathering of sugar cane was most likely seen in some localities as part of the establishment of relationships through food,[108] while in others it may have been seen as an extension of the extractive industries of the plantation economy. This understanding would have presumably been strongest in the Central Province and the Territory of New Guinea around Lae, and in the middle Sepik where wage labour was established.

Collectively, the USDA Expedition's photographs and film show that many men in different localities had no problem engaging with the expedition. Indeed, in all three photographs with which I began, the images emerged out of interactions either in the context of established circuits of colonial economy (Figure 3.1) or under the rhetoric of explorations (Figures 3.2 and 3.3). In the case of the latter, these interactions typically resulted in exchanges of sugar cane or artefacts (such as bows and arrows) for trade tobacco, tins or film wrappers. Other photographs show men standing alongside expedition members with sugar cane, as well as crowding round the aeroplane in different localities. Recognising the expedition as a source of desired trade, these men may have been trying to monopolise the relations they saw unfolding and to figure out how to continue the productive encounters.[109] While the issues for Papuans travelling with the USDA Expedition were different, they similarly involved a desire to create relations through which wealth could flow, albeit from within the colonial economy and their own communities.

Intersecting natural histories: some conclusions

In this chapter, I have attempted to show how 'listening to images', in Campt's phrase, one can begin to hear the quotidian hum, and the otherwise mute stories of Papuans and their nature-making can be

partially retrieved. Following Dening, I believe that through a critical use of different types of sources we can work to reimagine the past from which these materials emerged, and in doing so parse out the collaborative nature of knowledge-making.[110] What emerges is a complicated network of relations, informal and formal, that were essential to the colonial regime more widely and to the particular manifestation of the USDA Expedition. Bringing these relations, and the contributions of New Guineans, into view, one can begin the process of disrupting the expedition's triumphalism, to remind us that all knowledge is made collaboratively and that all labour should be visible.

The circulations that I have begun to outline here are both global and local in nature, and involve both intentional and unintentional slippages of contextual knowledge as they move between different registers for different publics. Moreover, what we begin to see in bringing these circulations and their accompanying natural histories into view is that they are constituted by multiple agencies, some of which are only emerging now.

This chapter also serves as a reminder of how, in tracing out their various intersecting circulations, expeditions collect us through the things they leave behind.[111] Hopefully, in the careful looking and listening that follows, we can begin to create new narratives that challenge the stereotypes that these materials have hitherto projected. In doing so, we can contribute to the important work of helping dismantle the rhetorics and dated representational strategies that haunt all collections and institutions, and the sciences from which they emerged and which they continue to sustain.

Notes

1. Kirsch, *Yonggom of New Guinea*, 18–20.
2. Plant pathologist for the USDA until his retirement in 1951, Brandes (1891–1953) had a key role in addressing problems caused by mosaic, the curly-top disease of sugar beet and the leaf disease of the Pará rubber tree.
3. Bell, 'Sugar plant hunting'.
4. Bell et al., *Recreating First Contact*.
5. Brandes and Sartoris, 'Sugar cane', 568.
6. Bell, 'The sticky after-lives'.
7. Brandes and Sartoris, 'Sugar cane'. The principal partnerships of the expedition were between the USDA, the Colonial Sugar Refining Company of Sydney, the Dutch sugar industry in Java and the Hawaiian Sugar Planters Association. Celetox, a company that used the bagasse from sugar-cane production to make its walling product, supplied the expedition with its seaplane. The colonial administration of the Territory of Papua and New Guinea was also involved. This expedition built upon a previous failed federally funded expedition to New Guinea in 1924, and a private expedition to the Far East in the same year (Brandes, 'Into primeval Papua'; Artschwager and Brandes, *Sugarcane*, 32).
8. Brandes, 'Into primeval Papua', 304.

9. Bell et al., *Recreating First Contact*.
10. Artschwager and Brandes, *Sugarcane*, 34.
11. Bell, 'The sticky after-lives'.
12. Pemberton (1886–1975) worked for the Hawaiian Sugar Planters Association (1919–53), and, on retiring, became an honorary curator at the Bishop Museum (Bianchi, 'Cyril Eugene Pemberton').
13. Bell, 'A bundle of relations'.
14. Harrison, 'The commerce of cultures'; Strathern, *Gender of the Gift*.
15. Demian, 'Canoe, mission boat, freighter'; Kituai, *My Gun, My Brother*.
16. Bell, 'Mistaken gods'.
17. Dening, 'Empowering imaginations'.
18. Bell, 'The sticky after-lives'; Latour, *Pandora's Hope*.
19. Thomas, *Entangled Objects*.
20. Dening, 'Empowering imaginations', 424.
21. Trouillot, *Silencing the Past*.
22. Campt, *Listening to Images*, 9.
23. Campt, *Listening to Images*, 5.
24. Edwards, 'Objects of affect'; Thomas, *Political Life*; Tsinhanahjinne, 'When is a photograph'.
25. Kirsch, *Mining Capitalism*; West, *Dispossession*.
26. Hayden, *When Nature Goes Public*; Tsing, *Friction*.
27. Smith, *Uneven Development*.
28. Shapin, 'The invisible technician'.
29. Haraway, *Companion Species*; Latour, *Pandora's Hope*.
30. Hasinoff, *Confluences*; O'Hanlon and Welsch, *Hunting the Gatherers*.
31. Schaffer et al., *The Brokered World*.
32. Schell, *The Sociable Sciences*.
33. Winterbottom, *Hybrid Knowledge*.
34. Driver and Jones, *Hidden Histories*; Jacobs, 'The intimate politics'; Sanjek, 'Anthropology's hidden colonialism'; Schumaker, *Africanizing Anthropology*.
35. Mueggler, *Paper Road*.
36. Konishi et al., *Indigenous Intermediaries*.
37. Stanfield, *Indigenous Mobilities*.
38. Coote et al., 'When commerce'; Frodin, 'Biological exploration'.
39. Bell et al., 'Introduction'; Lewis, *The Plantation Dream*; Swadling, *Plumes from Paradise*.
40. Murray, *Native Labour in Papua*; Murray, *Scientific Aspect*.
41. Hayes, 'Use of tobacco'.
42. Grimshaw, *New New Guinea*, 103.
43. Galloway, *Sugar Cane Industry*; Mintz, *Sweetness and Power*.
44. Brandes, E. W., 'Production of Improved Sugarcane Varieties from Primitive, Wild and Native Garden Canes', undated slide lecture, 91–8, National Anthropological Archives, National Museum of Natural History; Artschwager and Brandes, *Sugarcane*; Brandes, 'Origin, dispersal and use'; Brandes and Sartoris, 'Sugar cane'.
45. Jeswiet (1879–1960) served as chief of the division of cane-breeding of the experiment station for the Java sugar industry at Pasoeroean in Eastern Java (1912–25), before becoming Professor of Taxonomy and Plant Geography at Wageningen Agricultural College (1925–46). Before his dismissal due to his Nazi allegiances, Jeswiet played a transformative role in global sugar-cane operations through the creation of new hybrid canes (Cramer, 'Sugar-cane breeding'; Galloway, *Sugar Cane Industry*; Jeswiet, 'Development of selection').
46. Hollander, *Raising Cane*.
47. Bell, 'The sticky after-lives'.
48. Zimmer, *A Planet of Viruses*.
49. Cornstock and Lentini, 'Sugarcane mosaic'.
50. The head of the Celotex Company, Bror G. Dahlberg, gave the expedition its plane, paid the salary of Peck, the expedition's pilot, and facilitated colonial authorities' permission for the expedition (Brandes, 'Into primeval Papua', 259; Jeswiet, 'Vliegmachine Opzoek', 425; 'Dr Brandes' Expedition to New Guinea (1927–1928)', A458 AN118/8, National Australian Archives (NAA), Canberra.
51. Brandes, 'Production of improved sugarcane', NAA, 18.
52. DeBach and Rosen, *Biological Control*.
53. Halfpapp and Storey, 'Cane weevil borer', 199.

54. DeBach and Rosen, *Biological Control*, 159.
55. Mungomery, 'Sugar cane weevil borer pest'.
56. Pemberton, 'Study of the cane borer'.
57. Muir, 'Report on second trip'; Muir and Swezey, 'Cane borer beetle'; O'Hara, 'Tachinid flies'.
58. Haraway, *Companion Species*.
59. Douglas and Ballard, *Foreign Bodies*; Gosden and Knowles, *Collecting Colonialism*.
60. Bell, 'Sugar plant hunting'.
61. Stella, *Imagining the Other*.
62. Ballard, 'Strange alliance'.
63. Kirsch, *Reverse Anthropology*.
64. Bell, 'Sorcery of sweetness'.
65. Pemberton, 'Report of explorations in New Guinea and New Britain. 26 May 1928–21 July 1929', Archives of the Hawaii Agriculture Research Center, Kunia Village, Oahu (HARC), 7.
66. Brandes, 'Into primeval Papua'.
67. Dixon, *Photography*, 194.
68. Dundon, 'DNA, Israel and the ancestors'.
69. Mitman, *Reel Nature*.
70. Bell et al., *Recreating First Contact*.
71. Buck-Morss, *Dialectics of Seeing*, 82.
72. Tsing, *Friction*, 29.
73. Champion, *Across New Guinea*.
74. Peck (1896–1931) had notably served as the pilot and still- and motion-picture photographer in the earlier 1926 Dutch–American Expedition to Dutch New Guinea. He was later killed in a test flight in the US. His collections came to the Smithsonian's National Museum of Natural History (Bell, 'The sticky after-lives').
75. The USDA Expedition did help to clarify the geography of the Middle Fly and led to the discovery of Wam Lagoon, which they named Lake Herbert Hoover (Brandes, 'Into primeval Papua', 259, 314–15).
76. Bell, 'Mistaken gods'.
77. Bell, 'The sticky after-lives'.
78. Pemberton, 'Report of explorations', HARC, 1.
79. Brandes, 'Into primeval Papua', 276.
80. Pemberton, 'Report of explorations', HARC, 2.
81. Bell, 'Mistaken gods'.
82. Brandes, 'Production of improved sugarcane', NAA, 39; Brandes, 'Into primeval Papua', 267. At this stage, no additional information about these Papuans is known.
83. Louisiana-born engineer Leigh had a workshop on Fairfax harbour (Stuart, *Port Moresby*, 195). He appears in the later part of the USDA Expedition's film sequence in the Central Province and appears to have helped the expedition with logistics.
84. Bell, 'Sorcery of sweetness'.
85. Jeswiet, 'Vliegmachine Opzoek', 427; Pemberton, 'Report of explorations', HARC: 10–14; Port Moresby Patrol Report 5 1927/28 (ARM Ivan Champion, 22 August–6 September 1928), National Archives of Papua New Guinea.
86. Landing at Kapkap, they proceeded to Gomoridobu village (22 August), then Saroa, Saroakei and Kwalimurupu villages (23 August), and then travelled through Babaga to Gerest and Soreiwotega (24 August), before moving on to Medeni (25 August). Proceeding inland, they came to the Ganai village and reached Totimava (26 August). From there, they went to Lusidabu (27 August), then Waipaika and Barataka (28 August). The next day, they visited Tatunomu and Arapara (29 August), and proceeded to Mimika, Sopukaika and Amuragolu villages (30 August). After a day of exploring the area, they went to Audika, Labidou and Bulidobu (1 September). From there, they went down the Kemp Welch river to Nafononomu and Kuale (2 September), and then to Eho, Kalikadobu and Saroakei (3 September). From there, they went to Gea and then Kokibagu Plantation and the villages of Bori and Niu-Iruka (4 September), before heading to Patikalana and Kalo villages and, finally, Hula and KapaKap (5 September) (Pt Moresby PR5 1927/28).
87. Father Franz Joseph Kirschbaum (1882–1939) was a pastor in the Society of the Divine Word, which had been active in former German New Guinea since the 1890s. From 1907/8 until his untimely death in an air crash, Kirschbaum was a pioneer missionary in New Guinea (Roscoe, 'Far side of Hurun', 516; Welsch, *An American Anthropologist*, 92–3).
88. Brandes, 'Into primeval Papua', 332.

89. Bell, 'Sticky after-lives'.
90. Bell, 'Sticky after-lives'.
91. Brandes, 'Into primeval Papua, 264.
92. Brandes and Satoris, 'Sugar cane', 570.
93. Artschwager and Brandes, *Sugarcane*.
94. Pemberton, 'Report of explorations', HARC, 16.
95. Douglas and Ballard, *Foreign Bodies*.
96. Morgan and Hawkins, *Black Experience*.
97. Dutton, *Police Motu*, 62–71; Kituai, *My Gun, My Brother*.
98. Murray, *Papua or British New Guinea*.
99. Williams, 'Reminiscences of Ahuia Ova', 19.
100. Williams, 'Reminiscences of Ahuia Ova', 19–20, 22–3.
101. Beasley, 'Frontier journeys'.
102. Langmore, *Missionary Lives*.
103. Pemberton, 'Report of explorations', HARC.
104. Brandes, 'Into primeval Papua', 311.
105. K. Helgen, personal communication, 2010.
106. Harrison, 'Commerce of cultures'.
107. Rumsey and Weiner, *Emplaced Myth*.
108. Busse, 'Sister Exchange', 68; Kirsch, *Reverse Anthropology*.
109. Demian, 'Canoe, mission boat, freighter'; Strathern, 'The decomposition of an event'.
110. Dening, 'Empowering imaginations'.
111. Gosden et al., *Knowing Things*.

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4

Kew's mobile museum: economic botany in circulation

Caroline Cornish, Felix Driver and Mark Nesbitt

Kew's Museum of Economic Botany was founded by William Hooker in 1847, as part of a state-funded botanic complex which had first come into being in 1840.[1] The museum was established in the same utilitarian and pedagogical spirit which drove other museum agendas in this period, notably at South Kensington. It was designed to instruct a wide variety of users – scientific and commercial, specialist and popular – in the uses of plants, through a display of plant raw materials and their manufactured products, together and in the same space (Figure 4.1). As an institution dedicated to the potential of knowledge to transform nature into a 'resource', Kew's museum was a thoroughly modern invention. Its combination of specimens and artefacts in composite displays – often in the form of 'illustrative series', presenting the stages of transformation from plant raw material to manufactured object – needs particular emphasis (Figure 4.2). Such displays were a distinctive and indeed defining feature of museums of economic botany.[2] The illustrative series was not invented by the Kew Museum, having made appearances previously at the India Museum, the Adelaide Gallery and the Royal Society for the Encouragement of Arts, Manufactures and Commerce,[3] but it was adopted by William Hooker to a major degree, and defined by him as 'the *raw material* (and, to a certain extent, also the *manufactured* or *prepared article*)'.[4] As Richard Drayton has argued, it would be hard to overstate the economic importance of plant and mineral raw materials before the advent of synthetics: 'there was, in short, a concern with economic botany across the British Empire'.[5] After the Second World War, however, as Britain ceded independence to the colonies, the extractive model of imperial trade, as understood by Hooker and his

Figure 4.1 The Museum of Economic Botany, 1855, from Hooker, *Museum of Economic Botany* (frontispiece). © Board of Trustees of the Royal Botanic Gardens, Kew.

Figure 4.2 Components of an illustrative series: stages in Japanese lacquerware production (EBC 67854). Received at Kew in 1882 from John J. Quin, Acting British Consul in Hakodate, Japan. Courtesy: Board of Trustees of the Royal Botanic Gardens, Kew.

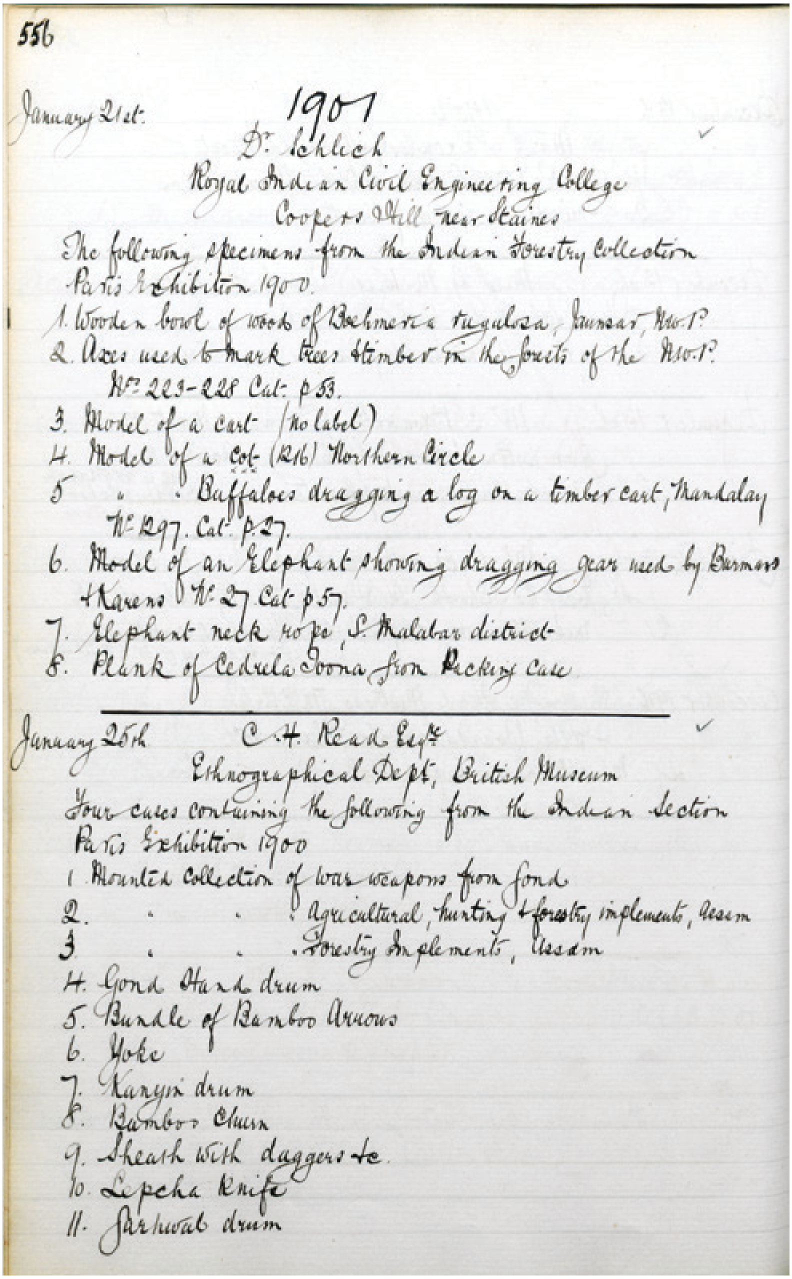
generation, was no longer viable. This, coupled with the rapid growth in oil-based synthetics in the second half of the twentieth century, resulted in the effective decline of economic botany, and of museums such as the one at Kew. Since that time, the study of the relationship between

people and plants has taken a more anthropological turn, and in some contexts is virtually synonymous with 'ethnobotany'. In the twenty-first century, collections formerly dubbed 'economic' are now referred to by their managers as 'biocultural' – not so much because of the innate characteristics of the objects they contain, but rather due to the rationale for their *combination*, both natural and cultural, juxtaposed.[6]

This chapter arises out of the research findings of the three-year Mobile Museum research project, which sought to map the many thousands of objects circulated to other institutions by the Kew Museum in the nineteenth and twentieth centuries. An introductory section outlines the aims of the project, the sources and methods used to collect data, and the challenges arising. The second section explores the key roles assumed by, or imposed upon, the Kew Museum with regard to the redistribution of surplus specimens, and some of the modes of circulation associated with them, including clearance, exchange, regional redistribution and colonial dispersal.[7] In the concluding section, we consider ways in which such collections are today being reanimated and deployed to engage diverse audiences.

The mobile museum

The Mobile Museum project was conceived of as a means of rethinking the history of Kew's Economic Botany Collection in terms of its mobilities, by mapping the circulation of objects into and (especially) out of Kew, and by tracing those objects' trajectories across multiple collections – not only botanical, but also ethnographic, industrial, technological and educational. Indeed, in this context, it might be useful to think of the museum less as a centre of calculation than as a 'centre of circulation'. Some of the forms of mobility associated with the Kew Museum were strongly programmed, as they were at South Kensington, and part of its founding mission as an institution; others came about in more contingent fashion or were generated by movements originating beyond Kew itself. But in each case, new meanings and values were created in the course of circulation. It was, we argue, the movement of objects that made the difference – whether through the sorting and splitting of major existing collections, the exchange of so-called duplicates, the dispersal of specimens and artefacts for the benefit of regional and colonial museums, or for the benefit of nature study in schools (the latter is the subject of Laura Newman's chapter).[8]


556

January 21st. 1901

Dr. Schlich

Royal Indian Civil Engineering College

Coopers Hill, near Staines

The following specimens from the Indian Forestry Collection

Paris Exhibition 1900.

1. Wooden bowl of wood of Boehmeria rugulosa, Jaunsar, N.W.P.
2. Axes used to mark trees & timber in the forests of the N.W.P.
   Nos 223–228 Cat. p.53.
3. Model of a cart (no label)
4. Model of a cot (216) Northern Circle
5 " " Buffaloes dragging a log on a timber cart, Mandalay
   No. 1297. Cat. p.27.
6. Model of an Elephant showing dragging gear used by Burmans & Karens No. 27 Cat p.57.
7. Elephant neck rope, S. Malabar district
8. Plank of Cedrela Toona from Packing case

January 25th C. H. Read Esq.

Ethnographical Dept, British Museum

Four cases containing the following from the Indian Section

Paris Exhibition 1900

1 Mounted collection of war weapons from Gond
2. " " " Agricultural, hunting & forestry implements, Assam
3. " " Forestry Implements, Assam
4. Gond Hand drum
5. Bundle of Bamboo Arrows
6. Yoke
7. Kanyin drum
8. Bamboo Churn
9. Sheath with daggers &c.
10. Lepcha Knife
11. Garhwal drum

Figure 4.3 Entry from 'Specimens Distributed Book, Volume 1', recording distributions to the Royal Indian Civil Engineering College and the British Museum Ethnographical Department in 1901. Courtesy: Board of Trustees of the Royal Botanic Gardens, Kew.

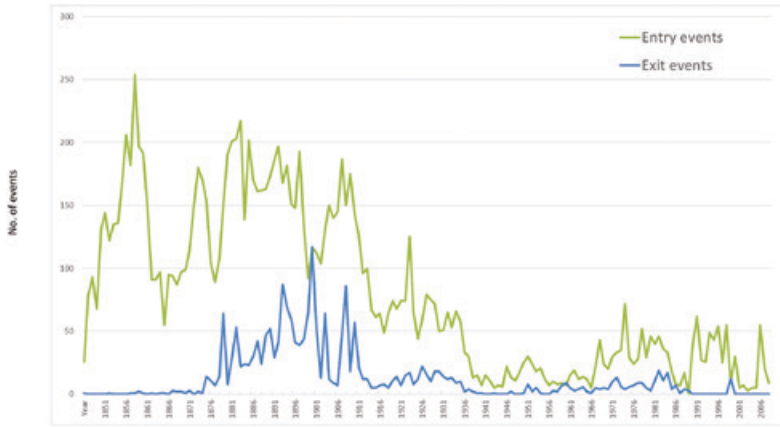


Figure 4.4 Annual accessions and dispersals at the Museum of Economic Botany, 1847–1990, measured in events. Source: Mobile Museum project databases (https://royalholloway.ac.uk/mobilemuseum/data).

The mapping of the flow of objects into and out of the Kew Museum over its 140-year history is made possible by the survival of a wealth of archival resources linked to the collection. Chief among these is the unusually detailed archival record of museum dispersals contained in two registers of 'Specimens Distributed' covering the period from 1881 to 1990 (Figure 4.3).[9] These volumes, founded on the model of the 'Goods Outwards' books maintained by Kew Gardens from the early nineteenth century as a record of its distribution of live plants and seeds, enabled us to construct a database of museum dispersals, including information on date of deaccession, type of object, and type and location of recipient.[10] A variety of other sources – principally archival documents at Kew and elsewhere – were used to extend the period of coverage back to the opening of the Museum of Economic Botany in 1847. Read in conjunction with a continuous record of accessions, the resulting database allowed for a dynamic appraisal of patterns in the historical geography of circulation, both into and out of the Kew Museum (Figure 4.4).

This record of dispersals may be presented in various forms, for example in graphs of dispersal 'events' (as in Figure 4.4) or in terms of estimated numbers of objects.[11] It may also be connected to surviving collection records in recipient and donor institutions. This labour-intensive and ongoing programme of mapping dispersed collections has significant potential to enhance our understanding of the process of inter-museum transfers, as well as the provenance of former Kew objects now in museums and botanic gardens around the world.

Mobilising the collection

The patterns in Figure 4.4, along with the data underlying the record of dispersals from Kew's Museum of Economic Botany, prompt questions about Kew's wider roles – for example, as part of a government department, mediating between different branches of the imperial state; as a centre for botanical research, reliant on long-established systems of exchange of duplicate specimens; as a feeder institution for regional museums across the UK; and as a hub in a trans-imperial network of botanic institutions. In what follows, we discuss the historical mobilisation of Kew's Economic Botany Collection, addressing each of these roles in turn.

Clearance

Although there are examples of the dispersal of material from the Kew Museum from as early as 1847, a question arises as to why its systematic documentation of 'specimens distributed' in the form of registers began only in 1881. The answer to this question, we believe, lies in Kew's developing role as a clearing house for biocultural material accumulated in other institutions, especially following the 1879 closure of the London museum founded by the East India Company – the India Museum.

When approached in 1879 by the India Office to receive, sort and distribute the India Museum's economic-botanical collections, the Director of Kew, Joseph Hooker, readily accepted, since prior to this he had had no systematic access to East India Company networks of collecting and dispersal. Kew took delivery of these vast collections in October 1879. The Kew Museum had previously dealt with nothing of such magnitude; the forest produce alone included over three thousand timber specimens, weighing 36 tonnes, delivered by barge up the Thames. Textiles, food products and figurines, transported by van, represented just some of what was a large and very diverse set of materials.[12]

To help Kew sort the objects, the India Office provided a building which came to be known as the 'iron house' or 'iron room', and awarded Kew £2,000 towards the cost of an extension to its museum, in order to house the new material (Figure 4.5). It also granted a sum of £200 per annum for maintenance of collections, which enabled Joseph Hooker to take on an ex-India Museum officer, George Badderley, a museum preparer who remained at Kew for the next 39 years until his retirement. And, finally, the India Office funded the services of mycologist Mordecai Cubitt Cooke – a former India Museum curator – who would work at Kew, three days a week, for a five-year period.

Figure 4.5 A centre of circulation: the iron room at Kew (highlighted left), showing its proximity to Museum No. 2 (highlighted right), c.1920s. © Board of Trustees of the Royal Botanic Gardens, Kew.

The process of sorting and dispersal of the India Museum materials took Kew staff a full year to complete, with the first distributions to other institutions taking place in late 1879, and the rest extending across 1880. A large number of museums, botanic gardens, private collectors and businesses across the UK and overseas were among the recipients. In aggregate, the list of receiving institutions gives some idea of the breadth of Kew's national and international networks by this time, from philosophical botanists to captains of industry, and from regional museums to international repositories. Crucially, at the conclusion of the clearing process, there remained a reserve quantity of objects – to be used 'for the supply of future applicants' – and the iron house itself, which provided a base for future distributions of museum objects.[13]

By the end of 1880, Kew had thus not only completed the task of redistributing the India Museum's economic-botanical collections, but had also put in place an infrastructure for managing more routine distributions in the future. In his annual report for 1880, Joseph Hooker outlined the advantages of the exercise: apart from enriching Kew's own Economic Botany Collection and enabling Kew to offer a more 'complete' representation of useful Indian plants, the consequent re-display of the objects in the Kew Museum also allowed cross-comparison between plant products from India and those from other parts of the world. Further, Kew could offer greater public access to the Indian collections, which had previously been displayed in cramped conditions at South Kensington or held in storage across a number of London sites.[14] By being identified at the botanical level and labelled at Kew, the objects had accrued new botanical and economic value.

Exchange

Major dispersal events such as this one involving the India Office collections had the potential to initiate the second major mode of circulation considered here, helping to establish longer-term relationships of exchange. Our main focus in what follows is on the significance of a single transfer, in 1866, of three hundred artefacts from the Kew Museum to the British Museum's Department of Ethnography, which initiated a lasting pattern of reciprocal exchange between these two institutions.[15] The timing of this event – 1866 – was a highly significant moment in the history of the British Museum's ethnographic collections: it was the year the Christy Collection was established.

Although better known for his role in the development of museum anthropology, gentleman-naturalist and collector Henry Christy also had a significant interest in botany. He developed a close friendship with William Hooker at Kew, and was a frequent donor of specimens to the Kew Museum.[16] On Christy's death in 1865, Joseph Hooker was named as one of the four trustees of his by now very substantial private collection, alongside botanist and pharmacologist Daniel Hanbury, archaeologist John Lubbock, and Augustus Wollaston Franks of the British Museum. It was this core network, all of them steeped in a culture of collecting shared across natural history and ethnography, which subsequently enabled a series of object exchanges between Kew and the Christy Collection. In 1866, Franks was made keeper of the new British Museum Department of British and Medieval Antiquities and Ethnography. It was at this point that the trustees agreed to offer the Christy Collection to the British Museum. In the same year, the Kew Museum despatched 'an extensive collection illustrating the ethnology of various parts of the world, and chiefly composed of vegetable materials' – over three hundred objects – to the Christy Collection once it was installed in its new home.[17] This donation marked the start of a 30-year period of reciprocal exchanges between Kew and the Department of Ethnography. As Joseph Hooker's successor, William Thiselton-Dyer, summarised the arrangement in an 1885 letter to Franks: 'We know it is more blessed to give than to receive. But still I think we receive well of you.'[18]

Such exchanges built on established practice among botanists at Kew and elsewhere, who were long accustomed to exchanging herbarium sheets, a practice which required them to maintain a ready supply of duplicates. At the Kew Museum, as at other nineteenth-century museums, the practice was extended from plant specimens to other

kinds of object. In order to facilitate such exchanges, it was necessary for the parties involved to develop a means of 'equivalencing' objects, a method of deriving exchange values based primarily on mutual trust and recognition of each other's scientific and curatorial authority. Perhaps the best example of equivalencing evidenced in the Kew–British Museum correspondence comes in a letter from Franks to Joseph Hooker in March 1870, listing what he had to offer to Kew:

> Club Fiji, flattened head [this was accompanied by a line drawing]
> Club Fiji inlaid with whales tooth, New Zealand carving on handle.
> A bow from Rio Uaupes
> Blow pipe & arms from Sylhet

In return, Franks wanted a Khasian bow and arrows, and the same from Sikkim.[19] What is particularly noteworthy here is the fact that this was not simply an exchange of botanical specimens for ethnographic artefacts, dividing up materials according to the precepts of distinct disciplines: while the particular objects sought or offered no doubt reflected the different priorities of each collector, what today might be regarded as 'ethnographic' objects were flowing both ways. In this case, Franks's desiderata were duly dispatched, and today can be identified in the British Museum collection.[20] The exchange of duplicates also encouraged the formation of what were sometimes referred to as 'reserve collections', often not formally accessioned or even documented in museum records, a feature of collections management in many different types of museum.[21] This is exactly what Franks himself had in mind when, in 1866, he was looking to acquire a certain ethnographic collection purely for its duplicate value or, as he phrased it in a letter to Hooker, as 'capital stock in trade'.[22] The language here, in a letter between confidants, speaks volumes: there could be no clearer evidence of the role of so-called 'duplicate' specimens in exchange.

It is worth highlighting the apparent ease with which museums as different as the British Museum and the Kew Museum of Economic Botany were able to conduct such exchanges during the long nineteenth century. In the case we have examined, exchange (as a specific form of dispersal) was a way of building connections between two national museums, enabled by common interest in certain kinds of artefact which were positioned somewhat differently in their respective worlds – economic botany in one, museum ethnography in the other. Yet, as this example also shows, there is little sense here of the inexorable logic of institutional or disciplinary specialisation: these museum worlds

were taking shape before, not after, the formation of modern scientific disciplines such as botany and anthropology.

National distribution

The third mode of mobilisation of Kew Museum objects examined here is the distribution of objects by Kew Gardens to a variety of regional museums within the UK. As with the dispersals to schools, this mode of circulation was presented by Kew as part of its obligations as a metropolitan, state-funded institution.[23]

With the passing of the Museums Act in 1845, municipal boroughs of over 10,000 inhabitants in the UK were empowered to build and maintain 'Museums of Art and Science', funded by raising the annual rates one halfpenny in the pound.[24] By 1887, the year in which the British Association's landmark *Report on Provincial Museums* was published, there were 55 city museums supported by municipal boroughs, making this the single largest category of museums in the UK. In terms of the raw numbers of objects, botany accounted for an estimated 12 per cent of the total collections held in these institutions – or over half a million specimens – the third highest proportion, after geology and zoology.[25]

The British Association's 1887 report criticised many provincial museums for the patchiness of their collections and for the lack of systematic collecting policies, with a reported over-reliance on unsolicited donations, a practice it described as a 'desultory method of accumulating a promiscuous mass of objects'. Significantly, in view of the role of exchange discussed above, another target for the report was the stock of accumulated duplicates gathering dust in certain museums to the detriment of other institutions, and the need for a 'well-understood system of exchange'.[26] The Kew Museum, opened in 1847, had been in existence almost as long as the Museums Act, but, as alluded to above, it took a while to develop a systematic approach to supplying other collections. The reasons became clear at the hearings of the Devonshire Commission (1870–5), when Kew Director Joseph Hooker was interviewed on the subject. When asked if the Kew Museum had duplicate objects to supply to other museums, Hooker replied:

> I should think very largely. The difficulty is in making application at the right time. Hitherto duplicates have been distributed as fast as possible, because they take up a great deal of room and encourage insects. My plan has hitherto been, whenever I receive a collection, whether from a Government Expedition or from a private source,

> to have it at once named and catalogued, the first complete set deposited in the [Kew] herbarium or museum, and the duplicates distributed.[27]

The role of national museums in supporting their provincial counterparts was a recurrent theme in the museum press of the later nineteenth century. In January 1877, for example, a conference of mayors and museum representatives met in Birmingham to discuss making a consolidated claim to a share of the surplus funds from the Great Exhibition of 1851, and in particular to a share of the duplicates 'stored away in Government collections'.[28] There ensued a flurry of correspondence in the pages of *Nature* over the summer of 1877, with discussion centred on the themes of the arrangement and development of collections.[29] Local authority museums were frustrated by the limitations imposed on funding: the rate local authorities could raise to pay for their museums was woefully inadequate for systematic collections development, and the duplicates held by national museums provided a key solution.[30]

James Paton, curator of the Kelvingrove Museum, Glasgow, was one of those who entered the debate, advocating that a duplicates exchange programme be established between all museums, and calling for the 'great institutions' to act 'in loco parentis' regarding the dispersal of their duplicates,[31] an expression which, while emphasising the perceived obligations of the nationals to the regions, does no justice to the agency which was clearly exercised by many regional museum curators, Paton included.[32] Eventually the Kew Museum did indeed assume the role of supplier of plant-based duplicate specimens and artefacts to the nation's museums, notably after the closure of the India Museum in 1879, as we have described above. For the purposes of this chapter, it is useful to focus on one example of a municipal institution which benefited substantially from such dispersals: Warrington Museum.[33]

Warrington Museum was one of the first municipal museums in the UK, coming into being in 1847 (the same year as the Kew Museum), when the local council took over the collections and library of the Warrington Natural History Society under the Museums Act (1845).[34] Charles Madeley was the first Warrington curator to request donations from the Kew Museum. He was an important figure in the national museum community, as a founding member of the Museums Association and later its president. Madeley expanded the botanical collections at Warrington, transforming a reference collection into the basis of an educational museum display. Integral to this process was the expansion of the economic botany collections. However, many of the objects

received from Kew as specimens of useful plants, a role they performed in Kew's own museum, were not presented as economic botany specimens at Warrington. For example, a bark-cloth *tiputa*, or poncho, acquired by Prince Alfred in Tahiti in 1869, was recontextualised at Warrington as an 'ethnographic' specimen, as in fact it still is today. As with the British Museum, processes of mobilisation and recontextualisation involved both gains and losses of information: gains through the accumulation of incremental knowledge across diverse knowledge systems, and losses when botanical and technical metadata documented at Kew did not travel with the object to its new institutional home.

Botanist Gavin Dunlop succeeded Madeley as curator at the Warrington Museum in 1920. He was responsible for the introduction of a new botany gallery, which can still be seen today, arranged much as he designed it in the inter-war period. Diverging somewhat from the model of the Kew Museum, roughly half of this gallery was dedicated to scientific botany, and the remainder to the economic uses of plants. Several original Kew specimens remain on display in the twenty-first century. A botanist by background, Dunlop also introduced the annual 'wildflower table' to Warrington, to which museum visitors could contribute plant specimens they had gathered; these were often later added to the herbarium collection. Dunlop was thus tapping into the burgeoning field of nature study, an influential movement in the USA in the late nineteenth century, which caught on in the UK in the early twentieth century (and which is further discussed by Laura Newman and Sally Kohlstedt in this volume).

The actions of these Warrington curators reflect the highly networked nature of museum practice in Britain in the late nineteenth and early twentieth centuries, in which the circulation of objects and ideas played a major role. Not content to limit their horizons to local flora and fauna, they were keen to connect their collections to broader global contexts, and, through a museum-based civic education, to participate in the formation of imperial citizens. In actively seeking donations from national institutions such as Kew, these curators were in the process of geographically recalibrating their own collections. During the period between 1887 and 1932, Kew's record of dispersals includes a total of 395 objects sent to Warrington from Kew on 10 separate occasions. These successive transfers included the full range of what then constituted an economic botany collection, from plant parts to plant products to artefacts, reflecting in their provenance the imperial geographies to which Kew had privileged access.[35] Kew's sense of its role as a supplier of duplicates to other museums extended far beyond national borders, and,

crucially, to British colonial and imperial territories overseas – the final mode of distribution which we now consider.

Colonial networks

The original vision for Kew as a public institution, outlined by John Lindley in 1840, was that it should be:

> the centre around which all those minor establishments should be arranged; they should all be under the control of the chief of that garden, acting in concert with him, and through him with each other, reporting constantly their proceedings, explaining their wants, receiving their supplies.[36]

This was an institutional vision, not a description of actual practice, although it undoubtedly shaped the ways in which successive Kew directors represented the work of distribution from the Kew Museum at the imperial, as well as the national, scale. In reality, however, as Jim Endersby argues, Kew's relations with colonial collectors, at the private or institutional level, were much more negotiated affairs, with each party 'bartering its assets according to its interests [which] . . . in the process defined who was central or peripheral and why.'[37] This is illustrated in what follows by the case of the developing relationship between Kew and the Royal Botanic Garden, Sydney.

The Kew Museum first sent specimens to the Royal Botanic Garden, Sydney in 1880, a transfer facilitated by its director, Charles Moore. Reflecting a familiar pattern in the management of colonial botanic gardens, Moore had received his botanical training at Kew, and had been appointed Government Botanist and Director of the Sydney gardens in 1848 on the recommendation of metropolitan botanists John Lindley and John Stevens Henslow. Further exploiting this network, he initiated a relationship with the Kew Museum in 1862 by sending specimens of *Araucaria*. Partly inspired by Kew's museum, and partly by the museums already established at the botanic gardens in Adelaide and Melbourne, Moore began collecting for a botanical museum illustrating the economic uses of plants.[38] As he wrote to Thiselton-Dyer in 1880:

> I have added to this establishment the exceptional adjunct of a Museum, and Herbarium i.e. the building is erected for their purposes but not yet furnished . . . I would esteem it a great favour if you would cause to be sent to me, any duplicates from the Kew Museum.[39]

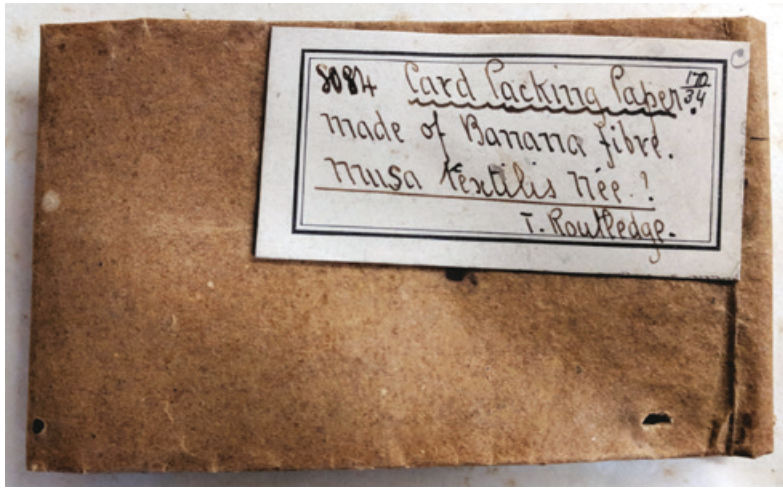


Figure 4.6 'Card Packing Paper. Made of Banana fibre', donated to Kew by Thomas Routledge in 1875 and sent to Charles Moore in 1881, and now in the collection of the Royal Botanic Garden, Sydney. Photograph: Mark Nesbitt, courtesy of the Royal Botanic Garden, Sydney.

Kew responded to Moore's request by sending specimens in 1880 and again in 1881 (Figure 4.6). The latter distribution consisted of 182 objects, of which more than a quarter were woods, and duplicates acquired by Kew after the 1862 London International Exhibition. Other objects sent included various useful plants; plant derivatives such as fibre and rubber samples; and artefacts – baskets, textiles, mats, even a single sandal 'such as is worn near Lucerne'; in short, the range of natural and cultural objects that typically characterised an economic botany collection. These objects came from many parts of the world hitherto not represented in the Sydney Botanic Garden's collections, including Latin America, Japan, South Africa, the USA, North Africa and British India. Moore declared that he had already begun to accumulate sufficient duplicates to conduct exchanges with Kew, and certainly between 1880 and 1884 there was a series of transactions which we can interpret as exchanges. Thereafter, however, the relationship was far from symmetrical.[40]

Fortunately for Moore, he was not wholly reliant on Kew for supplying his museum, as he related in his 1880 letter: 'I shall get from our Exhibition a good deal for the Museum.' This exhibition was the Sydney International Exhibition of 1879, the first in a series of international fairs between 1879 and 1899 which became a regular feature of the

exhibitionary complex in nineteenth-century Australia. Such events offered access to new markets to Australian traders, and to Australian museums, an opportunity to recast themselves as centres, and provided an alternative means of extending the geographical range of their collections. Networks between the metropolitan centre and Australian periphery were thus proving to be increasingly permeable. Prior to federation in 1901, in a spirit of intense inter-colonial competition, Australian curators were creating more regionalised networks of exchange, thereby effectively reducing their reliance on Kew. As Moore himself expressed it to Thiselton-Dyer later that same year, 'The late Exhibition here enabled me to get together a good many things that would have been difficult for me to obtain by any other means so that I am enabled to make a fair show at once.'[41]

Re-mobilising the distributed collection

The Kew Museum's practice of exchanging so-called duplicates with other institutions came to an end in the 1930s. However, this did not signal the end of its commitment to dispersal, either in response to an external request or as a result of institutional reorganisation. Between 1958 and 1961, for example, in response to the closure of Kew's Timber Museum in 1958 and Museum No. 2 in 1960, the museum transferred some two thousand ethnographic objects to the British Museum, and further quantities of such material to the Pitt Rivers and Horniman museums. However, large-scale dispersals such as these were the exception, rather than the rule. More commonly, distributions in the post-war period took the form of small samples taken from specimens, in response to specific requests from scientific institutes, often intended for analytical purposes, and these continue to the present day. While some herbarium specimens and woods are still collected in multiples for subsequent distribution, current practice in Kew's Economic Botany Collection (successor to the Museum of Economic Botany) is generally for new acquisitions to be formally and permanently accessioned. Usually this is the point at which a permanent accession number is applied to the object. Such modern practice is typical of museums more generally, and is reflected in museum documentation standards such as the UK's SPECTRUM, which treat dispersals as the exception rather than the norm, specifically in this case citing the case of 'transferring duplicate objects to another museum as part of curator-led rationalisation'.[42] In general, objects are usually not expected to leave museums except for conservation or on loan to other museums.

What are the implications of our historical research on the dispersal of Kew's museum collections for contemporary museum practice? While the institution has clearly moved on from its origins in a Victorian culture of scientific practice, and today operates in a completely different global context, we believe that historical research has the potential to generate new insights into present-day collections, and may also suggest new ways of using them. This might be a matter of finding inspirational but hidden histories of innovation in the museum practice of another era, offering opportunities for emulation in our own time, or it might be reflected in a sharpened sense of the contingency of contemporary approaches to the circulation of museum objects, reminding us that approaches to collections management have varied over time and might yet be very different in future. In this final section, we consider some of the ways in which our research on historical aspects of the circulation of Kew objects might contribute to contemporary collections practice, especially in relation to practices of provenance documentation and object display.

Documentation and provenance

Until the introduction of electronic databases in the 1980s, museum documentation took three main forms: archival description physically attached to the object itself (through labels and packaging); in-house hand-lists or catalogues produced in a variety of forms; and print publications such as books and periodicals. Through the increasing professionalisation of collections management in museums, these three categories of materials typically came to be the responsibility of different departments: object collections, archives and library respectively. While reconnecting objects to their accession data remains problematic in many museums, great advances have been made in the twenty-first century, owing to electronic cataloguing, the requirements of museum accreditation and the growing interest in provenance research, among other things. These developments were clearly not just technical in nature. For example, the current interest in provenance, also reflected in this book, reflects a convergence of interest among academic researchers and museum professionals on wider issues of object biography, the relational museum and the politics of restitution.[43] In this context, as discussed in the Introduction (pages 12–14), the question of provenance is often understood geographically, not simply as a matter of establishing a point of origin, but of tracing the trajectories of objects into and through the spaces of the museum world.[44]

While provenance and other collections data have become far more accessible within individual museums, our historical research has revealed a consistent pattern of data loss as objects moved between museums. A good example is the remarkable collection of Indigenous clothing presented to Prince Alfred in Tahiti and Hawai'i in 1869. A total of about 82 pieces are recorded as arriving at Kew in 1874; of these, 15 remain at Kew, 7 are now at the British Museum, and others survive at Warrington, Glasgow Museums and the Pitt Rivers Museum.[45] While the items now in the British Museum were transferred there from Kew at various dates between 1847 and 1961, it was not until the 1980s that a list was sent from Kew to the British Museum containing basic provenance data. Those items sent to Warrington and Glasgow, meanwhile, retained no catalogue record of their Kew origin. A total of about 40 objects from Prince Alfred's Tahiti and Hawai'i collection remain to be found in other museums. However, with the exception of the British Museum online database, which consistently records Kew origins, the identification of Kew-originated objects in other museums often relies less on documentary research than on first-hand observation of the object by those with a 'good eye' for the distinctive cast of an economic botany specimen. Whether and how the source institution is or is not recorded on collection labels or database depends on many factors; we found, for example, very different practices in six Australian collections visited over the course of our research.

A key aim of the Mobile Museum project was to reconnect distributed (or diasporic)[46] objects with the detailed provenance information about them that survives in Kew's archives. However, a number of obstacles arose to the creation of a systematic database of inter-institutional transfers, including substantial variations in the quality of the data, and the fact that most museum databases, including Kew's own, do not yet use permanent identifiers such as the digital object identifier (DOI). In this project, we focused instead on the production of robust and reliable sets of 'exit data' (that is, information relating to objects dispersed from Kew) for recipient museums and then incorporating records of Kew-originated objects into an enhanced database of the Kew Economic Botany Collection, which, as noted above, is now freely accessible.[47] Where more detailed analyses of inter-institutional relationships were possible – as it was for some museums such as the British Museum, and for some collectors including Richard Spruce (as described in Luciana Martins's chapter) – these provided material for a series of rich case studies.[48]

Displaying museum objects

As we noted at the start of this chapter, a museum or gallery of economic botany was a distinct and familiar category of display in the period between the mid-nineteenth century and the Second World War.[49] In common with other museums of applied science, such as the Museum of Practical Geology,[50] their exhibits were recognisable through their use of the illustrative series, but also by an emphasis on scientific taxonomies and on communicating information about the uses of plants. In the 1950s and 1960s, such displays went out of fashion, considered by many to be too cluttered and outmoded in their focus on plant-based products in comparison to oil-based synthetics.[51] Many economic botany galleries were dismantled: those at Warrington Museum, the Santos Museum of Economic Botany at Adelaide and the Indian Museum, Kolkata are rare survivals. Where they were not simply disposed of, economic botany collections were either put into research storage (as at the Harvard Museum of Natural History, the Field Museum in Chicago and the Botanic Garden Meise in Belgium) or divided up between ethnographic ('world cultures') and natural history collections (as between the Tropenmuseum and Naturalis in the Netherlands, or at Manchester Museum, the Botanical and Ethnographic Museums in Stockholm, and Glasgow Museums).

In following the trajectories of Kew economic botany specimens dispersed to museum collections across the UK and the wider world, we have found that such materials are rarely used or displayed today, even when they have been incorporated into active museum collections. This is not simply a result of the disconnection between objects and their documentation discussed above. It also reflects a loss of the ability to 'read' the significance of such objects – a handful of seeds, perhaps, or gums, resins, pieces of bark-cloth, paper or woods – when detached from their previous museum context. While not, of course, the beginning of their lives as objects, this moment of formation *as museum objects* needs to be understood in its own terms, in the context of the project of economic botany which inspired it. The resulting enriched understanding of the provenance and function of museum objects has the potential to inform contemporary research. For example, greater knowledge of the contexts of acquisition and display of Amazonian cultural artefacts prior to their redistribution to the British Museum has clearly enhanced our understanding of their historical and contemporary significance for source communities today. The case of the Spruce collections discussed

by Luciana Martins in Chapter 1 provides one such example of the practical value of mapping provenance of diasporic objects originally presented to Kew by a single collector.

In arguing that objects distributed from Kew are better appreciated if their formation as specimens of economic botany is understood, we are not, of course, arguing that this should determine their future use. Most historic collections of economic botany were founded for commercial purposes, usually closely linked to imperial imperatives, and very much of their time. Nonetheless, an understanding of the nature of the 'illustrative series', and its virtues in teaching about processes of making and manufacture, could suggest innovative ways in which such objects might be used and displayed today. For example, two recent exhibitions at the Victoria and Albert Museum, Fabric of India (2015–16) and Fashioned from Nature (2018–19), borrowed Kew material in order to highlight the connection of textiles to plant materials. Here, economic botany specimens were shown to be part of a dynamic manufacturing process, and an integral component of the final product. Other museums, such as the Powerhouse in Sydney, with collections across technology and decorative arts, are well placed to use economic botany specimens in this way; more specialist collections, such as those found in many botanic gardens, will need to collaborate with other museums to reimagine their collections as biocultural. Plants are notoriously difficult to display in museums, a role which has often been delegated to botanic gardens. But, if creatively managed, economic botany material can make for compelling displays, as can be seen today at Manchester Museum or at the Santos Museum of Economic Botany in Adelaide (Figure 4.7).

Conclusion

In this chapter, we have considered the mobility of museum objects, in the case of Kew's Museum of Economic Botany, by examining four modes of circulation: the clearance of collections following the closure of museums or temporary exhibitions; practices of object exchange, especially in the case of so-called duplicates; flows of material from national collections to regional museums; and as an integral part of the cultivation of colonial museum networks. The argument here, as throughout this volume, is that these various kinds of mobilisation make a fundamental, if often unacknowledged, difference to the ways

Figure 4.7 Santos Museum of Economic Botany, Adelaide Botanic Gardens. Photograph: Mark Nesbitt, courtesy of the Botanic Gardens of South Australia.

in which museum objects have been used and interpreted over time. It is our contention that greater attention to the processes which enabled object circulation, and the resultant patterns of dispersal, significantly enhances our understanding of the multiple lives of museum objects. In the case of Kew's Museum of Economic Botany, we are fortunate to have an unrivalled archival record of distribution, whose very existence owes much to the founding vision of its role as an engine of education and innovation, and also to Kew's experience of managing dispersals on a large scale following the dispersal of the India Museum collections in 1879–80. While some aspects of this account are specific to the case we have examined here, we believe it has wider implications for the study of the history of museum collections in general. And, as suggested in the final section, the investigation of the trajectories of objects through very different kinds of museums has the potential to contribute to new ways of understanding forgotten or misunderstood collections, and of engaging with new audiences in the twenty-first century.

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Notes

1. Cornish, 'Curating Science'.
2. Illustrative series: 'a series [of objects] illustrative of the progressive states which a manufactured article assumes' (Anon., 'Exhibitions of mechanisms', 191).
3. Cornish, 'Curating Science', 163–6.
4. Hooker, *Museum of Economic Botany*, 3 (emphasis in original).
5. Drayton, *Nature's Government*, 194–5.
6. Salick et al., *Curating Biocultural Collections.* See also Cornish, 'Botany behind glass'.
7. The first two modes of circulation are discussed in Cornish and Driver, '"Specimens Distributed"'; on the third, see Cornish et al., 'Between metropole and province'.
8. Newman and Driver, 'Kew Gardens'.
9. Cornish and Driver, '"Specimens Distributed"'.
10. This database is freely available from the Mobile Museum project website at https://royalholloway.ac.uk/mobilemuseum/data.
11. The two volumes (covering the period 1881–1990) are now available in digital form on the Biodiversity Heritage Library website: 'Museum of Economic Botany, Kew. Specimens distributed 1881–1901', Volume 1, date scanned 5 February 2018, www.biodiversitylibrary.org/item/245089#page/1/mode/1up; 'Museum of Economic Botany, Kew. Specimens distributed 1901–1990', Volume 2, date scanned 18 December 2018, www.biodiversitylibrary.org/item/261933#page/1/mode/1up (accessed 14 December 2020).
12. Desmond, *The India Museum*; Ratcliff, 'The East India Company'; MacGregor, *Company Curiosities*.
13. Hooker, *Report on the Progress*, 56–60.
14. Hooker, *Report on the Progress*, 59.
15. The following account of Kew's exchange relationship with the British Museum draws on the more detailed account in Cornish and Driver, '"Specimens Distributed"'.
16. Christy's letters to William and Joseph Hooker survive in Directors' Correspondence in the Kew Archives at the Royal Botanic Gardens; his donations to the Kew Museum are recorded in the Museum Entry Books of the Economic Botany Collection.
17. Book of Presents, Vol. 7, 1866–8, Central Archives, British Museum.
18. Letter from William Thiselton-Dyer to Augustus Wollaston Franks, 24 January 1885, Christy Correspondence, BEP Department, British Museum.
19. Letter from A. W. Franks to J. D. Hooker, 31 March 1870, Directors' Correspondence 86, ff. 140–1, Archives, Royal Botanic Gardens, Kew.
20. They are now listed in the British Museum catalogue as As6699a, As6699b-f, As6700 and As6701 ('Collection Online', British Museum, last modified 29 May 2020, https://www.britishmuseum.org/research/collection_online/search.aspx).
21. See especially Feest, 'Ethnographic collection of Johann Natterer'. The description of such collections varied between museums: in the Smithsonian, for example, 'reserve' collections were composed of material retained for study, while 'duplicate' collections were available for exchange. See Nichols, 'A century of circulation'.
22. Letter from A. W. Franks to J. D. Hooker, 24 October 1866, Directors' Correspondence 86, f. 139, Archives, Royal Botanic Gardens, Kew.

23. The following account of Kew's national role in relation to regional museums draws on the discussion in Cornish et al., 'Between metropole and province'.
24. House of Commons, *Bill to Enable Town Councils.*
25. Ball et al., 'Report of the committee'.
26. Ball et al., 'Report of the committee', 118.
27. House of Commons, *Royal Commission on Scientific Instruction*, 434–6.
28. Howarth, 'Museums', 276.
29. Dawkins, 'The need of museum reform'.
30. Lewis, *For Instruction and Recreation*, 1–7.
31. Paton, 'Museum reform', 183.
32. Cornish et al., 'Between metropole and province'.
33. Other cases, namely museums at Glasgow, Manchester, the University of Cambridge, the National Museum Wales and Liverpool, are given in Cornish et al., 'Between metropole and province'.
34. Cornish et al., 'Between metropole and province'.
35. Specimens Distributed books, Vols I–II [MSS], Economic Botany Collection, Royal Botanic Gardens, Kew.
36. House of Commons, *Report to Treasury Committee*. The 'minor establishments' referred to here by Lindley were colonial botanic gardens.
37. Endersby, *Imperial Nature*, 110.
38. 'Botanic Gardens and Domains (Report on Present Condition of Establishment), 1 April 1879', MR 399, Archives, Royal Botanic Gardens, Kew.
39. Letter from Charles Moore to W. Thiselton-Dyer, 26 February 1880, DC 173, f. 264, Archives, Royal Botanic Gardens, Kew.
40. Donations to Kew were as follows: 1910: one sample of *Eucalyptus* bark; 1912: one sample of western whitewood wood; 1913: three pods of *Serianthes calycina*.
41. Letter to W. Thiselton-Dyer, 7 June 1880, DC 173, ff. 265–6, Archives, Royal Botanic Gardens, Kew.
42. 'Deaccessioning and disposal', https://collectionstrust.org.uk/spectrum/procedures/deaccessioning-and-disposal-spectrum-5–0/ (accessed 2 February 2020).
43. From large literatures on object biography and the relational museum, see especially Hill, *Museums and Biographies*; Gosden and Larson, *Knowing Things*; Hill, 'Travelling objects'.
44. For a spatial view of provenance research, see Rodini, 'Mobile things'. On the importance of 'traceability' for restitution, see Savoy, 'What our museums don't tell us'.
45. Curtis, *Assembling Object Histories*; Nesbitt, Curtis and Mills, 'From maker to museum'.
46. We owe the term 'object diaspora' to Basu, 'Object diasporas'. See also Punzalan, 'Archival diasporas'.
47. Economic Botany Collection Database: https://ecbot.science.kew.org/.
48. Some of this material is available from the project website at https://royalholloway.ac.uk/mobilemuseum. The case studies will be contained in our forthcoming book.
49. Nesbitt and Cornish, 'Seeds of industry and empire'.
50. Yanni, *Nature's Museums*.
51. Blunt, *In for a Penny*.

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Illustrating anthropological knowledge: texts, images and duplicate specimens at the Smithsonian Institution and Pitt Rivers Museum

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Historically, museums have been understood as collecting institutions. As natural and cultural objects flow into scientific museums, they are transformed into specimens through cataloguing practices, reflecting conceptual placements within classification systems. But the realities of collecting have meant that scientific museums have tended to accumulate more specimens than were needed for their knowledge production and dissemination missions. Specimens that are representative of knowledge categories, but deemed excess or surplus, have often been called 'duplicates'. Building on practices originating in natural history collecting, many museums have exchanged their duplicates in order to fill gaps in their collection. Exchange has functioned as a mechanism of collection building and refinement, allowing museums to pursue an encyclopedic orientation – to have one of every thing.[1] Duplicates have also been instrumental to the development of scientific taxonomies, allowing scientists to archive comparative collections in order to visualise the diversity of natural and cultural worlds across time and space.[2]

Reference to duplicates by scientific museums and collectors is often associated with discussions of exchange. In characterising collecting approaches in the early period of the Royal Society, Thomas notes proposals for the exchange of duplicate specimens as early as 1681. The society's president, Sir Robert Southwell, exchanged 'four pieces of amber enclosing various insects in return for some of the repository's duplicate specimens'

so as to expand his natural history collection. In Southwell's view, access to a diverse collection would make for a more pleasant experience of natural history for his son.[3] Botanic gardens had long been accustomed to the exchange of herbarium sheets, 'a practice which required them to maintain a ready supply of duplicates' as Cornish, Driver and Nesbitt note in their chapter in this volume (page 104). By the nineteenth century, exchanging duplicate specimens was essential for natural history museums to build their 'supply of adequate reference material for classification'.[4] Only so many examples of a known object or knowledge category were necessary for taxonomic work. In 1896, the Field Museum's *Annual Exchange Catalogue* listed 'excess and duplicate material' by department, offering, for example: 'Alaskan Eskimo fish nets' (10 to trade) from the anthropology department, as well as an unspecified number of 'English Walnuts' from Corea [*sic*] from the botany department.[5]

The circulation of duplicate specimens was not strictly limited to reciprocal exchange. Whole textiles were cut into pieces or 'doubles' and distributed to various European ethnological museums, replicating similar practices where textile 'sample albums' were circulated to British chambers of commerce, industrial museums and schools of art in Britain.[6] As Karen Jacobs notes in her chapter in this book, the Smithsonian Institution included liku (fibre skirts) in museum starter kits as part of the 'standard packs of duplicates' (page 312). These starter kits were distributed to museums and scientific societies seeking to increase their collections, and this practice of distributing duplicates was later extended to schools and libraries for instructional purposes.[7] Laura Newman's chapter on the Kew Museum of Economic Botany explores how distributions of duplicates were instrumental to the development of school museums and object-based pedagogy in Britain. Within the growing scholarship on exchange and duplicates, I consider how the exchange or distribution of duplicates intersects with the goals of museum-based anthropologists in the late nineteenth century. In this chapter, I pay particular attention to how duplicates circulate alongside other forms of representational media, textual descriptions and artefact images, to emphasise the value of duplicates to collection building as well as knowledge production.

Type media: texts, images and duplicates

A 'type' is a category of knowledge, a discrete unit of analysis established by disciplinary conventions. For biologists, species is employed as a type; for anthropologists, a type could be a cultural behaviour or artefact.

Those early anthropologists who identified as cultural evolutionists classified humans typologically, based on observational features such as phenotype/race and technology. For example, in his study of North American Indigenous basketry, Smithsonian curator and anthropologist Otis Mason described 'two types' of 'Alaskan Eskimo' baskets, which he distinguished based on technique: 'the twined and the coiled'.[8] Such typological arrangement relies on classification and standardisation. It produces categories, or 'kinds-of-things', such as Alaskan Eskimo twined baskets, and Alaskan Eskimo coiled baskets. Thus, typological practices allow for objects that share relevant features to be grouped together. These objects become specimens based on their capacity to represent scientific knowledge categories. The term 'type specimen' refers to the capacity of the specimen (material object) to exemplify the type (knowledge category). In Mason's study, the type specimen for Alaskan Eskimo twined baskets was US National Museum catalogue number 38872, graphically illustrated in the publication, and captioned as 'twined wallet of the Eskimo'.[9] These different media (object, image and text) are what Knappett would consider as transformations of the type.[10]

The creation of types, particularly in collecting institutions such as museums, requires interactions with 'working objects'. These are 'not raw nature, they are not yet concept, much less conjectures or theories; they are materials from which concepts are formed and to which they are applied'.[11] As a means of scientific standardisation, Enlightenment naturalists practised the extraction of 'the typical' from the 'storehouse of natural particulars' through iterative, close observations with an emphasis on analysis and synthesis.[12] For eighteenth-century natural historians, types were characterised by generality and 'truth-to-nature', not objective representation of a single object.[13] By the mid-nineteenth century, although mechanical objectivity had shifted the ways of creating scientific images, the scientific labour of identifying types continued to rely on observation and comparison of objects. The nineteenth century also brought about global increases in museums and archival repositories, extending institutional support for this work. In its inaugural year, 1879, the Bureau of Ethnology, the first federally funded anthropological research unit in the United States, sent field collectors to the Indigenous communities of the American Southwest. Collected objects were then sent to the Smithsonian Institution's US National Museum (USNM) in Washington, DC to be studied, described and catalogued. The result of this process was an illustrated catalogue that organised these objects (now specimens) in a typological arrangement.[14] The typology, similar to Mason's study of

basketry, distinguished knowledge categories based on maker (Hopi, Zuni and so on), material, form and function, and ornamentation. The dissemination of this catalogue shared the knowledge categories produced by the bureau with other anthropologists and natural historians. The mobility of this catalogue, establishing knowledge categories through descriptive text and images, exemplifies a long-standing practice of natural historians in museums, who relied on the circulation of 'proxy specimens' for their taxonomic work. Proxy specimens (images accompanied with text) were most effective when they were 'drawn or painted with all the realism of contemporary still-life art'[15] – that is, when they offered an accurate representation of the relevant aspects of non-mobile specimens. Whether an image of an object, or the object itself, these are both working objects in that they are instrumental to comparative processes of knowledge production, as well as being representative of the resultant categories.

Introduction of the 'type method' in the late nineteenth and early twentieth centuries among botanists and zoologists responded to the need to 'stabilise nomenclature'. The association of scientific names with individual specimens resulted in a new category of specimens called holotypes. The individual specimen was not required to be 'typical' of the species it represented, but rather it served as 'the court of last appeal for all future questions about the definition of the species, as its official name-bearer.'[16] As evidentiary material signifiers of scientific knowledge categories, the value of type specimens restricts their movement. However, the type-as-concept and knowledge category is not only represented by the individual specimen or holotype. The type or 'typical' is established and disseminated through textual descriptions and images, and is also represented through duplicate specimens. These are all highly mobile, yet differentiated, representational media, which intersect with one another to disseminate scientific knowledge.

Each of these media convey or illustrate scientific information differently. Within scientific classification systems, the veracity of illustration is paramount. In tracing the history of scientific representation, Daston and Galison point out that scientific image making has long been understood as having moral dimensions. Representational technologies were developed and deployed by humans, who could be prone to mistakes, through fatigue and hurriedness, or through seductive interpretive paths or 'wilful interventions'. In the mid-nineteenth century, mechanised objectivity was considered a moral solvent, as photographs and self-recording instruments 'promised to replace the meddling, weary' artists and observers.[17]

Not only do illustrations produced through mechanised means promise a greater sense of objectivity, they have been increasingly used to enact comparisons within the labours of taxonomy and systematics. Hand-rendering methods (such as sketches, drawings, woodcuts and etchings) were not replaced by photography; rather, different technologies were used in relation to representational priorities and goals. While illustration may be colloquially associated with graphic or pictorial representations in the form of drawings and photographs, I use the term here to indicate 'the action or fact of making clear or evident to the mind; setting forth clearly or pictorially; elucidation; explanation; exemplification'.[18] In what follows, I consider three illustrative media and their use in scientific discourse by late nineteenth-century museum-based anthropologists: texts, images and duplicate specimens.

Of these media, texts are constituted via language, a communicative medium that requires writers and readers to share a common (scientific) vocabulary.[19] While texts reflect their writers' subjectivities, they are efficient media for both scientific description and, especially, interpretation. Images, especially those that are mechanically produced, invoke moralised objectivity. Perhaps because of the limitations placed on the spatial movements of type specimens, their images (rather than textual descriptions) are considered imitative, constructive and synthetic, iconically referential to the material-original specimen. As these images can be infinitely reproduced, they are widely circulated and within increasingly frequent reach of scientists. The value of these illustrations is partially reckoned through their availability.

Duplicate specimens embody the pursuit of representational veracity through their material qualities. While duplicates are not copies or replicas of type specimens (unless they are casts), they are illustrations of the type, first-stage signs.[20] They possess the same relevant features as the type specimen, but their status as duplicates is contingent on the stability of the knowledge category. Their value is realised in their ability to eschew human intervention and interpretation through their materiality because they are not the material creation of scientists *in the same way* that texts and images are, although, as duplicate specimens, they are still created or designated *as illustrations* by scientists.

In the following examples, I explore how texts, images and duplicate specimens are employed by anthropologists as means of conveying scientific knowledge. I attend to the nature of the relationship between these representational media, documenting how they were used in concert with one another, as well as to the importance of duplicate specimens in resolving competing scientific claims. I begin

with correspondence from Henry Balfour of the Pitt Rivers Museum to the USNM's Walter Hough, and then move to the various distributions of so-called American Palaeolithic specimens from the USNM within the context of the 'Great Palaeolithic War'.[21]

Illustrated correspondence

By the late nineteenth century, specimen exchange was considered normative curatorial practice for scientific museums, with few exceptions.[22] Henry Balfour, curator of the Pitt Rivers Museum at Oxford, initiated a series of correspondence with Smithsonian anthropologists in 1889, following a meeting with Thomas Wilson, who had been recently appointed curator of prehistoric anthropology for the USNM. As Gosden and Larson note, Balfour depended on a global network of knowledgeable correspondents to supply him with information about kinds of objects in the Pitt Rivers Museum that drew his interest, such as fire-pistons, musical instruments, smoking pipes and stone implements. In many cases, 'this knowledge was embodied in the objects they sent him'. Social linkages hastened specimen exchange and were critical to anthropological knowledge production.[23] During this time frame (1889–92), the bulk of Balfour's letters in the Smithsonian anthropology department's archive are addressed to Walter Hough, assistant in the ethnology division with whom Balfour shared a mutual interest in fire-making technologies.[24] Balfour's letters are peppered with hand-drawn sketches of objects – duplicate specimens – offered or requested for exchange.

Brooke Penaloza Patzak argues that although drawings have been commonly used by anthropologists to facilitate scientific communication, there has been little attention paid to their role 'in the production and transferal of knowledge' between anthropologists. She notes that at the close of the nineteenth century, although emerging photographic technology deflected concerns of subjectivity, Franz Boas preferred drawings as they conveyed [object] details with more clarity.[25] Object details are readily emphasised and edited through sketching, adapted to the needs of the creator and viewer. The mechanisation of photography allayed concerns over accuracy, but Balfour opted for sketches to convey to Hough the ways in which these objects were relevant. Sketches, a visual format long used by anthropologists, present a sense of immediacy to the viewer, as they are 'a snapshot of both subjective and objective reality'. Sketching reflects 'cultural norms' of 'embodied and situated practice' as

well as 'stylistic and representational conventions'.[26] Balfour's sketches can be interpreted both as communication shorthand, and as a means of understanding his (and Hough's) relationship to duplicate specimens within the contexts of the museum and anthropology. Attention to the sketches themselves, as well as their relationship to proximal texts, indicates the importance of object form in reckoning the exchange value of duplicate specimens.

In Balfour's letters, sketches serve as an efficient method of formal description. In Figure 5.1, Balfour sketches what he then calls a 'Hindoo fire drill'. The sketch provides details that the text does not. Another example (Figure 5.2) involves a sketch paired with more textual description: 'The French crusie is somewhat of this form [sketch here], of brass with iron suspending hook, it is a variety of the open dish lamp, and has one long lip for the wick and a shorter one at the side.'[27] The relationship between sketch and text varies. In some cases, there are negligible textual descriptions, while others include more. While Balfour's letters contain some textual information about objects in their production context, the sketches generally do not, as they are form only. This is especially apparent in Balfour's use of sketches to request ceramics with specific designs (see Figure 5.3).[28] The privileging of form is indicative of the value of these objects within the anthropological and museological contexts of the period. These specimens were representatives of distinct evolutionary stages, evidenced through comparisons of utilitarian function and form. The texts and sketches reflect how Balfour and Hough saw and valued these objects.

While sketches were used to communicate object form, the text of the letters delves into object use and availability. Sketches and texts were used concurrently to convey disciplinary knowledge. Balfour commented that the lamp's form was 'becoming scarce' and was used 'in a few parts of France', where they were 'kept alight during the ceremony of "La Veillée"'.[29] He could only provide a model of the fire drill, but noted that the 'drill works in a hole upon the large flat piece of wood as shown in my sketch. The whole apparatus is placed on a mat made of a gazelle skin.'[30] The sketch includes the wood base, but not the gazelle skin or the positioning of the user's body and hands. This contextual information was not simply ancillary, as techno-centric object-based experimentation was a legitimate means of embodied anthropological knowledge production.[31] Balfour's decision to exclude particular aspects of the use of the drill further emphasises the primacy of object form within evolutionary schemas.

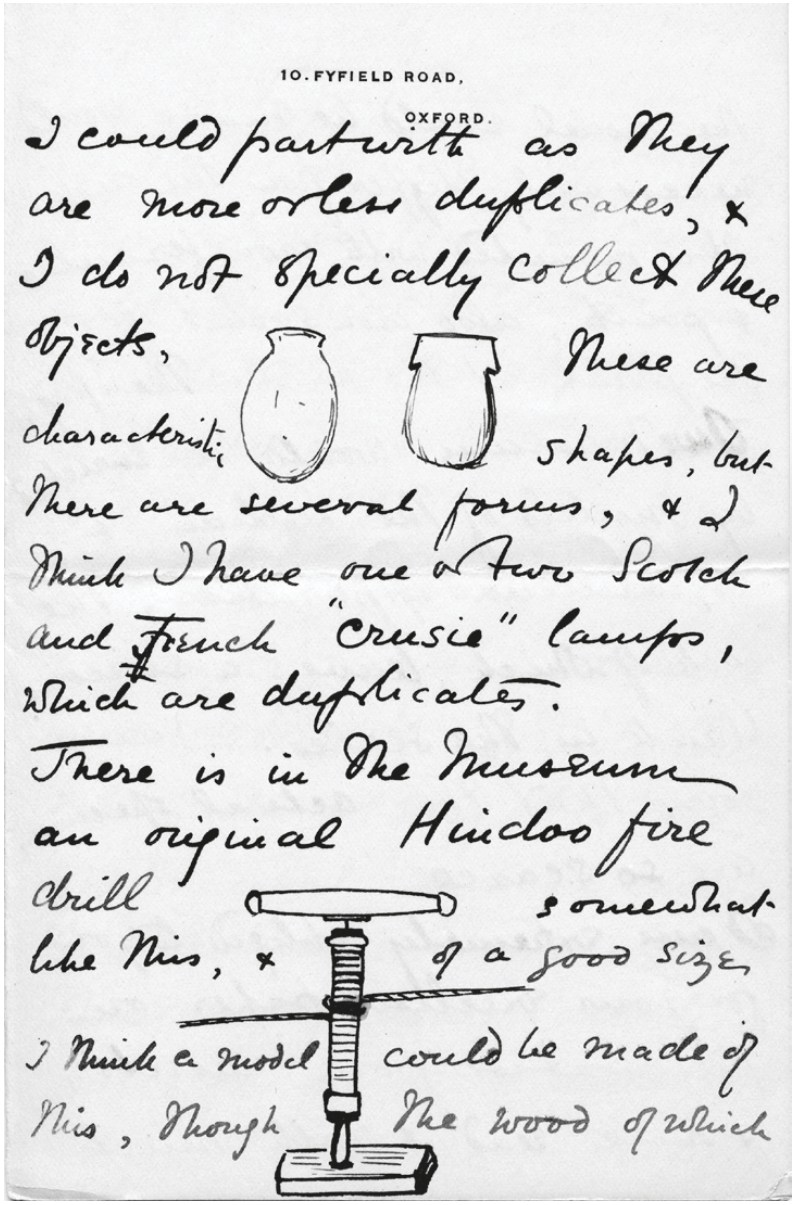
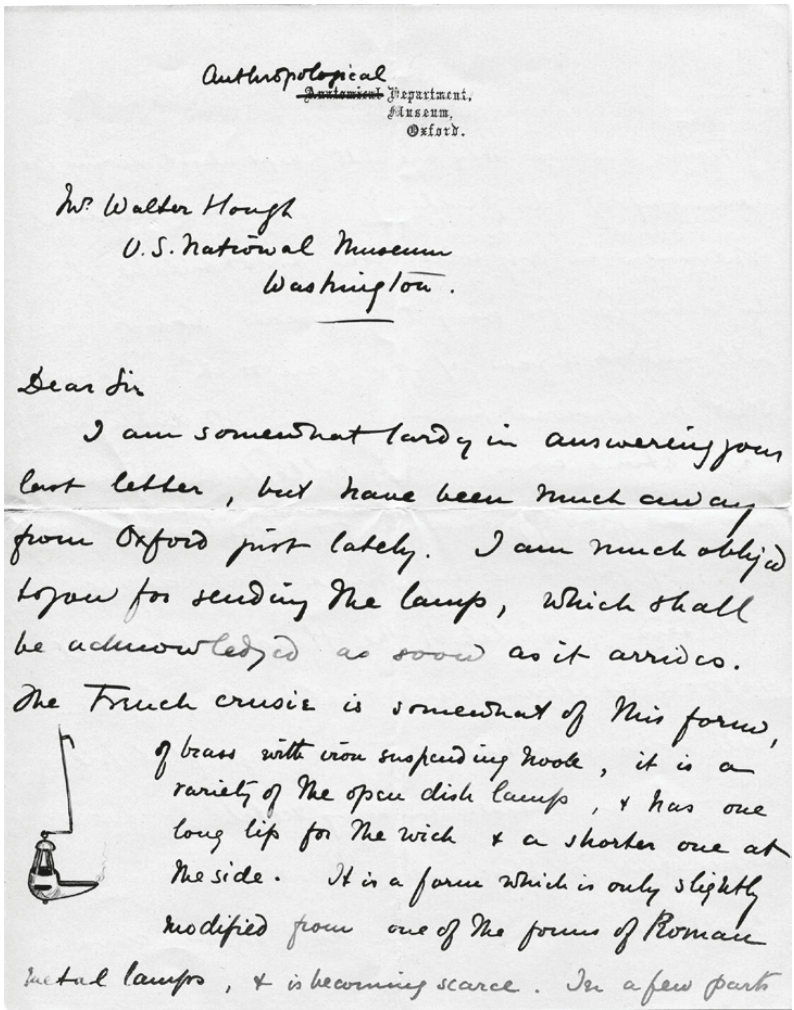


Figure 5.1 Excerpt from a letter from Henry Balfour to Walter Hough, 19 January 1890. The text surrounding the sketch reads: 'There is in the Museum an original Hindoo fire drill somewhat like this, and of a good size'. Courtesy: National Anthropological Archives, Smithsonian Institution, Records of the Department of Anthropology Manuscript and Pamphlet File, Folder 293.


Anthropological
~~Antiquities~~ Department,
Museum,
Oxford.

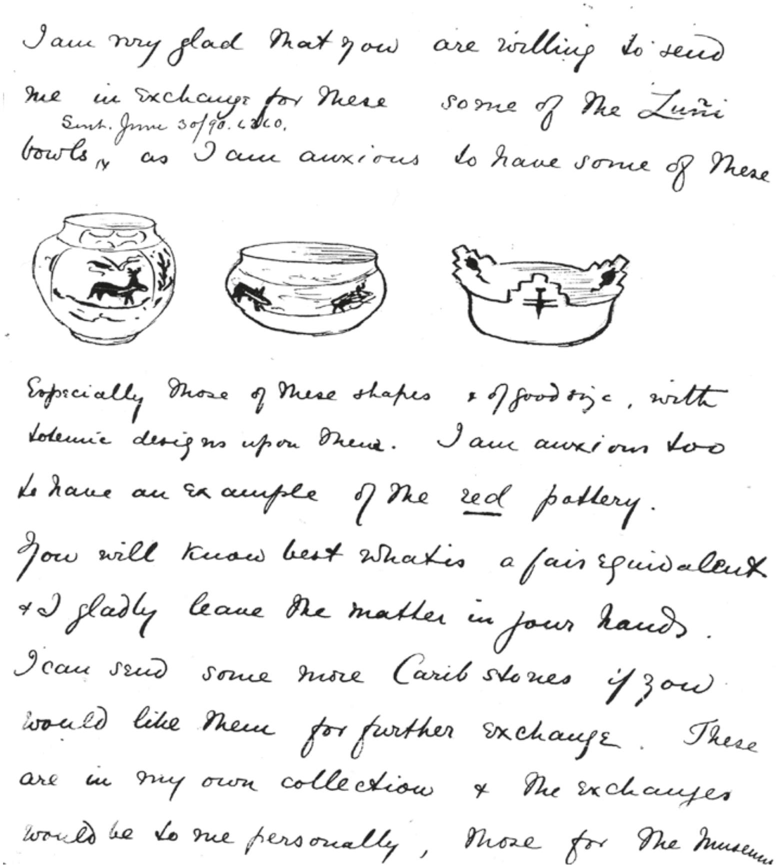
Dr Walter Hough
U.S. National Museum
Washington.

Dear Sir
I am somewhat tardy in answering your last letter, but have been much away from Oxford just lately. I am much obliged to you for sending the lamps, which shall be acknowledged as soon as it arrives.
The French crusie is somewhat of this form, of brass with iron suspending hook, it is a variety of the open dish lamps, & has one long lip for the wick & a shorter one at the side. It is a form which is only slightly modified from one of the forms of Roman metal lamps, & is becoming scarce. In a few parts

Figure 5.2 Excerpt from a letter from Henry Balfour to Walter Hough, 31 March 1890, containing a sketch of a 'French crusie' lamp. Courtesy: National Anthropological Archives, Smithsonian Institution, Records of the Department of Anthropology Manuscript and Pamphlet File, Folder 293.

The 'Great Palaeolithic War'

The first half of the nineteenth century was marked by a growing sense of scientific and cultural nationalism in the United States. American scientific and learned societies initiated exchanges of their publications


I am very glad that you are willing to send
me in exchange for these some of the Zuñi
Sent. June 30/90.
bowls, as I am anxious to have some of these.

Especially those of these shapes & of good size, with
totemic designs upon them. I am anxious too
to have an example of the red pottery.
You will know best what is a fair equivalent
& I gladly leave the matter in your hands.
I can send some more Carib stones if you
would like them for further exchange. These
are in my own collection & the exchanges
would be to me personally, those for the Museum

Figure 5.3 Excerpt from a letter from Henry Balfour to George Brown Goode, 5 May 1890, containing sketches of ceramics. Courtesy: Smithsonian Institution Archives, Record Unit 305, Accession no. 23266.

with European societies, hoping 'to demonstrate the validity of American research efforts and to enter into the global scientific communication network'.[32] The Smithsonian Institution took up much of this work in the latter half of the nineteenth century, establishing relationships with exchange agents spread across the scientific landscape. In 1848, Smithsonian Secretary Joseph Henry established the publication series *Smithsonian Contributions to Knowledge*, and began to identify a listing of foreign and domestic learned and scientific societies to begin a publication exchange programme. Over time, the International Exchange Service

was officially extended to exchange US federal documents with foreign governments, as well as natural history specimens in a more unofficial capacity.[33] Although the International Exchange Service was staffed and funded to ensure the extensive circulation of scientific publications, specimens were often slipped into the crates, and museum staff relied on exchange agents to ensure that they were delivered to exchange partners. International exchange of publications and specimens was instrumental in combating intellectual provincialism.

The 'Great Palaeolithic War', which took place between 1890 and 1897, is part of the extended intellectual debate surrounding the peopling of the Americas.[34] It has been chronicled in extraordinary historical detail by anthropologist David Meltzer, whose analysis demonstrates its relevance to the development of methodological advances and institutional infrastructures in the disciplines of anthropology and geology in the United States. These debates were waged at American conferences, but they also played out within the published literature, which invited a much broader, international audience into its orbit. I consider the employment of both images and duplicate specimens as illustrations, with specific attention to the ways in which American scientists on both sides of the debate illustrated their claims, presented through texts. I argue that even though artefact images were presented in close proximity to texts, museum-based anthropologists also waged this intellectual war through the circulation of duplicate specimens, relying on their ability to allow scientific bystanders to be convinced through examination of the specimens themselves.

The European Palaeolithic (Stone Age) had been discovered in 1859 in deposits of artefacts and extinct Ice Age fauna. By the 1870s, there was interest in establishing a comparable American Palaeolithic, via the comparison of artefacts similar in form. In short, the reasoning proceeded: 'if artifacts were similar in form they must be comparable in age'.[35] By 1889, support by American scientists for the veracity of the American Palaeolithic was strong, promoted by Harvard University's Frederic Ward Putnam, based on Charles Abbott's finds in the gravels of Trenton, New Jersey. Thomas Wilson, Smithsonian Curator of Prehistoric Anthropology was also a proponent of this model. It was in the following year, 1890, that everything would change, and the widely accepted American Palaeolithic hypothesis would come under 'withering fire' from William Henry Holmes of the Smithsonian Institution's Bureau of Ethnology.[36] Holmes's contributions were significant in that they denied the inference of antiquity based on artefact form.

Wilson's palaeoliths go to Oxford

In a letter dated 31 March 1889, predating the major challenge to the American Palaeolithic, Balfour thanked USNM Director George Brown Goode for the sending of a lamp, stating that he would be 'very glad to have some of the Paleoliths from [District of] Columbia in my department, I had in fact been thinking of writing to ask if a few could be spared for our series. I hope that they will be proved beyond doubt before long to be true Paleolithic implements.'[37]

Goode had likely offered Balfour specimens collected by Thomas Wilson that he had begun collecting in Washington, DC in 1887.[38] Balfour's hope that these would be proved to be true palaeoliths demonstrates that he was familiar with circulating ideas about human antiquity in the Americas. Edward B. Tylor, Professor of Anthropology at Oxford and Balfour's contemporary, had visited the Trenton gravels with Abbott in 1884, but he later admitted that he was unconvinced about Abbott's interpretation.[39] Furthermore, it revealed Balfour's professionalism and courtesy, as Wilson had previously visited Oxford and was assisting Balfour to secure the fire-making specimens – his primary research interest – from the Smithsonian.[40]

Wilson was a staunch supporter of the American Palaeolithic hypothesis. Immediately following his appointment as USNM curator in 1887, he took up the work of distributing and responding to Circular 36, which 'appealed to the archeologists of the various localities of the United States to give such information concerning the Paleolithic implements, their existence, plenteousness, and geographic distribution as they might be able'.[41] Wilson was hard at work establishing himself as an American Palaeolithic authority, using the Smithsonian's geographically expansive collections.[42]

A collection of palaeoliths collected by Wilson and promised by Goode in 1889 were sent to Balfour in February 1890. In his letter announcing the transmission, anthropology department head Otis Mason wrote:

> You will find in the same box [as a lamp] a few specimens of rude stone implements from the District of Columbia which will give great pleasure to Prof. Tylor. They were collected and are sent by Mr. Thomas Wilson, who has charge of our Department of Prehistoric Archaeology. Their great value lies in the fact that they are the objects which have hitherto been called palaelithic [*sic*] . . .[43]

Seven specimens, corresponding to four USNM catalogue numbers, were shipped to Balfour.

In this case, Wilson intended to send to the museum and anthropology department at Oxford specimens that evidenced the American Palaeolithic hypothesis. Both Balfour and Tylor would be able to examine the specimens. Tylor had seen Abbott's gravels, and would now see Wilson's collections from Piney Branch alongside his publications.[44] However, Wilson's palaeoliths had just been called into question in a new publication in the *American Anthropologist* by Wilson's colleague and government anthropologist William Henry Holmes. Indeed, Holmes had sent Balfour 24 flaked stones from Piney Branch workshops in June 1890.[45] These presaged the interpretive shift that was soon to follow.

Holmes's rejects

Everything began to change for the Palaeolithic hypothesis in September 1889, when Holmes began excavations on the Piney Branch site in Washington, DC – the very site from which Wilson had made surface collections two years earlier. Holmes was an artist with a keen interest in techniques of artefact manufacture. He had illustrated countless scientific reports, visited archaeological sites and studied collections, and although he could flintknap, he had not learned these techniques directly from Native Americans. Meltzer notes that Holmes's intellectual contributions were based on his ability to:

> probe the techniques by which prehistoric artisans fabricated their tools, and the dimensions of variability (whether technological, functional, or stylistic) in the products. He understood, as his contemporaries using a more strictly typological approach did not, that artifact form itself masked important and meaningful variability. He showed how two apparently distinct (and immutable) artifact types might actually be related to another, by virtue of their being different stages in the same chain of manufacture; and how the same forms could occur as both finished tools of one kind and as unfinished stages in the manufacture of other, more specialized tools.[46]

In short, Holmes rejected the American Palaeolithic hypothesis on the basis of what he understood as an incorrect interpretation of the relationship of artefact form to deep time.[47] His thinking was influenced

by Ernst Haeckel's popular explanation that 'ontogeny recapitulates phylogeny', meaning that as tools are made, they pass through early forms on their way to more specialised forms. Tool stages did not correspond to dates.

In his first article, published in the *American Anthropologist* in January 1890, Holmes takes up a discussion of chipped stone artefacts, known as 'turtle-backs', which had been used to suggest evidence of Palaeolithic populations based on simplicity or rudeness of form. In the article, Holmes leads the reader through the stages of tool manufacture from boulder to 'leaf-shaped blades'.[48] Whereas 'turtle-backs' were previously thought to be evidence of very early *finished* tool attempts, Holmes demonstrated that they were the stone material from which stone flakes were removed via striking boulders together. As Holmes argues, the process could go awry at any step. When this happened, the stone from which flakes were derived was 'thrown away and thus became part of the refuse'.[49] Rejects were not finished tools, but rather evidence of realities of tool manufacture. Because these were morphologically similar to European Palaeolithic artefacts, Abbott and his followers, such as Thomas Wilson, used them to suggest analogous human occupation. In the 1890 article, Holmes addressed the question of deep time succinctly but not exhaustively: 'The evidences of accumulation and excavation are still apparent upon the surface, and this indicates a date the remoteness of which is to be reckoned by centuries rather than by tens of centuries.'[50]

Artefact images

In addition to Holmes's detailed textual description of the manufacturing process, he prepared a single plate of artefact images that suggested 'a series of worked stones taken from this site, which represents every variety of product and epitomizes the entire range of form', and effectively all time.[51] The artefacts imaged therein are referred to as 'type specimens', and Holmes comments that the 'illustrations are one-half actual size and are far from satisfactory, as it is extremely difficult to secure good photographs of objects whose prevailing colors are greenish and brownish grays'.[52] Each artefact image is labelled with a letter, and Holmes refers to specific forms throughout the descriptive text. While the broad sides of the artefacts are presented via photography, the profiles are drawn.

Holmes's use of photography is responsive to its association with the provision of a '*realistic* impression of the subject'. However, as a medium

of archaeological representation, photography is disadvantaged because it is 'unselective'. Images created through drawing 'selectively portray' relevant details. Their 'real strength' lies in the 'amount of information they can convey, since several views and sections can show much more useful information than one or more photographs'. Thus, 'archaeological illustrations' are 'interpretive diagrams' created with the needs of the audience in mind.[53] Holmes's dissatisfaction with the way photographs conveyed the information relevant to the intellectual argument is connected to the importance of the format or medium (whether it be photograph, drawing or specimen) in evidencing a claim.

What exactly goes to Oxford?

The Smithsonian specimens sent to Balfour in 1890 were collected by Wilson, but Mason's letter accompanying them centrally positions them within the growing debate between Holmes and his pro-Palaeolithic opponents. In full, it read:

> Their great value [referring to the Piney Branch specimens collected by Wilson] lies in the fact that they are the objects which have hitherto been called palaelithic [*sic*], but which Mr. Holmes is sure are only the refuse of a boulder quarry that might have been worked by John Smith's Indians (See Am. Anthrop. Jan 1890).[54]

What Oxford was actually receiving were duplicate specimens beginning to be embroiled in the Great Palaeolithic War. These had been collected by Wilson at Piney Branch, so they were connected to his interpretive position through publications. But Holmes had more recently excavated the same site, and his arsenal of forthcoming articles was meant to revolutionise the interpretation of the specimens on their way to Oxford.

When the specimens finally arrived in Oxford in June 1890, the interpretive tides were turning. Balfour wrote to the USNM: 'I shall hope to be quite convinced with regard to them when I read Holmes' paper on the subject. I hope to get hold of this shortly.'[55] He did procure Holmes's paper and, upon inspection of Wilson's specimens, remarked to Holmes in September 1890 that:

> their resemblance to true European paleoliths is, it seems to me, comparatively slight, though it is very interesting to find that in the early stages the Columbian implements so nearly correspond

> with forms which we believe to have been the finished tools of Palaeolithic man. The, so to speak, 'embryonical' aspect is interesting and suggestive.[56]

Upon his inspection of the specimens themselves, and weighing both Wilson's and Holmes's interpretive positions, Balfour sided with Holmes.

As duplicates are most often discussed within practices of museum-based exchange and distribution, mobility is their most relevant feature. Duplicates are specimens in transit, or awaiting movement into new contexts, where they are likely to cease to be considered duplicate specimens, but rather simply specimens.[57] The specimens sent to Oxford are considered duplicates (alienable, exchangeable specimens), forming a part of the archaeological data from Piney Branch. What exactly they are evidence *of* hinges on their association with archaeological interpretation: Wilson's and Abbott's American Palaeolithic hypothesis, or Holmes's stages of tool development. As Balfour inspects and compares them, he decides which interpretation to associate the specimens with. Although objects are polysemous, the association of these objects with catalogue-based descriptions and associated publications serves to tie them to one interpretation. Later, Balfour's comparison and tactile inspection then tie them to another. Thus, duplicate specimens are illustrative, but the combination of their materiality and mobility demonstrates the instability of their illustrative nature.

Holmes's arsenal of articles (1890–1893)

Holmes's 1890 article was the first in a series of publications and scientific presentations that would upend a powerful scientific majority that sought agreement and consensus on the evidence for an American Palaeolithic. As Meltzer chronicles, the 1890 article and an 1891 presentation at the American Association for the Advancement of Science (AAAS) allowed Holmes to develop an argument replete with textual descriptions and artefact images. He sent his papers to Balfour, ensuring international colleagues were kept informed.[58] At the 1892 AAAS meetings, the two sides clashed. Holmes planned to present two papers on the American Palaeolithic. The first 'pronounced "a very large percentage" of Palaeolithic claims to be "defective or erroneous" since in most cases it had not been demonstrated the alleged palaeoliths were finished implements or found in secure glacial-aged contexts, nor had they been recovered by geologically competent individuals'.[59] The

meeting 'marked the beginning of the escalation of conflict' that Holmes would ultimately win.[60]

During the winter of 1892 and into 1893, Holmes published a landmark paper in *Science*, and then went on to take to task studies that had supported the Palaeolithic hypothesis, by reinterpreting the artefacts.[61] These efforts stirred up great scholarly arguments, which played out in *Science*, *Popular Science Monthly* and *American Geologist*.[62] The debate reached its pinnacle at the 1893 AAAS meeting, the result being that 'the American Paleolithic case had not been proven, and could not be accepted at face value'.[63]

Duelling duplicates at the fair

In 1893, the World's Columbian Exposition opened in Chicago. Within the federal government's displays, there were two exhibits, one designed by Wilson and the other by Holmes. Both used the same type of specimens to promote alternative interpretations. Wilson's display included archaeological material arranged chronologically, beginning with early Palaeolithic material from Europe. He interspersed American specimens that he considered 'similar in form, style, and manufacture to those of the Paleolithic Age of European countries'.[64] An exhibit on Holmes's Piney Branch excavation was nearby, with mannequins posed making stone tools and surrounded by turtle-backs.[65]

Although the single government exhibit contained material evidence used to argue both for and against the American Palaeolithic hypothesis, the majority of the interpretive war was waged in journals and at meetings. Competition for the public's attention at the fair was fierce, and the two exhibits were not meant to spark controversy. While Wilson and Holmes had publication venues available to make their interpretive positions more widely known, they also both made use of the Smithsonian's specimen exchange system to promote their ideas.

Wilson's educational series

In an effort to entrench his interpretive position, as well as to encourage widespread popular engagement with prehistoric anthropology,[66] Wilson capitalised on the Smithsonian's well-established practice of distributing sets of specimens from its 'educational series' to qualified schools, libraries and universities. Although a collection of duplicate specimens could always be specially assembled by the anthropology

department, it was far more efficient in terms of time and intellectual resources to arrange an educational series with multiple (and ideally standard) sets.

Wilson guided the assemblage of a series of casts of 'prehistoric implements' accompanied by an interpretive pamphlet (akin to museum-style labels).[67] The first two labels position his adherence to the Palaeolithic hypothesis through formal inference. The first label introduces the 'Paleolithic Age' in Europe, represented by three USNM specimens from England and France. The second label introduces the 'Paleolithic Age' in the United States, represented by two USNM specimens from Mount Vernon, Virginia. Wilson's word choice and tone indicate that this was indeed a hypothesis, requiring the student's examination:

> Implements similar in form, style, and mode of manufacture to those from other countries have been found in the United States, and they seem to indicate a similar stage of culture [evolutionary stage], though the contemporaneity of neither the implements, nor the stages of culture to which they belonged, has as yet been established so as to be universally accepted. Nor has the relationship of the man who made or used them on the two hemispheres been established. Yet the fact is undoubted that the implements are practically the same.[68]

Meltzer's analysis places the American Palaeolithic as at 'its core a visual argument, which is why American palaeoliths were frequently displayed and illustrated alongside European specimens'.[69] The pamphlet refers to another publication, published in the USNM Annual Report for 1888: 'A study of prehistoric anthropology: Hand-book for beginners'. This report (authored by Wilson) includes a more extensive version of the pamphlet labels but makes a similar comparison between European and American artefacts on the basis of formal similarity. The handbook is illustrated, allowing the reader to compare artefact images. Although shaded and presented in both frontal and profile view, the artefacts are still two-dimensional and separated by physical pages. Although both communicate the same interpretation, the handbook and the casts provided different phenomenological form-based comparison experiences. The casts allowed the recipient not only to see for themselves, but to feel for themselves. There was persuasive value in the multisensory object lesson.

The educational series of prehistoric implements consisted of 99 sets of casts. Distributions of these sets allowed Wilson to widely circulate

specimens projecting not formal similarity to Palaeolithic types, but formal verisimilitude. Casts could be physically handled, and the user had much more control over side-by-side comparisons. The first set was sent out in February 1892, and a total of 16 were distributed for the year. All were sent to domestic recipients, except for one, which was sent to University College, Toronto, Canada. In 1893, eight sets were distributed to domestic recipients.

International destinations

In 1894, 13 sets of casts were distributed, 3 of which were sent internationally to the Trocadero in Paris, the Manchester Museum in England and Peking University in China. A set was also sent to the Field Museum, along with a 'quarry group' excavated by Holmes.[70] Educational sets were largely meant for the edification of students in the United States. Public monies were spent to support their creation, so these needed to reach more domestic recipients before being distributed internationally. But Holmes and his supporters were gaining traction both at home and abroad. In 1894, Holmes had moved to the Field Museum to lead the anthropology department following the close of the World's Columbian Exposition. At the end of May 1894, the USNM sent to the Field Museum 'the Holmes Quarry Group' and pottery that Holmes had previously selected. Two weeks prior to this sending, Holmes wrote to Wilson, stating he would be 'greatly obliged and gratified if you will approve my request for a set of the casts of stone implements for the Columbian Museum'.[71] Holmes's intention for these specimens goes unstated, but most likely he wanted to procure a set for the Field Museum's collections. These were sent in June 1894.

On 23 July 1894, around the time that Wilson's casts would have been received at the Field Museum, Holmes wrote to Mason, following up on a plan to ship five boxes of quarry specimens to European museums. Holmes had probably initiated this plan in early 1894, around the time that Wilson's set of casts was sent to the Trocadero. Sending a set of quarry specimens to the Trocadero was Holmes's intention as well. Sets also went to the Pitt Rivers at Oxford, ethnographic museums in Berlin and Copenhagen, and the archaeological museum in Rome in August 1894. The sets contained:

> One series of chert implements, from near Seneca, Missouri, 30 specs.

One series of implements, from near Flint Ridge, Licking County, Ohio, 30 specs.
One series of novaculite implements, from near Hot Springs, Arkansas, 30 specs.
One series of quartzite implements, from Piney Branch, District of Columbia, 30 specs.
Five hammerstones, from Copper Quarries, Isle Royal, Michigan, 5 specs.

A letter from the Smithsonian Secretary was included with these sets:

> I take pleasure in announcing the transmission to ------ ------ ------ of a box containing a collection of specimens taken from aboriginal quarries in the United States of America. This collection is one of several of similar character which have been gathered and prepared for shipment by Mr. William H. Holmes, who for many years has been connected with the Bureau of American Ethnology of the Smithsonian Institution, and who has recently associated himself with the Field Columbian Museum in Chicago.
>
> Mr. Holmes is of the opinion that the so-called Paleolithic implements of America, representative specimens of which are included in this collection, are simply the refuse left by the aborigines in blocking out their chipped implements. His conclusions upon this subject have been published by the Anthropological Society of Washington, and in the 'American Geologist'.[72]

Duelling duplicates in Europe

Comparison of timelines indicates that Ernest-Théodore Hamy at the Trocadero would have received Wilson's cast palaeoliths in March or April 1894, and Holmes's quarry specimens in August or September of the same year. There was a broad literature arguing for the American Palaeolithic, and Wilson's casts were only accompanied by brief explanatory labels. Holmes mentions in his letter to Goode that he would write 'necessary explanation of the collections to each of the museums'.[73] Holmes may have done this, but any letter of explanation does not survive in the archive.[74] However, Holmes's intent to write an explanation emphasises that the persuasive efficacy of duplicates was enhanced by close association of textual interpretations.

Only some of Holmes's quarry specimens were clearly associated with existing publications, specifically those from the Piney Branch (Washington, DC) site.[75] The other specimens were not matched to any publications at the time, but they were excavated by Holmes himself. The specimens he sent from Licking County, Ohio and Seneca, Missouri were from the 1891–2 Bureau of Ethnology field season.[76] The specimens from Arkansas and Michigan were from his work during the 1892–3 field season.[77] These excavations were noted in the Bureau of Ethnology's annual reports, but Holmes had not had time to publish on them.

The recipients of Holmes's quarry specimens, which were the same kind of specimens being touted as American palaeoliths, were familiar with these debates as they unfolded in the scientific literature and at meetings.[78] The Secretary's letter cites Holmes's publications in *American Anthropologist* and *American Geologist*. Further, Holmes remarks to Goode that the 'whole investigation [of quarry specimens] is to appear in one of the forthcoming annual reports'.[79] The International Exchange Service would ensure that these reports made their way to Europe.

Holmes's Palaeolithic refutation

In the 1893–4 Bureau of Ethnology's annual report, Holmes published the paper 'Stone implements of the Potomac Chesapeake tidewater province' an exhaustive refutation of the American Palaeolithic hypothesis which made extensive use of artefact images. In his succinct statement of the problem, he emphasises the problematic use of comparison of artefact form to infer correspondence of date.[80] To support his interpretation, he notes that 'the full series of illustrations presented in this paper will enable the student to make comparisons and arrive at his own conclusions. Great care has been taken to arrange these illustrations so that they will tell the story clearly and fully.'[81]

Critical to note is Holmes's emphasis on the reader deciding for himself and arriving at his own conclusions upon seeing the illustrations. Although the images of artefacts (as well as excavation sites) were executed with care, and efforts were made to capture the planar variations through shading, two-dimensional renderings could not express the form of the artefacts. That required embodied, tactile engagements. Such engagements were not only critical in convincing colleagues, they were the basis for Holmes's initial experiential understanding. It was Holmes's embodied engagements with manufacturing processes that led him to see these artefacts not as finished forms to be slotted into

dominant schemas of formal typologies, but rather unfinished forms, evidences of the process of making. The development of the final form requires progression through manufacturing stages, beginning with the earliest form.

Conversely, although artefact images lacked the immediacy of total form, they allowed Holmes to place representative specimens in spatial relation to one another to demonstrate his interpretation of the manufacturing process. We might contrast this two-dimensional yet visually communicative presentation with the impression generated by receipt of a physical box of specimens, packed for ocean transport. Upon opening, these would have been somewhat disorderly, surely lacking the same immediate effect of ordered comparison. As evidence presented within the context of a raging intellectual debate, the illustrations – texts, images and duplicates – work in tandem to persuade the reader, the viewer and the handler.

Object lessons

Holmes was not the only scientist who acknowledged the persuasive and pedagogical power of direct material engagement, although he was lauded as a 'magician at making silent objects speak and reveal the complex yet coherent organizational structure invisible beneath their surface'.[82] The study of natural and cultural objects was a necessity for a particular pedagogical approach that took root in the United States in the mid-nineteenth century, the object lesson. In contrast to its current usage, the nineteenth-century object lesson was based on examination in which the student 'learns to perceive', rather than simply acquires information about the object or objects under investigation. This approach originated in England, where students moved through a series of steps in which they would begin with close observation, identification of determinative qualities, and sensory engagement, and then move on to classification and written description or synthesis. Here, students were taught 'how to experience' objects 'more fully'.[83] Multisensorial engagements were key to developing interpretations that went beyond formal typologies.

Meltzer's detailed account of the Great Palaeolithic War emphasises the importance placed on direct, visual inspection by specialists. Time and again, specimens were produced at meetings in the context of the American Palaeolithic debate in order to try and sway both critics and the undecided. Visits to European museums to look at European palaeoliths 'firsthand' cast doubt on the veracity of Abbott's claims.[84]

John Evans's in-person inspection of the Trenton palaeoliths at the 1897 British Association for the Advancement of Science meeting, and his resulting negative pronouncement on Abbott's hypothesis, led to 'many proponents' drifting away from the 'American Paleolithic fold'.[85] For Evans, direct, material examination was necessary, as his own experiences in pioneering the field of Palaeolithic archaeology in Britain and Europe underscored the importance of witnessing in-situ finds, as well as close assessment of implements in order to identify forgeries.[86]

Direct experience with specimens was critical for new knowledge production methods. School museums provided ready access and close handling of specimens, allowing educators to achieve a variety of pedagogical agendas through object lessons (as also discussed in the chapters by Laura Newman and Sally Gregory Kohlstedt).[87] These pedagogical practices were in line with educational reform movements in Britain and the United States, such as the nature-study movement, which relied on 'object lessons and experience-based education'. Taking root in the 1890s, it was seen as an efficacious alternative to 'textbook teaching'.[88] Getting specimens into the hands of specialists and students alike was partially realised through specimen exchange and distribution practices, and both the Smithsonian Institution and the Royal Botanic Gardens, Kew pursued specimen dispersals to schools in a systematic format in the mid-1880s.[89] Duplicate specimens were not merely illustrative: in relation to other modes of illustration – text and images – they were increasingly viewed as instructive and persuasive in their own right. They were not only indexical signifiers of types, but, through their circulation, acted as efficacious teachers.

The global circulation of objects in scientific contexts mirrors the movements of those involved with exploration, commerce and political expansion. These networks, facilitated by transportation and communication technologies, brought together a variety of institutions as well as individuals: scientists, curators, collectors, educators, missionaries, local traders, retailers, soldiers and politicians. But it was the nineteenth century that saw a marked increase in public and private collecting, manifested in 'a vast geographical web of sales and exchanges', bringing individuals from different social groups into more regular interactions.[90] Increasing rates of specimen circulations relied on the 'globalizing logistics of international trade', which entangled innumerable local natural and cultural material environs through economic and ideological means.[91] The circulation of duplicate specimens constitutes a small part of this much larger industry, which expands further with the addition of the circulation of scientific texts

and images. Attention to the particularities of these circulations, with respect to the refinement of museum collections as well as efforts to evince knowledge claims, suggests that the value of duplicate specimens is associated with their representational effectiveness, which is centrally and primarily dependent on their mobility.

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Notes

1. Sheets-Pyenson, 'How to "grow" a natural history museum'.
2. Bennett, *Pasts Beyond Memory*.
3. Thomas, 'Compiling "God's great book"', 5.
4. Philp, 'Hedley takes a holiday', 270.
5. Field Columbian Museum, *Annual Exchange Catalogue*, 5, 9.
6. Bjerregaard, '"Doubletten"', 187; Driver and Ashmore, 'The mobile museum', 365.
7. Nichols, 'A century of circulation'.
8. Mason, 'Basket-work', 293.
9. Mason, 'Basket-work', Plate 2. US National Museum anthropological specimens illustrated in publications were considered type specimens.
10. Knappett, 'Neglected networks'.
11. Daston and Galison, 'The image of objectivity', 85.
12. Daston and Galison, *Objectivity*, 58.
13. Daston and Galison, *Objectivity*, 69.
14. Stevenson, 'Illustrated catalogue'.
15. Rudwick, 'Picturing nature', 303.
16. Daston and Galison, *Objectivity*, 109–11. See also Daston, 'Type specimens'.
17. Daston and Galison, 'The image of objectivity', 83.
18. Oxford English Dictionary online, 'illustration', (http://www.oed.com, accessed 20 September 2019).
19. Ogilvie, *The Science of Describing*.
20. Baudrillard, *Simalacra and Simulation*, 6.
21. The British spelling of the term 'Palaeolithic' is used throughout this chapter (except in direct quotations and titles, where I use exact transcriptions).
22. In 1890, specimens from the Pitt Rivers Museum were not authorised to be exchanged, so Balfour offered duplicates from his personal collection. This prohibition was lifted by 1891.
23. Gosden and Larson, *Knowing Things*, 68–73.
24. Between 1889 and 1892, there are 14 letters from Balfour addressed to Hough, or included in Hough's papers in the Manuscript and Pamphlet File at the National Anthropological Archives.
25. Penaloza Patzak, 'Guiding the Diffusion of Knowledge', 120.
26. Geismar, 'Drawing it out', 99.

27. Balfour to Wilson, 31 March 1890, Folder 293, Manuscript and Pamphlet File (MPF), National Anthropological Archives (NAA).
28. Balfour to Goode, 5 May 1890, Accession no. 23266, RU 305, Smithsonian Institution Archives (SIA).
29. Balfour to Wilson, 31 March 1890, Folder 293, MPF, NAA.
30. Balfour to Wilson, 31 March 1890, Folder 293, MPF, NAA.
31. Isaac, 'Anthropology and its embodiments'.
32. Gwinn, 'The Library of Congress', 108.
33. Gwinn, 'Agents of exchange'.
34. For an extended history of this debate, see Meltzer, *Great Paleolithic War*.
35. Meltzer, *Great Paleolithic War*, 3.
36. Meltzer, *Great Paleolithic War*, 3.
37. Balfour to Goode, 31 March 1889, Folder 293, MPF, NAA.
38. See Meltzer, 'Destiny', 122. Ironically, Goode formally requested these specimens from Holmes, as Balfour was also looking to exchange for Zuni pottery. Goode to Holmes, 18 April 1890, Box 1, RU 7084, SIA.
39. Meltzer, *Great Paleolithic War*, 76.
40. See Balfour to Wilson, 9 October 1899, Folder 293, MPF, NAA.
41. Wilson, 'Report on the Department of Prehistoric Anthropology', 124.
42. Wilson, 'Results of an inquiry'.
43. Mason to Balfour, 26 February 1890, D6178, RU 186, SIA.
44. Wilson, 'The Paleolithic period in the District of Columbia'.
45. Notes on D6360 sent 30 June 1890 are filed in Accession no. 23266, RU 305, SIA.
46. Meltzer, *Great Paleolithic War*, 174.
47. Meltzer, *Great Paleolithic War*, 122, points out that at the Anthropological Society of Washington meeting in April 1889, Putnam's remarks as discussant challenged the idea that form alone was an indicator of artefact age.
48. Holmes, 'Quarry workshop', 11.
49. Holmes, 'Quarry workshop', 12.
50. Holmes, 'Quarry workshop', 20.
51. Holmes, 'Quarry workshop', 11.
52. Holmes, 'Quarry workshop', 11.
53. Adkins and Adkins, *Archaeological Illustration*, 5–7.
54. Mason to Balfour, 26 February 1890, D6178, RU 186, SIA.
55. Balfour to USNM, 10 June 1890, Accession no. 23266, RU 305, SIA.
56. Balfour to Holmes, 9 September 1890, Box 1, RU 7084, SIA.
57. Nichols, 'Exchanging anthropological duplicates'.
58. Balfour to Holmes, 29 February 1892, Box 1, RU 7084, SIA.
59. Meltzer, 'Destiny', 175.
60. Meltzer, 'Destiny', 176.
61. Holmes, 'Traces of man in the Trenton gravels'; Holmes, 'Stone implements'; Holmes, 'Traces of glacial man in Ohio'; Holmes, 'Vestiges of early man'.
62. Meltzer, 'Destiny', 180.
63. Meltzer, 'Destiny', 180.
64. Goode, 'Report of the Assistant Secretary', 133.
65. Meltzer, 'Destiny', 185.
66. For example, see Wilson, 'Study of prehistoric anthropology'.
67. Smithsonian Institution United States National Museum (SI USNM), *Labels*.
68. SI USNM, *Labels*, 4–5.
69. Meltzer, *Great Paleolithic War*, 411.
70. Sent on 19 June 1894, D8435, RU186, SIA.
71. Holmes to Wilson, 18 May 1894, D8435, RU 186, SIA. The letter from the Smithsonian Secretary contained in D8435 is notated as a draft letter, so the final wording may have differed.
72. D8513, RU186, SIA.
73. Holmes to Goode, 23 July 1894, D8513, RU186, SIA.
74. No letter from Holmes was located in the archives at the Pitt Rivers Museum.
75. Holmes, 'Quarry workshop'.
76. Powell, *Thirteenth Annual Report*, xxvii.

77. Powell, *Fourteenth Annual Report*, xxxv.
78. See Meltzer, *Great Paleolithic War*, 76, for evidence of E. B. Tylor's familiarity with the American Palaeolithic.
79. Holmes to Goode, 23 July 1894, D8513, RU186, SIA.
80. Holmes, 'Stone implements', 13.
81. Holmes, 'Stone implements', 15.
82. Meltzer, *Great Paleolithic War*, 412.
83. Carter, *Object Lessons*, 2–3.
84. Meltzer, *Great Paleolithic War*, 172.
85. Meltzer, *Great Paleolithic War*, 190.
86. Gamble and Moutsiou, 'Time revolution of 1859'; Lamdin-Whymark, 'Sir John Evans'.
87. Newman and Driver, 'Kew Gardens'.
88. Kohlstedt, 'Nature, not books', 324.
89. Cornish and Driver, '"Specimens Distributed"'.
90. Coote et al., 'When commerce, science, and leisure collaborated', 323.
91. Coote et al., 'When commerce, science, and leisure collaborated', 324.

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6

Expeditionary collections: Haslar Hospital Museum and the circulation of public knowledge, 1815–1855

Daniel Simpson

To those engaged in the painstaking task of recovering the lost provenances of museum objects, it has long been obvious that significant work remains to be done in investigating the provenances of museums themselves. Surprisingly little is known of precisely how the open, orderly and capacious 'national' museums of the present emerged from Britain's dense catalogue of transient and circulating collections, or indeed of how museums became 'public'.[1] A legacy of nineteenth-century efforts to systematise and assimilate imperial collections, this paucity of understanding is actively unhelpful to discussion of the role and future of museums today. Collections wrongly assumed to have been historically fixed and stable find their diverse meanings and interpretive potentials disavowed; the role of many collecting institutions as, in effect, 'museums of museums' is too often forgotten or left unexplored.

This chapter examines the origins of this conflict between unity of place and diversity of meaning, by exploring four decades of nineteenth-century debate over the fate of the British Royal Navy's expeditionary collections, and its influence over the rise of the Victorian public museum model.[2] I focus upon the function of the naval medical department's Haslar Hospital Museum, founded in 1827, as an early and highly influential infrastructure for expeditionary collecting and the public circulation and display of natural history and ethnographic specimens. As a forerunner to the specialised, utilitarian and democratic museological missions implicit in the establishment of the Museum of Practical Geology in 1835, Kew's Museum of Economic Botany in 1847,

and the commencement of efforts to find a privileged space for the British Museum's natural history exhibits in the late 1850s, Haslar Hospital Museum helped in large part to forge nineteenth-century understandings of museums as public and imperial research infrastructures. Today, the museum exists only in the form of its surviving collections, now deposited within the British Museum and Natural History Museum.

Although historians have commented extensively upon the social and material constitution of expeditionary voyages, and the scientific research performed upon them, relatively little is known of the particular constitution, and afterlives, of the vast specimen collections almost invariably acquired in the process.[3] This chapter understands such 'expeditionary collections' as assemblages subject to a peculiar set of contemporary rules and bureaucratic structures; as things capable of maintaining a particular valuation, and logic of movement, irrespective of changes in time and space. As I explore below, a distinguishing feature of naval collections made under the aegis of state-funded voyages of survey and discovery was the degree to which they were in consequence imbued with lasting expectations regarding their utility and circulation, sometimes retroactively enforced. As 'public' specimens acquired according to the dual 'etiquette of discipline' imposed first by shipboard hierarchies, and then by the Admiralty at large, naval collections moved according to the mercy of the state and navy's key facilitating infrastructures: custom houses, dockyards and service hospitals possessing a double role as research centres. It was for these reasons that early to mid-nineteenth-century contests over the public ownership of collections, the privilege of conducting scientific research and the designation of 'national museums' often coalesced around questions of relative access to the navy's ostensibly disciplined, reliable and regular supply of new specimens.

Shortly after its creation, Haslar Hospital Museum – known also as the Admiralty Museum, and the Museum of the Navy Medical Department – was designated by the Admiralty as an official, and to a large degree the default, destination for scientific collections made by nineteenth-century British naval surveys.[4] The hospital's ability to supply expeditions with a steady stream of surgeon naturalists and collectors, whom the Admiralty and its captains generally favoured over civilian scientists, permitted it considerable control over the development of expeditionary collecting and research. Elsewhere, I have offered a broad outline of Haslar Hospital Museum's early growth, and eventual decline.[5] This chapter deepens this discussion with a closer investigation of the politics and policies through which Haslar's relationship with other collecting institutions developed.

By way of a brief introduction, the naval hospital itself was founded in 1753 on a peninsula south of Gosport, near Portsmouth. The surrounding area was then, and remains still, a dense hub for Britain's commercial, exploratory and defence infrastructures, and Haslar thus became a key passing point in the departure and return of major expeditions. The museum and an associated library were founded in 1827; between then and 1855, they remained under the control of their progenitor, the naval physician William Burnett, but were closely supervised, from 1838, by the surgeon, naturalist and Arctic explorer John Richardson. From almost the moment the museum opened, Haslar's natural history and ethnographic collections grew with such rapidity that the museum became a key destination for public and scientific visitors, all of whom were admitted freely and without discrimination. The museum's surviving Visitors' Books record its success in bringing together a broad public, as well as elites from diverse fields, including James Cowles Prichard, Charles Darwin and Richard Owen.[6]

Altogether, approximately ten thousand visitors passed through the museum's doors before the reorganisation of its collections, and the closure of its books, in 1855.[7] In June of that year, the bulk of Haslar's antiquarian, ethnographic and natural history specimens were transferred to the British Museum, where more than five hundred associated objects now remain. As a former department of the British Museum – it was known as the 'British Museum (Natural History)' until 1963 – the Natural History Museum in turn now holds approximately 1,700 zoological specimens originating from Haslar, including 53 holotypes. Although Haslar Hospital Museum survived this loss of the majority of its non-medical collections, it never regained its prominence as a major research institution. Destroyed in their entirety by a German bombing raid in the Second World War, the museum and library at their height occupied six separate rooms in the hospital's south-east wing, totalling approximately 457 square metres (Figure 6.1).[8]

Peacetime collecting for the 'public good'

The conditions that made possible the emergence of Haslar Hospital Museum and associated initiatives in the early nineteenth century arose in a period seldom since frequented by historians of museum collecting and imperial exploration. The peacetime years that immediately followed the cessation of the Napoleonic Wars in 1815 fall just beyond the scope of historical interest in Victorian Britain's fascination with public museums.

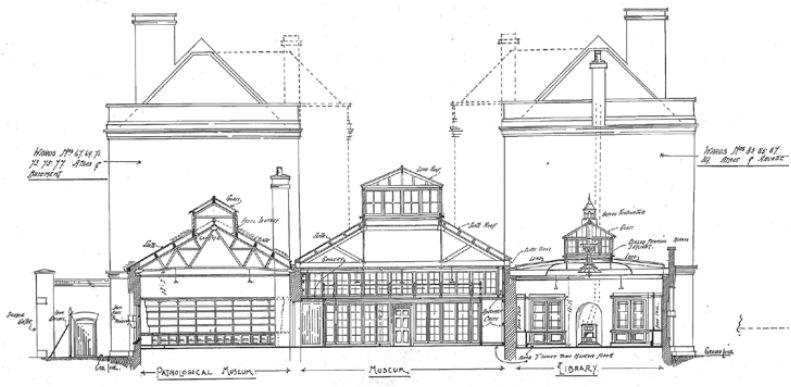

Figure 6.1 Section of Haslar Hospital Museum and Library, drawn in 1904. © The National Archives (WORK 41/236).

This period is also overshadowed by a literature on expeditionary science that has for many good reasons preoccupied itself with the late eighteenth-century voyages of James Cook, on the one hand, and the extensive scientific ventures of the late nineteenth century on the other.[9] Contemporaries themselves acknowledged the ambiguous and transitive nature of this intermediary period, wherein the arrival of an influx of new expeditionary collections signalled the end of a long dearth in official exploratory efforts, first brought about by Britain's declaration of war on France in 1803.[10]

One of the most important factors in the subsequent circulation of these specimens was the replacement, as the Admiralty's unofficial director of expeditionary exploration and scientific collecting, of the President of the Royal Society, Joseph Banks, with the Second Secretary to the Admiralty, John Barrow. The latter differed both in his background, as the Lancashire-born son of an itinerant tanner, and in his enduring desire to increase public knowledge of imperial exploration, at the expense of catering to aristocratic patronage: 'I am and always have been a great advocate of laying before the public every kind of information transmitted by public servants,' Barrow wrote to the politician and colonial governor Robert John Wilmot-Horton, in 1818; 'I am sure it is attended with good consequences.'[11] Here, Barrow echoed the language of contemporaries such as Thomas Hurd, the Admiralty Hydrographer, who recognised the latent threat posed to naval funding by the new era of peace, and thus the strategic importance of making scientific and other reforms that favoured an always loosely defined 'public good'.[12]

Preparations for the first major expedition of the post-Napoleonic War period, James Hingston Tuckey's 1816 exploration of the Congo, demonstrated the considerable importance accorded to serving the public in these years. Tuckey was the first of many naval captains to receive explicit instructions, written by Barrow, to return 'two specimens' of everything he collected 'to the Admiralty, for the use of the public'.[13] Barrow's desire to democratise the scientific remit of the expedition was likewise apparent in a series of letters sent to persons including Thomas Harrison, secretary of the abolitionist African Institution, through which Barrow sought advice on the subjects Tuckey and his crew should pursue. The most prominent of the several explorers and collectors then belonging to the Institution was its vice-president, George Annesley, the 2nd Earl of Mountnorris, who was regarded as a particular authority on Africa, and specimen-based investigations. A detailed questionnaire thereafter issued to Tuckey by the African Institution, the basis of Annesley's and others' suggestions, and the first of its kind to be commissioned for a British expedition, remained in circulation in various forms for decades thereafter, as a model set of instructions for directing ethnographic and natural history collecting on naval surveys.[14]

Barrow notably expanded expeditionary collecting beyond the researches into botany, geology and zoology that had long since distinguished naval expeditions directed by Banks; in so doing, he widened both the demographics of collecting, and its prospective audience. Tellingly, Barrow condescended to involve Banks in Tuckey's expedition only as a sign of respect: 'In all these arrangements, with regard to the scientific part,' he wrote to Henry Goulburn, Under-Secretary of State for War and the Colonies, in January 1816, 'I have thought it right to take Sir Joseph Banks along with me.'[15] Banks was content to play a low-key role: 'Your letter has made my old blood circulate with renewed vigour,' he wrote, upon receiving a request for assistance from Barrow; 'If any thing will cure me of the gout it must be the pleasure I derive from finding our Minsters mindful of the credit we have obtained from Discovery.'[16]

The potential for Haslar Hospital and its surgeons to assist in this newly expansive and enthusiastic period of naval collecting and research was acknowledged by Banks, Barrow and the Admiralty's Transport Board as early as November 1815, when James Veitch, a surgeon at Haslar, was nominated as Tuckey's naturalist.[17] Veitch's brother, John, and his nephew, James, were then renowned nurserymen and plant collectors; these connections brought him to official prominence, and it seems likely that Veitch had long since used his access to Haslar's other surgeons, and the navy's expeditions, to source plants for the horticultural trade.[18]

The idea for establishing a formal naval museum at Haslar was, however, borrowed from the British Army. A folio printed in 1824 recorded how the 'Museum of the Army Medical Department', at Fort Pitt Hospital in Chatham, had been founded as a direct consequence of the 'new period of profound peace' that followed the Napoleonic Wars. The unnamed author goaded the navy for its own slow progress in achieving the same: 'We are most happy to inform our brethren', they wrote, 'especially of the naval department, that, through the exertions of the present medical commissioners of the navy, similar establishments are forming at Haslar and Plymouth . . . this is as it ought to be – to have long been – but better late than never.'[19]

Although well informed, the report was premature. The first official appeal for the construction of museums at Haslar and the Royal Naval Hospital Stonehouse, Plymouth, was made on 1 March 1825, through a letter sent to Barrow's immediate superior, the Admiralty Secretary John Wilson Croker.[20] The letter was written by William Burnett, then the navy's Inspector of Hospitals, and countersigned by two other members of the Victualling Board, which was then responsible for the navy's medical officers: Granville Anson Chetwynd Stapylton and John Wolley. A second and more detailed appeal for a museum at Plymouth was subsequently made to Croker on 1 November 1827, through a proposal written by Burnett and sent with the approval of the Victualling Commissioners John Weir, Nicholas Brown and Frederick Edgcumbe.[21]

A senior Scottish naval physician educated at the universities of Edinburgh and St Andrews, Burnett (Figure 6.2) had been appointed to the Victualling Board, and by implication as virtual head of the naval medical department's affairs, in 1822. He would later become the department's first Physician-General, in 1835, and its first Director-General, in 1844. Burnett's successful proposal for the establishment of museums and libraries at Haslar and Plymouth hospitals was premised, he declared, on 'the promotion of science, and diffusion of knowledge among the medical officers of the navy'.[22] Having been forced to disrupt his own early medical studies on more than one occasion, Burnett emphasised the value that hospital museums and libraries would bring as a means to allow surgeons to keep abreast of new scientific developments, and to correct gaps in their knowledge.

The surgeon was equally concerned, however, to allow his colleagues to develop their long-standing professional expertise in the study of natural history and ethnography – fields that had long since been considered to intersect the boundaries of medical education and research.[23] Burnett's 1825 proposal suggested that the museums,

Figure 6.2 Portrait of Sir William Burnett. Courtesy: Wellcome Collection.

although intended principally as collections of pathology and morbid anatomy, 'might also be made the receptacle of Donations illustrative of the sciences of medical botany, natural history, or mineralogy; by which [their] utility would be much increased'.[24] As 'regards subjects of Natural History', Burnett continued, in his 1827 proposal for Plymouth, 'I find no difficulty in procuring them from the different surgeons of the Navy who visit officially or otherwise the various quarters of the globe'.[25] Through his surgeons, and perhaps Veitch in particular, Burnett had therefore begun already to amass diverse natural history collections; these had long since been haphazardly deposited in Haslar's cupboards and storerooms.[26]

In truth, medical collections were never intended to form the principal focus of Haslar Hospital Museum. By 1833, less than 5 per cent of Haslar's 7,659 enumerated objects bore any relation to pathology or anatomy; 6,215 were natural history specimens, of which 2,500 (evidently an estimate) were plants, 600 were minerals and 3,115 were animal remains of various sorts (Figure 6.3). Of antiquarian and ethnographic subjects (the latter designated 'rude arts'), the museum exhibited 478 and 620 examples respectively.[27] It was this aspect of Burnett's efforts that would bring him the most acclaim; in November of that year, the surgeon was elected a Fellow of the Royal Society

Figure 6.3 The 'Bird, Insect and Shell room' constructed above the principal room of Haslar Hospital Museum in 1850. Reproduced by permission of the Archive of the Haslar Heritage Group.

in recognition of his success as an 'Institutor of a museum of *Natural History* at Haslar Hospital'; his proposers included numerous elites in the navy and its medical service, including Barrow, Gilbert Blane and Francis Beaufort.[28] Shortly thereafter, on 1 June 1835, Burnett reformed the regulations governing the entry of surgeons into the naval medical service by requiring all prospective candidates to have studied botany for at least six months.[29] In consequence, the broader scientific functions of the museum, and the expertise of Burnett's surgeons, became more closely aligned.

Burnett's elevation to the Royal Society, and the parallel success of Haslar Hospital Museum, expressed the deeper national significance which the collection, although only six years old, had already acquired. There are revealing chronological and other similarities between its development and that of comparable naval and scientific institutions in Europe and America. In 1825, a similar impulse to enhance the peacetime function and prestige of the United States Navy saw the foundation of a dedicated school for sailors and midshipmen at Brooklyn Naval Yard, New York. In 1833, this became the site of the United States Naval Lyceum – an institution which promoted the diffusion of knowledge among naval officers through the establishment of a 'Museum of Natural History, Curiosities &c'.[30] The year 1827 also witnessed the establishment of the Musée de la Marine at the Louvre, in Paris, in fulfilment of a proposal first made in 1818 by Louis-Mathieu Molé, then France's Minister of the Navy and Colonies. Although it also exhibited ship models and navigational instruments, the Musée de la Marine was intended as a destination for ethnographic specimens, or 'les produits curieux des contrées nouvellement découvertes', which would provide what has since been described as a living record, or a 'sorte d'actualité vivante', of France's colonial and maritime discoveries.[31] In remarks that might also be applied to Haslar, Ralph Kingston has argued that the Musée de la Marine replicated the expeditionary cultures of ethnographic enquiry found on French voyages of discovery.[32]

The origins and fortunes of Haslar Hospital Museum can accordingly be read in terms of a race for prestige fought between, among others, the British, French and American navies; all were motivated by the peacetime resumption of maritime exploration, and an associated desire to promote and improve the expertise of their sailors. The value of the Haslar and Plymouth museums to Britain's national reputation was articulated in 1837, when the Plymouth-based naval surgeon Robert Armstrong, to whom Darwin had sent *Beagle* specimens some years earlier, observed that the museum's establishment had prevented 'intelligent foreigners' from making 'the ironical remark, "that the English

send officers to survey unknown coasts, but make no provision, by the employment of competent persons, to bring us acquainted with the natural productions of those distant regions"'.[33] The more deliberate, and intellectually disciplined, research efforts through which French naval explorers such as Louis Isidore Duperrey and Louis de Freycinet had by this stage come to be distinguished appear, among Armstrong and others, to have been a sore point. Such, indeed, was the long-standing success of French expeditionary exploration and affiliated publishing that British naval explorers often relied intimately upon the instructions and conclusions of their rivals. In 1842, a Haslar surgeon and collector onboard the surveying vessel *Fly*, Archibald Sibbald, for instance brought with him copious notes taken from instructions first written in 1785 by the Paris Society of Medicine, and supplied to the ill-fated French naval officer Lapérouse.[34]

Contemporary innovations in international relations and trade also played a role in the development of Haslar's collections. Anne Coote, Alison M. Haynes, Jude Philp and Simon Ville have recently explored how developments in taxidermy, taxonomy, transport, logistics and exchange networks stimulated a 'nineteenth-century global trade boom in natural history collections'.[35] An equally significant factor in the growth of British museum collections can be found, however, in a series of changes made to the early nineteenth-century tariff duties applied to imported natural history and ethnographic specimens.

After Britain established a single Board of Excise and Board of Customs in 1823, the Treasury reformed its processes for assessing scientific specimens at the nation's custom houses. Natural history and ethnographic specimens had previously been taxed as so-called 'unmanufactured' and 'manufactured' articles, at *ad valorem* duties of 20 per cent and 50 per cent respectively.[36] Under this regime, collectors had to declare the marketable value of their specimens, and taxes were calculated as a percentage of this sum; should collectors' estimates of marketable value be deemed too low, customs agents possessed the power to seize specimens, and to compensate their collectors with a payment commensurate with whatever these officials perceived to be the items' true worth.[37] The value of specimens was in consequence artificially increased; early nineteenth-century collectors often found that bureaucratic and tariff barriers made it too expensive, and difficult, to pursue international exchange relationships, or indeed to import their own collections into Britain.[38]

Following the creation, in 1823, of a specific category of taxation for 'Specimens Illustrative of Natural History', qualifying 'articles' faced

a standard duty of merely 5 per cent of their estimated value.[39] This change, although unexplored by historians of science and collecting, undoubtedly had a considerable impact on the type and volume of specimens that subsequently entered the country, and thus upon collectors' decisions about what things were worth acquiring in the first place.[40] In 1824, the Treasury expanded the 'Specimens Illustrative of Natural History' category to include 'stuffed birds, and other stuffed animals', thus substantially reducing the tariff on taxidermal specimens, which had previously been treated as 'manufactured' articles, subject to the 50 per cent rate.[41] At the same time, however, the *ad valorem* tariff for 'manufactured articles' was lowered to 20 per cent.[42]

Burnett's early efforts to establish a museum at Haslar were accordingly aided by an upturn in the volume of natural history and other specimens then entering Britain's ports. The disproportionate representation in the museum's early collection of those things permitted entry at a minimal duty suggests that he and his collectors took advantage of the Treasury's attempt to stimulate the circulation of scientific specimens, in line with the Admiralty's own post-war promotion of expeditionary and other maritime collecting. Of further use was the fact that this reduction in duties had been preceded, from 1818 onwards, by a series of practical reforms of the procedures in place for moving specimens through custom houses. A Minute from the Board of Customs dated 15 December 1819, for instance, instructed revenue officers to take 'every possible care . . . to prevent injury to Objects of Science and Natural History', and never to open packages without an appropriate witness.[43]

The Treasury simultaneously expanded the variety of things for which duties could, on special application, be waived altogether. Of particular importance to ethnographic specimens was a series of orders permitting things which fell under the category of 'manufactured articles', but which might also be described as 'curiosities', to be considered eligible for duty-free waivers, in cases where a sufficient argument could be made in favour of their utility or scientific status.[44] This was a cogent, and indeed a literal, example of what Nicholas Thomas has described as the ambiguous and conditional 'licensing' of certain forms of scientific curiosity.[45] On 26 May 1820, for instance, the Treasury instructed that when objects were ordered to be delivered, free of duty, 'under the general denomination of curiosities', the 'Principal Officers [must] report to the Board a particular description of the articles to be delivered in order that the Board's sanction may be obtained'.[46]

Commonly referred to as 'Treasury Orders', duty-free waivers reinforced Barrow and Croker's efforts to redefine expeditionary

specimens as public property by placing strict limitations on the use, sale and movement of collections permitted to enter the country for free. Applications for waivers from naval servicemen arrived in such magnitude that the record-keepers of the Board of Customs awarded them dedicated headings, indexes and tables. The most successful applications tended to be those which promised to deposit the best if not all of the specimens concerned in a 'public museum'.[47]

Collections specifically destined for Haslar were granted automatic duty exemptions in 1833, after a clash with officials at the Portsmouth Customs House. On 11 June, an assortment of ethnographic and natural history specimens marked for the museum had been detained for unpaid duties, notwithstanding the Treasury's efforts to ease their flow. A letter to Burnett from Edward Stewart, Chairman of the Board of Customs, reveals how abstruse conventions pertaining to 'licensed' and 'unlicensed' forms of specimen investigation then frequently affected the development, affordability and legitimacy of 'public' museums:

> My dear sir, with reference to your note of the 12th transmitting the enclosed letter from Dr Scott, respecting some articles intended for the Museum at Haslar Hospital, I beg to acquaint you that it appears by a report which has this morning been received from the collector & controller of Portsmouth that the articles considered as Specimens Illustrative of Natural History have been delivered free of duty & that the only articles now remaining in the King's warehouse are the following viz. 4 war clubs, 2 bows & 1 quiver of arrows, 2 elephants teeth, 1 pair buffalo horns. The duties on which only amount to 8s/6d – and [as] it is the practice to charge the duties on articles of a similar nature & under similar circumstances, unless a treasury order should be obtained to remit them, which in the present case appears to me to be doubtful, and as the amount is so trivial I would suggest that it might be paid without any further application upon the subject.[48]

The two extant Visitor's Books of Haslar Hospital Museum, now in the collection of the Institute of Naval Medicine, probably played a part in the subsequent routinisation of duty waivers for all Haslar specimens, which were thereafter passed without 'molestation'.[49] The books record the name, profession and residence of nearly all visitors to the museum between 13 September 1827 and 1 February 1853, and so constitute an inarguable testament to the range and variety of the museum's contemporary public and scientific audience.[50] For lack of any obvious

comparable examples, these documents remain today perhaps the most important and comprehensive record of early to mid-nineteenth-century British museum publics.[51]

Burnettian networks and Burnettised collections

Recent works in the fields of material culture studies, the history of science and the history of infrastructure have emphasised the mutually productive roles of material assemblages for conveying social and scientific knowledge, and of such knowledges for shaping the critical infrastructure on which they rely. One of the more abstract, yet vital, significances of Haslar Hospital Museum for the development of nineteenth-century science and museum practice was its success in incorporating expeditionary collecting into the ordinary business of the navy, while simultaneously applying these collections to matters of substantial naval and broader public import. Burnett's stewardship of the museum after 1827 can be read in terms of a series of literal and symbolic battles against the most constant obstacle to mobility and circulation: attrition.

In Britain, expeditionary collections had long been prone to atrophy in the absence of a coherent physical and disciplinary infrastructure for their acquisition, aggregation and dissemination within established or predictable networks; in other words, they were often lost.[52] An equally abstract, but likewise significant, challenge was the corrosive impact that expeditionary collections tended to have upon naval discipline, and thus the ultimate success of voyages. The presence of civilian naturalists, or of sailors privately commissioned to acquire certain specimens, threatened to destabilise on-ship hierarchies already strained by the questions of access, exchange and ownership that expeditionary collecting inevitably raised.[53] More directly, the decomposition of ethnographic and natural history specimens on long maritime voyages was a common source of discord; their deterioration brought them into conversation with medical and broader scientific experiments for dealing with effluvia, decay and disease.

The 'Burnettian' system established at Haslar sought to resolve these obstacles to specimen circulation through a series of peculiarly successful innovations. The vast ethnographic and natural history donations made to Haslar's museum between 1827 and 1855 were only in part voluntary. Burnett and later Richardson were directors as well as facilitators of the collecting efforts of the navy's surgeons, and wielded ultimate control over their nomination to the most prestigious surveying voyages. Burnett's influence over the Treasury and Victualling Board allowed him

to procure, at no cost to himself, the many expensive materials necessary for making and preserving scientific collections, and so to offer these to his chosen surgeons in a manner that placed a cheap but firm obligation upon them to return their duty-free specimens to Haslar's museum.[54] Although parallels can be drawn with earlier Banksian networks, of which surgeons constituted an important part, no infrastructure of comparable simplicity, efficiency and scale had ever before existed to catalyse and channel expeditionary specimens into Britain.[55]

As surgeons and assistant surgeons were a necessary component of all expeditions, Haslar was able to place collectors on virtually any voyage it wished. Knowledgeable in various scientific fields, the surgeons in question operated with a status and authority distinct from that of their captains, but they could be relied upon to show the necessary deference. Early disasters with civilian naturalists such as George Tradescant Lay, who travelled with Frederick William Beechey in the *Blossom* (1825–8), had made a lasting impression upon Francis Beaufort, the Admiralty's Chief Hydrographer.[56] Following his appointment to this role in 1829, Beaufort deferred to Burnett for the supply of naturalists to naval voyages: 'The *Aetna* is paid off – and new officers are to be appointed', came one representative request in a letter dated 25 October 1831, 'so pray give her a surgeon who is a bit of a naturalist, but who will not quarrel with the captain which is of 10 times the consequence'.[57]

Burnett's imprint on this global network and infrastructure for expeditionary collecting extended to the complex matter of specimen preservation, by which means Haslar and its museum were deliberately drawn into public and scientific debates of considerable variety and consequence. The Admiralty's then decades-old battle against seawater corrosion to the copper sheathing which had, since the mid-eighteenth century, been affixed to ships' hulls led it, in 1822, to appoint the chemist Humphry Davy to conduct a series of experiments at Portsmouth dockyard, where iron and zinc were tested for their efficacy as cathodic anodes. It may have been through these circumstances that Burnett first learned of the unexploited potential, as a preservative agent, of a zinc chloride solution called 'zincane', which had first been synthesised by Davy's brother, and Burnett's counterpart as inspector of the army's hospitals, John Davy, in 1812.[58] Although he spent much of the following decade working abroad, John Davy was described in 1824 as an early and key contributor to the museum of the Army Medical Department, and may therefore have first tested his zincane solution on the anatomical specimens there exhibited.[59]

Through a series of experiments started in the early 1830s, Burnett nevertheless did the most to develop zincane as a general preservative

agent; he championed his own efforts, and effaced Davy's, by patenting the solution in 1839. Now marketed variously as 'Burnettine' and 'Sir William Burnett's Disinfecting Fluid', the invention was said to destroy 'the tendency of certain vegetable and animal substances to decay', and so to have broad applications for 'timber, canvas, cordage . . . the preservation of animal substances, and the purification of bilge-water'.[60] Officially introduced into Admiralty dockyards in 1839, the zinc chloride solution, and the 'Burnettisation' process through which it was applied, became standard in the preparation of timber used to construct naval vessels, as well as telegraph poles and railway sleepers.[61] In hospitals, the solution was used as a general cleaning agent, as well as an embalming fluid. As a member of the Board of Health set up in 1831 to deal with Britain's first cholera outbreak, Burnett further promoted the fluid as a means to sanitise Britain's hospital wards and sewers.[62]

The mid-nineteenth-century commercial successes of Burnett's zinc chloride solution have been described in an excellent article by David McLean.[63] Less is known of how the solution helped to situate Haslar Hospital Museum as an institution of special importance to the British Empire, and the extensive circulation of peoples and materials on which it relied. The museum exhibited the qualities of zinc chloride, for the solution was used to preserve a substantial part of its collection. Wet natural history and anatomical specimens were suspended in jars of zinc chloride, and it was carefully brushed on to dry objects.[64] As complex assemblages of organic and sometimes human remains, ethnographic specimens were treated in a similar way. The museum thus became a centre of experimentation for an invention that demonstrated how closely questions of specimen preservation and mobility were implicated in the maintenance and extension of imperial power. One of the more eccentric but consequential uses of the solution was its adoption as a medicine for Burmese elephants, following the award of a licence to the East India Company in 1840. The elephants in question suffered sores and cracked feet from their exploitation in the imperial timber industry, itself a beneficiary of the Burnettisation process; they were rubbed down with zinc chloride, and the solution was injected into them.[65]

Even before Burnett exhibited his zinc chloride solution at the Great Exhibition of 1851, it had been successfully marketed to museums throughout the world.[66] An 1849 report from the museum of the United Service Institution in London recorded how the deterioration of the museum's 'various specimens of Natural History' had been resolved very cheaply by the use of 'Sir W. Burnett's well-known preservative solution of Chloride of Zinc instead of spirits'.[67] That year, the first edition of the

Admiralty and John Herschel's influential *Manual of Scientific Enquiry* declared that it was 'vain to attempt to preserve almost any object of natural history of an animal or vegetable substance; unless it be placed in spirits or dilute solution of the chloride of zinc'.[68] In his chapter on 'Medicine and Medical Statistics', the biologist Alexander Bryson stated that the solution, 'now generally employed in all ships of war for the destruction of vermin and fetid exhalations from the holds, is not only the most available, but in other respects it is the best, the cheapest, and the most generally useful'. The 'strength used by the curator of the Museum at Haslar', he continued, 'is in the proportion of one part of the concentrated solution to twenty of common water'.[69]

The supply of zinc chloride to ships thus permitted the global reproduction and mobilisation of Haslar's close dialogue between medical innovation and specimens-based research, themselves co-facilitators of the navy's broader scientific and investigative remit. From the late 1830s, naval surgeons and ships' captains were victualled with up to two gallons of the solution; this became standard imperial practice by parliamentary order in 1849.[70] Onboard these often already Burnettised vessels, zinc chloride was seen as cheaper and more efficient than alcohol for disinfecting cabins, neutralising the odour of bilge-waters and preventing illness. Unlike alcoholic preservatives, the solution was unencumbered by customs duties; its use therefore promoted the cheaper and safer importation of wet natural history specimens, by rendering obsolete the hitherto common practice of pouring away preservative spirits immediately before specimens fell under the inspection of customs officials. Even at the British Museum, such practices had been prevalent as late as the 1840s, when the natural history collections of the surveying vessels *Fly* and *Bramble* were almost ruined in consequence.[71]

Just as Haslar's museum drew strength from the hospital, and vice versa, the presence on naval vessels of generous quantities of zinc chloride solution enabled surgeon naturalists to enhance the quality and quantity of their collections, while simultaneously diminishing the risks to hygiene and wellbeing posed by decomposing specimens. As effluvia was then considered to be implicated in the transmission of disease, collectors had long risked more than the patience of those they lived and worked alongside. Writing in 1848, the surgeon of the surveying vessel *Mastiff*, James McBain, thus praised:

> the rapid and perfect effects of the chloride of zinc solution, upon animal matter in a state of putrefaction. Having frequent opportunities of dissecting, or examining large fish, &c., cast

> on shore, whilst undergoing decomposition, the task has been occasionally anything but agreeable, for want of a convenient power to destroy the putrefactive process.[72]

In the Admiralty's *Manual*, Bryson likewise observed how zinc chloride extinguished 'the noisome odour which animal matters impart, and which renders the opening of any jar in which preparations are kept a nuisance, which few men would venture to inflict on their shipmates'.[73]

'National' museums and the politics of circulation

On 4 August 1847, one month before William Jackson Hooker opened the doors to his new economic botany museum, at Kew Gardens, the botanist took what was arguably the most important step toward gathering the global plant collections with which his museum would soon come to be associated: he secured access to Haslar's vast network of trained surgeons.[74] In a letter to the Admiralty, Hooker requested, and was granted, permission to ask Burnett to supply all naval surgeons with a set of 'instructions for collecting and transporting [plant] specimens' to the 'Botanical Museum, Kew'.[75] Burnett and the Admiralty's compliance, and the request itself, were symptomatic of recent shifts in matters governing the accumulation, analysis and exhibition of expeditionary specimens.

By the 1840s, the success of Haslar Hospital Museum's relationships, infrastructures and technologies had become such that the system for collecting imperial knowledge thereby created could no longer be sustained, practically or politically, by one institution alone. The museum and its surgeons had helped to define, and in large part retain, the investigative efforts of an important series of surveys including those of the *Blossom* (1825–8), *Aetna* (1830–3), *Beagle* (1831–6), *Sulphur* (1836–42), *Erebus* and *Terror* (1839–43), *Samarang* (1843–6) and *Herald* (1845–51). In result, a new and durable concept had been created: that of the expeditionary collection as a public and publicised scientific resource associated with a single voyage; a locatable and identifiable assemblage of specimens in close chronological, geographical and conceptual relationship, taxonomically divisible but otherwise an integrated whole.

An early warning shot against Haslar's sustainability was fired by Thomas Grimston Estcourt, then Member of Parliament for the University of Oxford, in his role as chair of a parliamentary enquiry into the 'condition, management and affairs' of the British Museum, which took place in 1835. In the course of a protracted interrogation of the keeper

of the department of natural history, Charles König, spurred by reports of the poor variety of his collections, Estcourt raised the existence of a 'regulation in the naval service, which requires officers on their return home to surrender such specimens as they may have collected', of which almost all had been sent to 'the museum attached to Haslar hospital'.[76] Would it not be 'expedient', Estcourt enquired, 'that such a regulation should be so far altered as to enable the Trustees of the British Museum to select valuable specimens of what by that regulation is considered as public property?' Having obtained König's assent for what was evidently a leading question, Estcourt offered another:

> Do you think it would be advisable that you, as head of that department [natural history], should examine for instance the collection which is at Haslar Hospital . . . with a view to report to the Trustees the state of that collection and its value . . . in order that representations might be made to the Government, for the appropriation of such valuable specimens as it might contain to the British Museum?

The Trustees, König supposed, 'would have no objection to such a measure'.

Some Admiralty figures also held reservations about Haslar's substantial influence over expeditionary collecting, and even diverted specimens before they were able to reach the museum. In October 1831, Beaufort warned the naval officer Edward Belcher, then commander of the *Aetna*, against neglecting the United Service Institution's own museum, after somehow intercepting correspondence between him and Haslar: 'I enclosed your letter to Sir W. Burnett. Direct your box [of specimens] to me, and let me have clear directions for the disposal of the contents – I hope you will not have forgotten the M & N Museum,' he ordered.[77] Entrance to the latter institution was, however, restricted to those in possession of 'Members' Tickets'; the public were admitted only at Easter and Christmas. Being thus ineligible for Treasury Orders, the institution was reduced to the verge of bankruptcy in 1853, when an appeal to the Treasury for a 'pecuniary grant' was flatly rejected.[78]

From the late 1830s, the Admiralty and Treasury demonstrated a new willingness to assist the plethora of small British collecting institutions then aspiring to 'national' status on the strength of the public, and duty-free, specimen collections they had recently acquired. Although repeatedly described by Burnett as a 'national institution', Haslar's importance to the navy's scientific administration and research

was subtly diminished in this period, even while the collecting model it had developed was extended and reproduced. The Admiralty began to see it itself, in these years, more as a facilitator than a producer of scientific research, and notably focused the bulk of its efforts on London.[79] This change was marked, symbolically and bureaucratically, by Barrow, following his appointment as head of the Admiralty's Record Office in 1844. A note in the naval digests – the expansive records used to catalogue and describe incoming correspondence – for 1843 records in Barrow's terse style the creation of a new category of Admiralty business: 'British Museum & Scientific Subjects'. This 'head' was 'opened in the digest 17th Oct 1844', Barrow scrawled. 'Prior to that date [scientific matters were] digested under a variety of heads bearing no reference whatever to the subject.'[80]

The British Museum was a major, but by no means the only, subject of digested records in the decade that followed. The records trace the developing fortunes, with reference to Admiralty assistance, of both the Museum of Economic Botany and the institution by which it was inspired: the Museum of Economic Geology, established in Whitehall in 1835.[81] Although considerable support for Haslar continued to be given, the Admiralty digests show that the Kew Museum and the Museum of Economic Geology were each enabled to commission Burnett's assistance, and also to victual surveys themselves with whichever collecting materials were deemed best suited to their particular agendas. Like Haslar, both of these institutions flourished as centres of broad and deep experimentation into the manifold qualities, and applications, of colonial specimens.[82]

In 1846, the Museum of Economic Geology highlighted this trend by supplying stores to the naturalist of the surveying vessel *Rattlesnake*, John MacGillivray; in 1850, it was rewarded with a share of his collections.[83] Although the *Rattlesnake*'s assistant surgeon, Thomas Henry Huxley, had, with Richardson's assistance, been recruited for the survey directly from Haslar Hospital Museum, it was to the Museum of Economic Geology that Huxley would later turn as a collector, cataloguer and lecturer. In 1850, natural history specimens collected by the surgeon John Robertson on the 1848–9 Arctic voyage of the *Enterprise* likewise circulated beyond Haslar; packing cases supplied by the Admiralty enabled the collection to be divided between the 'British, United Service and Economic Geology Museums'.[84]

One of the Admiralty's principal tools for gently decentring Haslar Hospital Museum, and so for reorganising and broadening the diffusion of expeditionary knowledge, was undoubtedly its contemporary

focus upon the publication of official and thematic analyses of the expeditionary collections returned to Britain. These analyses variously acted as inventories, syntheses and histories of specific fields of collecting on discrete expeditions; they were used to describe the geological, zoological and botanical returns of six voyages launched between 1838 and 1845. The majority adopted the style and titular structure of the earliest such effort, *The Zoology of Captain Beechey's Voyage* (in the *Blossom*), first published with Admiralty support in 1839. The analyses were often, and avowedly, selective and incomplete, but all featured expert accounts, and taxonomic arrangements, of their subjects.

At Haslar, new specimen acquisitions had long since been reported in a similar form. In place of a catalogue, detailed accounts of new additions to the museum were sent to Burnett on a quarterly basis.[85] The Admiralty's published analyses of expeditionary collections tended to include only very meagre references to the individual collectors concerned, or the museums at which the specimens detailed could be found. Instead, emphasis was placed on the texts' various scientific contributors, who in consequence effectively embodied the collections and research expertise of their affiliated institutions. John Edward Gray, John Richardson and Joseph Dalton Hooker were the most frequent and eminent authors of dedicated works, or sections, on the fields of zoology and botany, through which the relative strengths and focuses of the British Museum, Haslar Hospital and Museum of Economic Botany were thus negotiated. Contemporary correspondence attests to the extensive, if largely invisible, exchange relationship this work permitted, and on which it relied. A letter from the naval surgeon Andrew Sinclair to Hooker on the subject of the collections of the *Sulphur*, sent in 1842, is enlightening in this regard:

> One of my objects in collecting . . . was to have some specimens for Haslar, and perhaps you will be kind enough to name the duplicates you don't want for that museum. I have the Van Diemen's Land ones &c to send yet, and intend to do myself the pleasure of paying you a visit on Friday if convenient for you . . . Of the insects shells, birds &c which I have brought home there is much new, and yesterday the gentle contentions between Mr Gray [of the British Museum] & Dr Richardson at the [Haslar] Museum about what each is to have was interesting to see.[86]

In a manner which further reduced the influence of any single museum in the production of its scientific works, individuals employed by the

Admiralty to 'assist in the arrangement' of expeditionary collections were borne on the books of the Royal yacht *William and Mary*, based at Woolwich Dockyard, which functioned as a ceremonial and administrative instrument for supernumerary officers and miscellaneous bureaucratic functions. This was the case with the Haslar surgeon Richard Brinsley Hinds, who edited both volumes of *The Zoology of the Voyage of HMS Sulphur*, and the Haslar surgeon Arthur Adams, who edited *The Zoology of the Voyage of HMS Samarang*.[87]

Published in 1850, the latter text and its illustrations are particularly illuminating in the way that they therefore make no reference to Haslar, in spite of Adams's close relationship with the hospital's museum, and the fact that his original *Samarang* drawings refer to it as the final destination of the physical specimens depicted (Figure 6.4). Altogether, the descriptions and drawings contained in the analyses resembled, perhaps deliberately, what Martin Rudwick has called the 'proxy specimens' or 'mobiles' used by the French naturalist and zoologist Georges Cuvier, in his 'paper museum' of fossil bones.[88] Cuvier's highly detailed drawings, engravings and published plates allowed delicate and rare specimens to

Figure 6.4 Sketch of a proboscis monkey sent to Haslar Hospital Museum. From the journal of Henry Walsh Mahon, surgeon on board the *Samarang* (1843–6). © The National Archives (ADM101/119/3).

circulate through a new medium, and one considered sufficient to rival the benefits of direct visual analysis of his collections.

For the public and scientific audiences of the analyses, the impression thus, and misleadingly, given was of a unitary and disembodied Admiralty-sponsored scientific endeavour, emancipated from the physical constraints posed by museums and specimens. In truth, however, the concerted efforts of the naval medical service had for decades both ameliorated, and disguised, a long-standing ambivalence within the higher echelons of the Admiralty, and its Hydrographic Office. By the late 1840s, the Admiralty's waning ability to maintain overall scientific control, and its disinclination to offer sufficient scientific investment, became increasingly visible in the declining authority of Haslar, and the rise of a new and vocal class of civilian scientists. The latter relied intimately upon the naval infrastructure, but paid it little deference; as they were not naval surgeons, they had few means to acquire, or justify, a relationship with Haslar's networks and museum. Collectors such as the geologist Joseph Beete Jukes, who served as naturalist onboard the 1842–6 surveying voyage of the *Fly*, are notable for openly challenging the Admiralty's contemporary ability to make sense of expeditionary knowledge.

By 1855, the now overflowing museum at Haslar seemed itself to symbolise an Admiralty scientific project that had failed to reconcile access to vast amounts of new information with a means or willingness to process it. This was typical of what Sally Shuttleworth has referred to as the 'information overload' experienced by Victorian Britain.[89] The 76-year-old Burnett was increasingly thought to embody the ambitions of a bygone era; his much-vaunted zinc chloride solution had been discontinued in Admiralty shipyards two years earlier, after a Burnettised ship, the *Teazer*, was found to be in an advanced state of rot.[90] Specimens preserved in the museum within jars of zinc chloride were beginning to decay, and alcohol was gradually reintroduced as a preservative agent. The arrival in 1855 of a substantial tranche of specimens collected by the surgeon Robert Anderson, of the *Enterprise*, seems to have caused the dam finally to burst. On 14 April, a gentle but firm letter signed by Richardson, but written by the governor of Haslar Hospital, Henry Smith, notified Burnett of the end of his vision of Haslar Hospital Museum as a diverse and national public collection of expeditionary knowledge:

> Sir, I beg leave to represent to you, that the museum is again becoming too crowded for the proper display of the specimens; and to suggest for your consideration whether it would not be better to

> limit it strictly to comparative anatomy and pathology, as being the proper subjects for a museum attached to a hospital. If you should assent to this proposition, I beg further to suggest that all the Ethnological specimens, and the preparations of Natural History in alcohol be at once transferred to the British Museum.[91]

Within a fortnight of receiving the letter, to which he declined to reply, Burnett retired from the naval medical service, and was replaced by the surgeon John Liddell. The day after his appointment, Liddell replied in the affirmative to Smith, and the first boxes of specimens were sent to the British Museum on 16 May (Figure 6.5).[92]

Conclusion

This chapter has explored the emergence of 'public' collecting in Britain after 1815, identifying the important role of Haslar Hospital Museum in its subsequent development. Observing that the Admiralty and British Treasury formed a key apparatus for sourcing, valuing and circulating imperial specimens, the chapter has investigated why and how 'expeditionary' collections acquired a peculiar significance for debates about the mobility of objects, and the proper function of museums. By imposing 'public', or, in other words, state ownership upon specimens peculiarly susceptible to official direction, control and tax incentives, contemporaries such as John Barrow sought to reform the ambiguities of earlier, 'Banksian' models of collecting. These had seen expeditionary knowledge diffused, and often lost, among a nebulous network of semi-public and private institutions.

At a time in which museum cataloguing remained an expensive novelty, expeditionary collections were utilised as stable and discrete data sets; they offered a comprehensive view of newly encountered regions, and moreover exhibited Britain's progress as an imperial power. The displays at Haslar Hospital Museum amounted to more, however, than Britain's answer to the United States Naval Lyceum, or France's Musée de la Marine. Through William Burnett, Haslar became Britain's first and only singular infrastructure, and 'recognised authority', for commissioning, collecting, transporting, remitting, researching and exhibiting imperial specimens. Burnett's development of zinc chloride as a preservative agent further demonstrated the latent potential of museums as laboratories of empire; the solution's success in mobilising and preserving museum objects encouraged its extension to the sanitisation of hospital wards

Figure 6.5 Bark painting, probably acquired at Port Essington, Australia, c.1844–9, and bequeathed to Haslar Hospital Museum by the naval assistant surgeon Richard Tilston. This is one of more than five hundred 'ethnological specimens' acquired by the British Museum from Haslar Hospital in the nineteenth century. British Museum object number Oc1967,+.1.

and sewers, and the protection of telegraph poles, railway sleepers and ships' timbers. Circulating specimens thus extended and reproduced the broader systems by which they were sustained; thereafter recognisable in the development of dynamic, experimental and 'national' museums, the Burnettian model likewise survived the deaccessioning of Haslar's non-medical collections in 1855.

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Notes

1. Abt, 'Origins of the public museum'.
2. Bennett, *Birth of the Museum*; Black, *On Exhibit*.
3. Thomas and Harris, *Expeditionary Anthropology*; Thomas, *Expedition into Empire*; Craciun and Terrall, *Curious Encounters*; Dritsas, *Zambesi*.
4. 'Correspondence from the Principal Ports and Stations'.
5. Simpson, 'Medical collecting'.
6. Institute of Naval Medicine, Gosport (INM), Haslar Visitors' Books (VB); Birbeck, *A Visit to Haslar*.
7. For a detailed analysis, see Simpson, 'Agency, encounter and ethnographic collecting', 231–40.
8. For a plan of the museum, see The National Archives (TNA), WORK 41/236.
9. Tony Bennett, for instance, asserts that the development of state-sponsored 'public' collecting occurred only in the 'mid to late nineteenth century' (Bennett, *Birth of the Museum*, 19). For a discussion of gaps in the history of collecting and naval expeditionary science, see Samson, 'An empire of science'.
10. The post-1815 period saw the publication of numerous dedicated training manuals (see, for example, Annesley, *Short Instructions for Collecting Shells*).
11. John Barrow to Robert John Wilmot-Horton, 2 December 1818, Derbyshire Record Office, D3155/WH/2747.
12. Webb, 'More than just charts'.
13. Barrow to Mr Professor Smith, 7 February 1816, Caird Library, National Maritime Museum (CLA), LBK/65/2, 168.
14. Thomas Harrison to Barrow, 29 December 1815, CLA, LBK/65/2, 105–27.
15. Gascoigne, *Joseph Banks*; CLA, LBK/65/2, 65.
16. Joseph Banks to Barrow, 30 July 1815, CLA, LBK/65/2, 2.
17. James Hingston Tuckey to Barrow, 22 November 1815, CLA, LBK/65/2, 44.
18. For a history of the Veitch nursery business, see Heriz-Smith, 'James Veitch & Sons'.
19. Anon., 'A fasciculus'.
20. William Burnett to John Wilson Croker, 1 March 1825, TNA, ADM 1/3781, 98–113.
21. Burnett to Croker, 1 November 1827, TNA, ADM 1/3785, 105–40.
22. Barrow to Croker, 1 March 1825, TNA, ADM 1/3781, 98.
23. Kontler, 'Mankind and its histories'.
24. Barrow to Croker, 1 March 1825, TNA, ADM 1/3781, 109.
25. Barrow to Croker, 1 November 1827, TNA, ADM 1/3785, 130.
26. Tate, *A History of Haslar Hospital*, 65.
27. 'Entry Book of Reports to the Admiralty by Sir William Burnett', TNA, ADM 105/70.
28. 'William Burnett – Certificate of Successful Candidature', Royal Society, EC/1833/05. My emphasis.

29. 'Department of the Physician General of the Navy, 1st June 1835', TNA, ADM 97/139.
30. Lubar, 'To polish and adorn the mind'.
31. Barron, 'Le musée de Marine du Louvre'; Jacquemin, *Rao Polynésies*, 20.
32. Kingston, 'Armchair expeditionaries'.
33. Robert Armstrong to the Admiralty Board, 15 November 1837, TNA, ADM 97/143.
34. 'Sibbald, Dr Archibald. Manuscript Journal of voyage on 18 Gun sloop "Fly"', British Library, RP 2729.
35. Coote et al., 'When commerce, science and leisure collaborated'.
36. These and other rates are described in numerous contemporary publications (for example, Boyd, *The British Tariff*).
37. For a detailed contemporary guide to *ad valorem* and other taxes, see Ellis, *The Laws of the Customs*.
38. In 1807, the Banksian botanist Alexander Anderson complained of the 'high duties and prohibitions in the [London] customs house' (see Anderson, 'Papers in colonies and trade').
39. Customs and Excise Act (4 George IV), 1823.
40. The possible historical complications of specimen taxation were first mooted by Peter Lingwood in 1984 (Lingwood, 'The duties of natural history').
41. Minutes of the Board of Customs, 4 August 1824, TNA, CUST 28/58.
42. Calculate and compare, for example, the effective tariff rate, before and after 1824, for items entered as 'Miscellaneous Articles, Manufactured', in the annual customs registers preserved in the National Archives under CUST 4 and CUST 5.
43. Minutes of the Board of Customs, 15 December 1819, TNA, CUST 29/7.
44. Minutes of the Board of Customs, 26 May 1820, TNA, CUST 29/7.
45. Thomas, 'Licensed curiosity'.
46. Minutes of the Board of Customs, 26 May 1820, TNA, CUST 29/7.
47. See, for example, 'Articles delivered duty free', TNA, CUST 29/8.
48. Edward Stewart to Burnett, 14 June 1833, TNA, ADM 97/134.
49. 'British Museum and Scientific Subjects, 1847', TNA, ADM 12/481.
50. Haslar Visitors' Books, INM, VB.
51. For a detailed analysis, see Simpson, 'Agency, encounter', 232–40.
52. In 1873, A. W. Franks lamented the poor documentation and consequent loss of objects collected by James Cook and others (Franks, 'Further enquiries', 304).
53. Williams, *Naturalists at Sea.*
54. See, for example, Andrew Sinclair's request to William Burnett for a large quantity of collecting materials for use on the *Sulphur* (Sinclair to Burnett, 13 November 1835, TNA, ADM 97/139).
55. Mackay, 'Agents of empire', 41; Miller, 'Joseph Banks'.
56. Frederick William Beechey to William Jackson Hooker, 28 February 1828, Archives of the Royal Botanic Gardens, Kew (RBG), DC, 61/8.
57. Francis Beaufort to Burnett, 25 October 1831, United Kingdom Hydrographic Office Archives (HO), LB3, 266.
58. Davy, 'An account of some experiments'.
59. Anon., 'A fasciculus', 57.
60. Anon., *The Repertory of Patent Inventions*, 346.
61. 'Burnett's Solution', TNA, ADM 1/5660.
62. McLean, 'Protecting wood', 294.
63. McLean, 'Protecting wood', 285–305.
64. Gregersen, 'Zinc chloride'.
65. Evans, *Elephants and Their Diseases*, 191.
66. Anon., *Official Descriptive and Illustrated Catalogue*, 198.
67. Anon., 'General abstract', 615.
68. Bryson, 'Medicine', 462.
69. Bryson, 'Medicine', 462.
70. Passengers Act (12 & 13 Victoria), 1849.
71. See John Edward Gray to Josiah Forshall, 21 October 1846, TNA, T 1/5202.
72. Anon., *Reports and Testimonials*, 12.
73. Bryson, 'Medicine', 462.
74. For the history of the circulation of specimens to, and beyond, the Kew Museum, see Cornish and Driver, '"Specimens Distributed"'.

75. 'British Museum and Scientific Subjects, 1847', TNA, ADM 12/481.
76. House of Commons, *Report from the Select Committee on the British Museum*, 202.
77. Beaufort to Edward Belcher, 26 October 1831, HO, LB3, 266.
78. 'British Museum and Scientific Subjects, 1853', TNA, ADM 12/577.
79. 'Entry Book of Reports', TNA, ADM 105/73.
80. 'British Museum and Scientific Subjects, 1843', TNA, ADM 12/417.
81. Cornish, 'Curating Science', 39.
82. Cornish, 'Curating global knowledge'.
83. 'British Museum and Scientific Subjects, 1846', TNA, ADM 12/465.
84. 'British Museum and Scientific Subjects, 1850', TNA, ADM 12/528.
85. Minute written by Burnett, 06 June 1836, TNA, ADM 97/141. The quarterly catalogues are found within TNA, ADM 97.
86. Sinclair to Hooker, 2 November 1842, RBG, DC 69/308.
87. 'British Museum and Scientific Subjects, 1852', TNA, ADM 12/561.
88. Rudwick, 'Georges Cuvier's paper museum'.
89. Bonea et al., *Anxious Times*.
90. 'Burnett's Solution', TNA, ADM 1/5660.
91. John Richardson to Burnett, 14 April 1855, TNA, ADM 97/219.
92. John Liddell to Edward Hawkins, 16 May 1855, TNA, ADM 97/219.

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7

Mobile botany: education, horticulture and commerce in New York botanical gardens, 1890s–1930s

Sally Gregory Kohlstedt

An increasing public interest in gardening, popular botany and conservation during the late nineteenth century led to the establishment of new botanical gardens in the United States that quickly turned their attention to education. Latecomers by European timelines, these new public spaces benefited from, and contributed to, the patterns of exchange among established gardens, even as they espoused a particular intention to be open and educational to all classes in their local community. They introduced programmes for teaching schoolchildren using plants, and they wove scientific ideas into narratives of geography and botanical commerce that took advantage of specimen exchange and plant mobility already practised among gardens around the world. This is particularly evident in the founding years of the Brooklyn Botanic Garden (BBG) and the New York Botanical Garden (NYBG), established on the edges of Manhattan. The two sites created complementary institutional identities over the first three decades of the twentieth century through their physical landscapes, public activities and deliberate acquisition and distribution of specimens. Perhaps not surprisingly, they reflected an ambitious urban elite eager to expand the newly consolidated city's commercial influence and to participate in the international circulation of specimens, people and publications.[1]

In 1908, zoologist William Hornaday, founder of the New York Zoological Park, boasted:

> This city has created and to-day maintains for her citizens and the world at large six great institutions for the public betterment, all of them of national importance. I refer to the Metropolitan Museum of Art, the New York Public Library, the American Museum of Natural History, and the New York Zoological Park, the Botanical Gardens, and the Aquarium. In this field of high-class educational endeavor there are only three other cities in New York's class – London, Paris, and Berlin; but I think that New York is entitled to first place. Through a combination of private generosity and municipal support, wise provisions of Nature and good management, imperial New York created [all this] in ten years' time.[2]

His unabashed arrogance is striking, but, by the turn of the century, the combined boroughs of New York City had surpassed Boston and Philadelphia as the centre of American wealth and commerce.

These two major botanical gardens, the NYBG (established in 1895) and the BBG (chartered in 1910), reflected scientific ambitions and community efforts both to advance scientific claims to international status and to provide urban amenities. American expansionist thinking contributed to public support of both gardens during a modest 'golden age' of botanical garden development that paralleled a similar flourishing period of growth for museums in the late nineteenth century. As scholars have noted, these gardens self-consciously navigated between research in the 'new botany' (identified as experimental and laboratory-based) and responsibility for public outreach. In the United States, the professional landscape was rapidly changing, with competing scientific centres – academic departments, research institutes, experiment stations and seaside stations – that also laid claim to botanical expertise.[3] Gardens carved out an independent urban niche as they provided public access to their specimens and landscapes, framed by scientific expertise. Particularly in the early twentieth century, they sought to identify the right strategies for providing education by experimenting with programmes for elementary schoolchildren, and for young men (and some women) seeking horticultural training, as well as for postgraduates needing access to their resources for research. In many ways like contemporary museums, they used their specimens and staff to position themselves as sites of scientific, geographical and cultural expertise. Indeed, it was the acquisition and materiality of specimens that made these scientific institutions distinct and attractive to progressive educators.

Local leadership was significant when the Brooklyn Botanic Garden, authorised in 1910 and still under construction, created a

designated Children's Garden in the southeast corner of its 50-acre site in 1914. Overseen by its instructor in public education, Ellen Eddy Shaw, this designated plot for school-age children positioned nature study as a cornerstone of its operation. She was able to build on previous efforts at the adjoining Brooklyn Institute of Arts and Sciences, as well as a nature-study curriculum that had already made school gardens a widely promoted part of the New York City school system.[4] The Saturday programme in the garden would be complemented by class visits and other activities for children and adults in the conservatory and laboratories throughout the week. Exhibits and curators reflected community interest in botany as well as horticulture, and they would increasingly add commentary on the relationships among plants, people, geography and climate. These included the role of plants in nutrition, medicine, health and daily lives, even as they reflected the pervasive social and commercial interests of city leaders and philanthropists.

Sarah Anne Carter's recent book, *Object Lessons*, documents the growing reliance on visual and material objects as they moved from elementary classrooms into politics and commerce over the course of the nineteenth century.[5] As my work has also shown, by the advent of the twentieth century the technique of teaching natural history with material objects was well established in the elementary school curriculum, often identified by the term nature study (as also discussed by Laura Newman in her chapter).[6] At advanced levels, too, new research universities included field and laboratory work for undergraduates as well as graduate students. Articulated as progressive education, with its attention to experiential learning, this hands-on teaching aligned readily with the projects designed for education in public gardens.[7] Formal and informal educational practices were substantially shaped, as well, by practical and cultural realities, including the material resources of each garden, the ambitions and intellectual orientation of their leadership, and the expectations of patrons, both civic leaders and philanthropists. The materiality of botanical gardens made their holdings of particular importance in a period of active exchange and distribution.[8]

Schooling and hands-on botany

An ambitious and well-respected botanist, Nathaniel Britton, and his new wife, Elizabeth Knight Britton, who together visited Kew Gardens in 1888, returned to lead a movement for a similar garden in New York City.[9] They persuaded the city's wealthy elite, including industrialist Andrew

Carnegie, railroad and transportation magnate Cornelius Vanderbilt, banker J. P. Morgan and others, to turn undeveloped land already in the park system into what became the New York Botanical Garden in the Bronx.[10] Nathaniel, then an instructor at Columbia University, negotiated the transfer of its herbaria (initially on loan) as a base for collaborative graduate education.[11] That plan also required establishing space in the garden for a conservatory, laboratory bench work and new publications to publicise original, specialised research. Elizabeth, who had grown up on her grandfather's sugar plantation in Cuba and spoke Spanish, facilitated research expeditions to the Caribbean and South America, areas which became a scientific specialism at the NYBG.[12] Nathaniel also understood that this new botanical garden was a public space, on a site initially intended as a public park, and that public access and education should be included in their plans.[13] He involved the New York Horticultural Society, providing evening lectures and partnering with its often wealthy and active members, who could arrive via Vanderbilt's northern suburban train line, which deliberately established a station just outside the garden's gate. Board members such as Andrew Carnegie, well known for establishing public libraries, explicitly encouraged outreach that involved training for public school teachers and their classes.[14]

In an era of conspicuous consumption, urban upper-class elites competed as they built cultural institutions – hence the impressive new museum and garden facilities that appeared almost simultaneously in St Louis, Pittsburgh, Chicago, San Francisco and even in many smaller cities. But these patrons were also self-conscious about the growing wealth gap and, perhaps as a result, turned to philanthropy that not only emphasised cultural leadership but also provided support for disadvantaged children. New Yorkers were especially aware of the problems facing recent immigrants.[15] As a result, garden directors cooperated with reforming educators who were advancing pedagogical theories of teaching with objects, and many of whom advanced John Dewey's progressive ideas about experiential learning.[16] The NYBG stepped somewhat tentatively into schooling because Nathaniel Britton prioritised professional training and a research agenda, and there is little direct evidence that he and Elizabeth had been particularly attentive to Kew's encouragement of school museums.[17]

Established 15 years later, and with few significant patrons, the Brooklyn Botanic Garden was constrained by an agreement not to duplicate or rival the herbarium built by Britton, but to take as its purpose 'illustrating and demonstrating such things as geographical distribution of plants, genetic relations of plants to one another, and such

other things in botany as are not of the nature of Systematic Botany, so fully exemplified in the New York Botanical Garden'.[18] The new Brooklyn garden was initially part of the neighbouring Brooklyn Institute of Arts and Sciences, whose museum also included natural history; that relationship could be a source of tension as the new garden developed its own identity.[19]

The BBG's director, Charles Stuart Gager, took up the challenge, transformed the former ash dump into an attractive site and focused on expansive outreach programmes.[20] His background suited this agenda because he had taught at the New York State Normal School in Albany and had taken a PhD in botany at Cornell, working with Liberty Hyde Bailey.[21] He quite quickly hired Ellen Eddy Shaw, who would advance her reputation as a leading advocate for school gardening as she built a dynamic programme at the BBG and published over three hundred articles in educational, horticultural and botanical journals.

Although Shaw had a degree in botany from Tufts College, her medical education was cut short when she left to care for her ill father. After teaching at normal schools in Massachusetts and New York, she had become a supervisor of nature study at the prestigious Ethical Culture School in New York City. Nature-study teaching provided her an entrée into school gardening, and by the time she took up her position at the BBG in 1913, she was a published advocate for such activities. She viewed horticulture as an effective way to draw young children into scientific study and civic responsibility. She presented her ideas at professional meetings and wrote a widely used book, *Gardening and Farming*.[22] Strict, but with a sense of humour and a forthrightness that apparently endeared her to pupils and colleagues alike, she oversaw the clearing of land, arranged for a building in which to teach and to house the tools, and worked through the local schools to attract children to her summer programme (Figure 7.1).[23] Pupils later recalled, with significant enthusiasm, that they came early on Saturdays, pulled weeds, picked up stones, recycled rubbish and raked paths, as well as tended their garden plots until the time came to harvest. Then they washed and weighed their vegetables, and counted their flowers for the record.[24] Plants were at the centre of this cycle of learning about plant growth, planting seeds, caring for individual plants and then presenting results in special exhibits. This Children's Garden became a centrepiece, but only the most visible aspect of a teaching outreach that very quickly expanded its scope.

As BBG Director, Gager accepted that his mandate was different from Nathaniel Britton's at the NYBG. Perhaps as a result, he and Britton retained a very cordial, non-competitive relationship as each carved out

Figure 7.1 Ellen Eddy Shaw (with her arm around a pupil) explaining a model garden to visiting pupils and their teacher in the Children's School Garden building in 1923. Louis Buhle, photographer. Courtesy: Brooklyn Botanic Garden.

his garden's niche. Gager's immediate challenge was to transform an abandoned property with little topographical interest into an attractive and educational landscape. He did this by creating a more varied setting, planting trees and establishing specialised gardens (a Japanese garden, a rose garden, a lilac triangle, a rock garden and others).[25] He encouraged Shaw to initiate activities with the Brooklyn schools, using staff to create special classes for teachers and arranging visits of school classes, as well as special activities for Boys' and Girls' Clubs and other groups. As the garden carried out these programmes, some students returned year after year, became assistants to younger children in the Children's Garden and eventually served as guides for the relatively large groups of visiting classes.

Shaw was singularly dedicated as she coordinated much of this on-site activity, created handouts for pupils who were advanced in their experience of the garden, and for teachers, and went out into the schools for demonstrations, assembly work and instruction at teachers' meetings. Adults could take classes in evenings and on Saturdays on topics such as cultivation of shrubs and fall bulb planting. These were open to community members who paid a nominal membership fee.[26]

The BBG followed the rhythms of seasons, as the staff used the conservatory and the growing outdoor gardens as educational sites and sought to emphasise economic botany.[27] Social concerns led to activities

for juveniles in trouble, and the staff taught local nursing school students about pharmaceutical plants. Shaw soon recognised that there were practical limits to the intensive on-site activity, and coordinated an extensive outreach into the schools themselves through the distribution of literally tens of thousands of seed packets every spring that could be used out of doors in school yards, be planted in small school museums or window boxes, and in some cases be taken home by children for their stoop.[28] Some seeds travelled full circle when the students brought back growing plants for competitions and exhibitions to demonstrate their successes (Figure 7.2). As fragile living plants were not easily transportable, the staff prepared series of hand-coloured lantern slides with an accompanying text that could be projected in classrooms, libraries or other public spaces (Figure 7.3). The BBG also prepared series of boxes that showed plant development, dried botanical comparisons of similar species and the use of plants in products.[29] These were distributed to schools for a two-week borrowing period, demonstrating another mobile component of garden specimens.

Essential to the development and maintenance of school engagement were teachers, most of them women. They were encouraged to attend evening and Saturday classes in order to make the best use of the materials in circulation. Shaw wrote inexpensive four- and six-page leaflets on specific botanical topics, including useful guidelines for growing plants successfully, geographical discussion of their uses and the need for conservation of wildflowers.[30] Wandering into the Brooklyn Botanic Garden continued to be a leisure activity for families and out-of-town visitors, primarily on weekends, but educational experience for children drawn into its activities could have a sustained influence. Shaw believed that earlier nature-study education and school gardens had been somewhat haphazardly run, so she was determined to oversee much more well-organised activities.[31]

The NYBG in the Bronx also had public programmes, but in terms of children and public schools, these were less consistent and enterprising. Britton's goal was to have his museum and garden 'intelligible to an unaccompanied lay visitor'. This implied adults and accompanied children were welcome insofar as they could see for themselves the impressive Bronx park space and read labels in the museum on their own.[32] The Brittons and their colleagues seemed to share contemporary attitudes about both how to include and how to limit the participation of children, who were expected to act as young adults in public spaces. Seeking to emulate their impression of the Kew model, they focused on organising their rapidly growing herbarium, planning the conservatory (notably with a plan to be

Figure 7.2 One reward for children was the annual garden show and competition for them to show the results of their summer efforts. Courtesy: Brooklyn Botanic Garden.

larger than Kew's central conservatory) and establishing the laboratory for research.[33] Elizabeth Britton, although she had briefly taught botany at Hunter College, focused on research rather than education (Figure 7.3). She worked closely with Nathaniel, joining expeditions and establishing her reputation as a widely respected expert on mosses. Later, she was active in the wildflower preservation movement.[34]

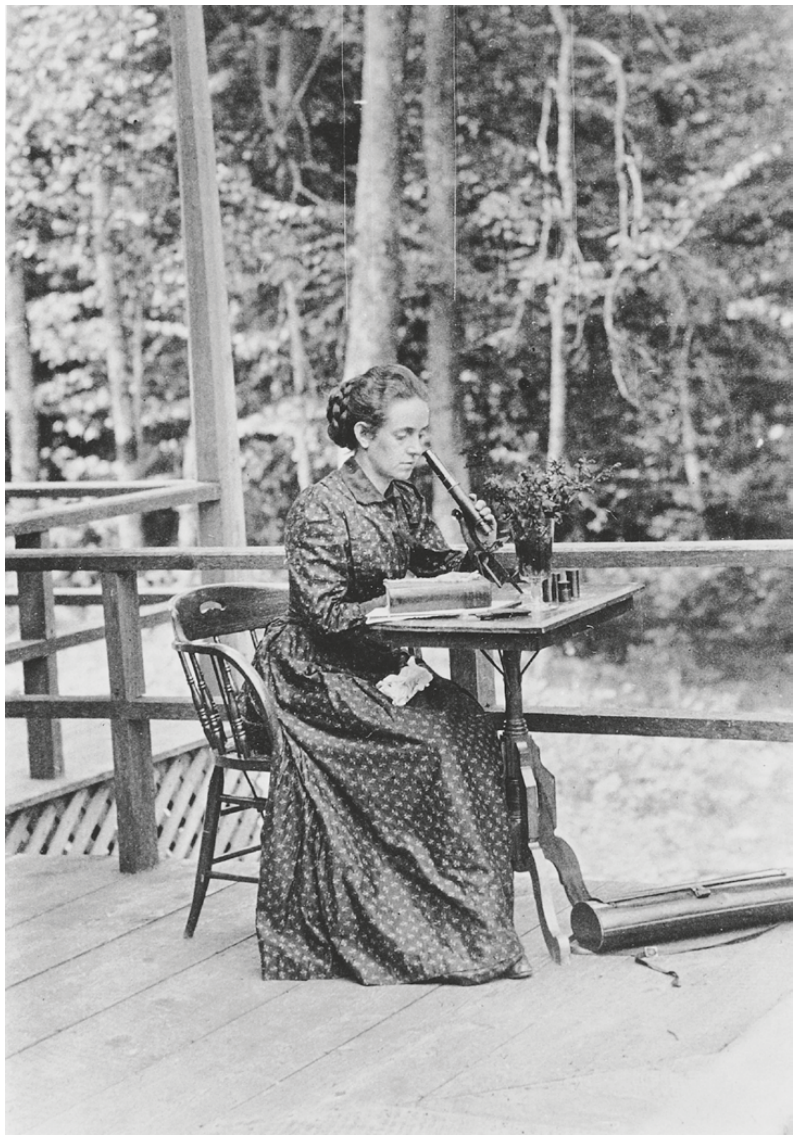

Figure 7.3 Elizabeth Britton studying a botanical specimen at her microscope on an outdoor desk. Courtesy: LuEsther T. Mertz Library of the New York Botanical Garden.

In 1905–6, perhaps at the urging of its civic-minded Board of Managers, the NYBG invited every fourth-grade class in the Bronx to visit the garden, where the staff provided lectures and tours (Figure 7.4).[35] Its only written record is an impressive leather-bound volume with individual pages from each school containing the signatures of the pupils recording 'sincere gratitude for the instructive and interesting lectures and demonstrations on the Nature Study work of the fourth school year, given at the Botanical Garden'. The cover letter was optimistic: 'We hope that this is only the beginning of a kind of instruction which is better than books, even when they are full of pictures.' This largely 'show and tell' engagement with the schools was repeated intermittently in later years, but the overall activity never paralleled that of the BBG.[36]

While the NYBG continued to offer a series of short-term opportunities for public education,[37] those assigned to 'public instruction' typically had other responsibilities, including editing the journal and serving as curators. The first short-term docent, hired in 1910, had a long list of duties:

> to elaborate the present system of personal guidance of visitors and to have immediate charge of all the direct public educational equipment of the Garden, including care of the lantern slide

Figure 7.4 In 1906, the New York Botanical Garden provided guided tours for all public school fourth-grade classes in the Bronx. Courtesy: LuEsther T. Mertz Library of the New York Botanical Garden.

> collection, which already contains over four thousand objects, photographic negatives and prints, guide-books and postal cards, the details of public lectures and also to give instruction to visitors independent of their applying for it.[38]

These responsibilities left little time to implement on-site school activities. In 1917, a donor contributed a garden pavilion with the goal of establishing a school garden, but it did not materialise.[39] One-time school visits (Figure 7.5) were guided by short-term docents, whose didactic presentations highlighted special features on the outdoor landscape, but there is no evidence of systematic hands-on learning, or of curators or other staff visiting local schools.[40] While the BBG had quite a few women who worked with Shaw on educational programming,[41] the women who used the NYBG resources were primarily advanced students from Columbia University or elsewhere, and members of affiliated societies.[42]

Although provided with outside funding, the NYBG was a somewhat reluctant participant in educational projects. A short-lived scheme under Henry Parsons, sponsored by the School Nature League, involved a summer training course for teachers who led local school gardening activities. When he left for his two-year service in the army in 1918, his wife, Fannie, already a leader in school gardening, took

Figure 7.5 Demonstration classes were led by part-time docents at the New York Botanical Garden. Courtesy: LuEsther T. Mertz Library of the New York Botanical Garden.

over the programme and asked for an appropriate title.[43] The result, recorded in minutes simply as requiring 'much discussion', was that she was named 'Honorary Advisor in School Gardening Instruction', hardly a title that suited her experience and responsibilities. The project ended the following summer.[44] Another insight comes from the experience of William A. Murrill, who had studied at Cornell University with Liberty Hyde Bailey, and then taught in female seminaries before becoming curator of fungi. Initially well positioned, he served for some years as Assistant Director under Britton. At the same time, he also wrote children's books, including a three-part semi-autobiographical series set in the West Indies.[45] Tellingly, after some apparent conflicts with the Brittons, he was 'demoted' to Supervisor of Public Instruction at a reduced salary in the late 1910s, with largely docent responsibilities; he finally left in 1924.[46]

Advanced education was a different matter. Britton encouraged graduate students and visiting researchers to use his rapidly growing herbarium. While still a professor at Columbia University, he arranged for its plant collection (including the Torrey Herbarium) and its botanical library (except those books needed for undergraduate education) to be transferred to the Bronx; in turn, he guaranteed that the Columbia graduate students in botany would have full access to the conservatory and laboratory at the NYBG.[47] Like colleagues elsewhere, he also worried about whether there were enough well-trained young botanists coming along in the next generation, and the Columbia collaboration was intended to bridge the impending tension between universities and museums. He also acquired 'orphaned' collections of nineteenth-century botanists through direct legacy or from their heirs.[48] He hired well-educated staff with specialised expertise. While interested in taxonomy, he understood the importance of the new botany, and he persuaded his wealthy patrons to provide fellowships for visiting botanists from around the country who would publish their findings.[49] Following common practice, he established standard procedures for loaning specimens to colleagues elsewhere and providing for exchanges wherever possible, as a mechanism to establish the NYBG's scientific reputation.

In summary, leaders and sponsors of both the NYBG and the BBG understood that, especially in New York in the early twentieth century, education needed to be visible to citizens who provided financial support and to patrons foregrounding education in their philanthropy. The ways in which they pursued that goal, however, differed significantly. While the NYBG remained a kind of managed 'wild' site with extensive wooded paths and surprising clusters of lilacs or other plants flowering in season,

the BBG presented the more manicured look of a landscape that had, as was fashionable, a Japanese garden, along with a rock garden, clusters of conifers and beds of flowering plants.[50] Both conservatories held exotics, especially at the NYBG, as numerous expeditions to tropical regions yielded not only opportunities for new plant identification, but also showy specimens that would be noted in the press and attract visitors. The BBG used its much smaller conservatory to do plant propagation, typically to furnish the garden site and to cultivate rare or unusual plants for exchange with other institutions; it also served as an educational facility used after public lectures and for visiting school groups.

Both botanical gardens joined in the standard professional activities of exchange, publication and expeditions to build their facilities and reputation. Those botanical specimens arrayed in conservatories and the gardens, the microscopes and scientific tools at laboratory benches, the staff whose talents were deployed for distinct but overlapping purposes, as well as the surprising array of published journals, pamphlets and posters, positioned these young gardens within a decade of their establishment as active in national and international institutional networks. Their sponsors, major and minor donors, generous at the outset, became more analytical and even critical as they discovered the high costs of building and maintaining public gardens. Managing visitors and, indeed, the issue of vandalism after hours was another common concern, especially at the NYBG.[51] Children were only cautiously welcomed in most public spaces in the early twentieth century, and even parks did not create children's spaces or playgrounds, aside from those at schools, until the 1920s.[52] So, the gardens were each, in their own way, working to create a new standard for participation of this younger group, even as they experimented with various kinds of outreach and education, including training horticulturalists.

Horticultural training for practical gardeners and enthusiasts

While contemporaries often maintained distinctions between horticulture and botany, as Philip Pauly points out in his evocatively titled book *Fruits and Plains: The horticultural transformation of America* (2007), a growing cadre of botanists in the late nineteenth century blended biological, commercial and aesthetic interests in constructing private and public gardens, public parks and even regional landscapes. Some academics, such as the University of Nebraska's Charles Bessey

and Cornell's Liberty Hyde Bailey, situated at land grant universities, 'integrated evolutionary and human history with social and aesthetic choices'.[53] Numerous popular publications, commercial nurseries and seed catalogues, as well as the multiple editions of Bailey's *Cyclopedia of American Horticulture* (1900), reflected a widespread middling-class interest in plants.[54] Public gardens were inevitably part of this culture of enthusiasm, as they made space for individuals and groups interested in gardening, many of whom regularly visited them, became active advocates and helped with programming. This enthusiasm dovetailed with the ambitions of the gardens' very wealthy patrons, who were building elaborate country estates in upstate New York, Rhode Island, Long Island and elsewhere, which required skilled landscape gardeners.[55]

Professionalising botany also was on the mind of garden directors as they sought to stabilise the status of their institutions by maintaining facilities for research, training future experts and publishing scientific results. Particularly articulate on the issue of recruiting future botanists was William Trelease, newly appointed Director of the Missouri Botanical Garden, in 1890. In a lengthy inaugural lecture, he reflected his anxiety, arguing that young men had stopped learning the names of plants, and that too often the study of botany had become 'somewhat of an accomplishment – a girls' study'.[56] With the blessing of that garden's founder, William Shaw, the Missouri garden affiliated with Washington University in St Louis in the 1890s to provide graduate training for the next generation of leaders. A new School of Botany was intended to combine traditional field and taxonomic research with bench and scientific laboratory investigation. While clearly intending to have young men take PhDs in the newly established school, Trelease also acknowledged that some advanced university training would add 'to the zeal of the large number of teachers [presumably women] in the schools of this city and in the surrounding States who are called upon botanical classes . . . imparting to them the most successful methods of instruction'.[57] Saturday and summer classes sufficed, however, to educate them. Recognising the demand for skilled garden staff, he created certificates for apprentice gardeners, who served for six years under the head gardener. Their scholarships included free lodging; in turn, the garden got their labour.[58]

The Missouri garden training school may well have been inspired by Henry Shaw's discussions with owners of estates in England, his birthplace, and where he travelled in retirement.[59] There, an upper-class elite concerned about finding skilled nurserymen for their estates encouraged training programmes.[60] In the United States, a growing

interest in market and commercial agriculture also encouraged horticultural education, some as part of extension work in the rural land grant universities that largely serviced farm communities.[61] Their extension programmes, a proliferation of horticultural societies, and the introduction of school and urban gardens added to the demand for skilled staff with up-to-date awareness of available species and best practices.[62]

Horticultural training in the NYBG provided certification based on an apprenticeship model. Limited evidence indicates that these relatively small programmes provided temporary grounds staff to the gardens, and their graduates subsequently found employment on estates and in public parks.[63] The training activities may well have been influenced by overseas examples, including Kew, whose experienced gardeners might aspire to positions in the United States and, indeed, around the world.[64] Women were also encouraged to develop horticultural skills through private initiatives, as at Swanley and on the estate of Lady Warwick in England.[65] Apparently in emulation, a group of philanthropic women established the Philadelphia School of Horticulture for Women in 1910.[66] Horticultural training could be extensive over a number of years, or be short-term, as during the First World War, when Montague Free, a recent graduate of Kew, joined the NYBG and provided instruction for home gardeners as part of the war effort.[67] The NYBG also experimented, very briefly, with a project to rehabilitate First World War veterans recovering from war wounds. The ambivalence of the government, the reluctant attitude of the former soldiers and the time required for staff oversight meant that this effort lasted less than a year.[68]

While training activities were small and intermittent, public engagement with horticultural enthusiasts remained significant in the New York gardens. A local group of botanists, the Torrey Botanical Society, had been the nucleus for initiating the NYBG, but it was the New York Horticultural Society, with its largely upper-class membership, that remained active in garden affairs.[69] Britton engaged them through his lecture series and attended some meetings, and they, in turn, cooperated with regular annual exhibitions at the garden and at the more centrally located American Museum of Natural History in Manhattan. This group, and others like it, were staunchly supportive of children's educational activities and sponsored prizes and other activities for them. At the BBG, Gager also proved to be a popular evening lecturer for adults who came to the Brooklyn Institute or to the garden, and his staff also worked with local gardening groups. But neither garden viewed itself as simply local in outlook, and both regularly lectured on the global implications of botanical study.

Geography and economic botany

Investigation of early educational and outreach dimensions in American botanical gardens and museums has tended to focus on their nature-study, botanical and horticultural emphases as they engaged both local and academic communities. Less attention has been paid to the intersection of this activity with the 'imperial' New York outlook revealed by zoologist William Hornaday. Finding such imperial linkages to the practices of botanical gardens is a long-standing concern of historians, well detailed in Lucile Brockway's classic account of Kew's colonial networks.[70] The early twentieth-century activity of these botanical projects on the edges of an increasingly commercialised city developed different dimensions in keeping with local ambitions. By the end of the nineteenth century, New York City had surpassed Philadelphia and Boston as the centre of American wealth and commerce, becoming the city that defined the Gilded Age.[71] Timing proved critical, and the so-called Spanish–American War with Cuba in 1898, which reverberated throughout the Caribbean, and the subsequent annexation of parts of the Spanish empire, including the Philippines, signalled a new expansionist outlook in the United States.

For the young, keen and opportunistic garden directors and some of their colleagues – several had already done research in the West Indies – these events presented new opportunities. While European exploration, and initiatives from Harvard and some other universities, had pursued natural history research in Central and Latin America, the New Yorkers presumed a proprietary stance, as Britton immediately began to send expeditions into the Caribbean, Central America and some parts of South America in what its historian, Peter Mickulas, characterised, somewhat tongue-in-cheek, as 'American overseas adventures'.[72] In informal but substantial ways, the New York gardens gained advantage through military interventions and economic initiatives. This version of imperialism did not concentrate on older strategies that involved sustained political intervention and colonial settlement, but intensified an earlier pattern of commercial exploitation, with a focus on resources that could be extracted at sites around the world, with attention to them as emerging markets for products.[73] Such activity readily took advantage of the late nineteenth-century world's fairs, with their nationalistic exhibitions that had revealed an ever-expanding marketplace of exchange and competition.

At the Columbian Exposition in Chicago in 1893, an enterprising botanist sought to sustain the message of commercial possibilities in Philadelphia. William Powell Wilson, Professor of the Anatomy and Physiology of Plants at the University of Pennsylvania, was fascinated by the potential in the displays of raw materials and products from around the world. With support of some leaders in his hometown, he gathered up artefacts and specimens for sale as the fair closed. Carting literally boxcars of objects back to Philadelphia, he created what became initially known as the Philadelphia Museums (four buildings were erected); it was eventually, and more appropriately, renamed as the Philadelphia Commercial Museum after the turn of the century.[74] Wilson's ambition was to create 'the most extensive collection of natural products in existence in any country' and thus illustrate the connections of knowledge of natural history and anthropology with the constructs of commerce.[75] Supported by political and business leaders in Philadelphia, the museum established an information centre with extensive data on every country and known products based on natural substances – and botany was front and centre. Using visual and tactile materials, the museum presented what nature provided, and then what man could produce. Wilson gathered materials through purchase and exchange as he engaged other museums and, like them, he included a public as well as an entrepreneurial audience. The exhibitions and tours for schoolchildren may well have been encouraged by his second wife, Lucy Langdon Wilson, a leading teacher in her own right and widely known for her textbooks on nature study.[76] The couple was closely linked into a broad network of biologists and educators, as well as business and political leaders, as their museum became part of the exchange network.

It is thus not surprising that at the NYBG, the neocolonial aspects of these new patterns of international acquisition influenced its holdings, its public programming and, in fact, its identity. The United States' diplomatic, military and transportation networks of this informal empire in the Caribbean and Central America facilitated the Brittons' research agenda. Nathaniel observed that the very project of expanding the garden's systematic botanical holdings would simultaneously increase the 'commercial relations of the United States with the countries to the south of our present domain'.[77] Elizabeth's knowledge of Spanish served botanists well, as the NYBG undertook and sponsored more than 30 expeditions in the hemisphere between 1898 and 1927. On their return, the Brittons published multiple reports and papers, often in the garden's *Contribution* and *Memoir* publications, and gave public talks on the botany of Cuba, Puerto Rico and the West Indian islands. According to Stuart McCook, the Brittons and their research colleagues, including

Stuart Gager from the BBG, negotiated with local botanists who were developing their own research centres, while dramatically increasing the collections in New York.[78]

The regional military and diplomatic presence of the United States in the early twentieth century made it particularly easy for botanists to work in Puerto Rico and, indeed, the Caribbean.[79] For example, a significant expedition coordinated with Joseph N. Rose of the Carnegie Institution took the Brittons and several active curators and staff to the West Indies from 25 January to 17 April 1917.[80] A small group headed off by steamer to the islands of Hispaniola, Saint Thomas, Saint Croix, Saint Kitts and Antigua, while the Brittons settled on Puerto Rico to investigate flora across the islands. The Navy had not provided requested transit, but it did allow the group to land on an offshore island that had housed a military base, and the party carried letters of introduction to local officials and to Navy representatives.[81] While there, Britton and his group also travelled and collaborated with colleagues at the Puerto Rico agricultural station and the local college of agriculture.[82]

The new species, many from inland in the Puerto Rican mountains, were readily incorporated into the NYBG's Museum of Systematic and Economic Botany. Its first floor exhibited products used in the arts, sciences and industries, and the second floor presented plants in what Britton termed their natural order, while plant fossils and coal were in the basement.[83] The new discoveries, along with the likely medical or other uses, were presented in the journals, memoirs and reports of both botanical gardens and specialised journals.[84] Britton also oversaw evening lecture series for adults, which were a combination of travel accounts, botanical demonstrations and commentary on potential economic and tourist possibilities. The exhibits, teaching tools and lectures for visiting school classes reflected a literal world of possibilities in a period when geography had become an important part of public schooling.[85] The tropical world seemed exotic, but also remarkably accessible, as the exhibitions focused on 'constituents' of the flowering plants, particularly chemical properties that represented medical substances alongside foods and fibres. Companies were ready to help with exhibitions; for example, E. Merck pharmaceutical company sent five cases worth of display and descriptive materials for the NYBG museum.[86] Mobile people, plants and publication moved ever more quickly in this period as scientists utilised well-established commercial and military networks.

While the BBG had less funding for travel, staff assembled botanical specimens and lantern slides to illustrate popular lectures (Figure 7.6), in what Stuart Gager identified as applied or economic botany.[87] He,

Figure 7.6 Lantern slide sets provided a means of popularising botanical subjects and were distributed, with instructions, to teachers or for public lectures. Courtesy: Brooklyn Botanic Garden.

too, collaborated with local manufacturers, reporting to his colleague at the Brooklyn Institute of Arts and Sciences that he had 'rich material along the line of the cotton industry, the flax industry, the cork industry, the manufacture of umbrella handles and walking sticks, crude drugs, the fiber industry, tea, coffee, cocoa, and other beverages and, lastly, the rubber industry'.[88] Building on this emphasis, Gager's widely used textbook, *General Botany: With special reference to its economic aspects*, incorporated topics that demonstrated the ways in which plants contributed to human productivity. The conservatory became a teaching tool for economic botany (Figure 7.7). At the same time, his colleague Ellen Shaw created a series of lectures for school classes and produced one-page handouts that described details of tea, coffee and other subjects. Sugar cane, for example, was described as originating in India but subsequently spreading to Arabia, Europe and the Americas. That geographical information was supplemented by economic facts: the United States' consumption of sugar was five million tonnes a year; it takes eight and a half tonnes of sugar cane to produce one tonne of raw sugar; it costs twice as much to raise sugar beets as sugar cane; beet tops can be used as food for cattle, and sugar fibre can be used for making paper. Such information went well beyond the kind of early nature-study materials that focused on plant identification and physiology.[89]

Figure 7.7 Pupils studying economic botany in the Brooklyn Botanic Garden Conservatory, 1927. Courtesy: Brooklyn Botanic Garden.

This pattern of practical and commercial education in the early botanical gardens and in the schools is a rich area for further investigation.[90] While initially education primarily focused on gardening, horticulture and regional plants, the wider geographical

engagement of the gardens became increasingly evident in classroom teaching, specialised exhibits and contributions from a number of businesses. Those materials could be put on display and circulated among the schools using educational boxes that demonstrated how natural materials were the essential component of manufactured products. Both gardens used the vocabulary of 'economic botany' as a way of demonstrating their contemporary relevance. Alongside more established themes of natural history, this new botanical information became an embedded part of the activities that occurred in each garden – exhibits, publications, flyers and public lectures – and that also circulated well beyond their borders. While Shaw at the BBG also seems to have continued her attention to nature study with its scientific orientation of teaching about organic life and development in plants, the demonstration efforts of the NYBG led it to establish, in 1906, its 'economic patch', which was particularly intended to show 'plants of a practical value' in everyday life. This site became the last stop for the schoolchildren on a tour of the conservatories and grounds.[91]

Conclusion

These New York City gardens were closely connected to the cultural life of the city and intimately part of its public education, while also linked into the international network of public gardens. Despite the emphasis in this chapter on their didactic intentions, we should not lose sight of the aesthetics and the genuine pleasure that clearly drew in a large number of visitors each year. As botanist John Merle Coulter reminded colleagues in 1917, 'The mere presence of a botanic garden in a city is like having the spirit of nature as a guest, and all who become acquainted with this spirit are the better for it.'[92] Thus, the outdoor walking paths and indoor conservatory displays attracted locals and served as a tourist attraction for visitors to New York City. They were a draw for children, too, as they engaged with living plants and well-informed experts. Modest educational activities at the NYBG continued with children's tours and apprenticeships for gardeners until the Second World War, when once again attention turned to victory gardens. The BBG, however, continuously expanded its outreach, and by the 1930s it serviced all five boroughs, including the Bronx, with teachers bringing classes, garden personnel going to schools for class instructions, materials being circulated, conferences held for teachers, and over a million seeds being

distributed each year.[93] The Children's Garden also persisted. A set of responses from alumni who had participated in the BBG programmes in the early decades of the twentieth century, including environmental activist Barry Commoner, provided strong, positive memories of their engagement with staff there, and credited their experience with leading them to science careers and concern for issues well beyond that local garden.[94]

Attention to the theme of collections in circulation, which runs through this book, underscores a subtle paradox: the literally rooted sites of botanical gardens became intricately connected to the dynamic systems of accumulation, exchange and distribution that are so well reflected in this volume. In New York, too, curators and visitors were drawn into the multiple mobile features involving botanical specimens, trained botanists and horticulturalists, and the information they circulated through lectures, publications and, later, radio and film.[95] The new urban gardens allowed both local neighbours and a cadre of research botanists to engage in virtual geographical exploration of the origins and cultural uses of plants from around the world. Situated in the commercial setting of ambitious and entrepreneurial New Yorkers, the flourishing gardens in the Bronx and Brooklyn generated significant public participation and international visibility as they reflected and advanced contemporary currents in botanical education and, increasingly, global commerce.

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Notes

1. Lukas Rieppel underscores the role of such Gilded Age philanthropic entrepreneurs and politicians in *Assembling the Dinosaur*.
2. Hornaday, 'The making of a zoological-park masterpiece', reprinted in *A Wild-Animal Round-Up*.
3. The laboratory-based new botany challenged the centrality of classification and created tension between self-trained botanists and the emerging professionals (see Cittadino, 'Botany').

4. Crosby, 'Notes on children's gardens', 2–3.
5. Carter, *Object Lessons*.
6. Kohlstedt, *Teaching Children Science*. On Britain, see Newman and Driver, 'Kew Gardens and the emergence of the school museum'.
7. Kilpatrick, *Guide to Nature Study*.
8. Cornish and Driver, '"Specimens Distributed"'.
9. Mickulas, *Britton's Botanical Empire,* 94. A lively account of the trip and her research on mosses at Kew is in Elizabeth's diary: Elizabeth Knight Britton Papers, Archives of the New York Botanical Garden (NYBG).
10. Dunkak, *Knowledge, Truth, and Service*, 21–5.
11. Stephen Conn points out that public museums and, by extension, gardens were centres for research and new knowledge in the latter part of the nineteenth century, but universities increasingly challenged their authority, even as many negotiated new and collaborative relationships (Conn, *Museums and American Intellectual Life*).
12. For biographical details of her early life in Cuba, and her education and work at Hunter College, see 'Elizabeth Britton', Vertical Files, NYBG.
13. Britton provided free lectures on 'exploration of foreign countries': *New York Times,* 17 May 1908, B4.
14. Van Slyck, *Free to All*.
15. Hammack, *Power and Society*.
16. The Missouri Botanical Garden created educational alliances in the 1890s when William Trelease became director (Kleinman, 'The museum in the garden'). In Pittsburgh, Henry Shaw established the Phipps Conservatory and Botanical Garden in 1893 (Toker, *Pittsburgh*). In 1894, the Chicago Academy of Science built a museum and established links to local schools (Baker, *Chicago Academy of Science*).
17. Elizabeth Britton's Kew diary does not mention education, although Kew was supplying school museums in this period (Newman and Driver, 'Kew Gardens').
18. 'The Memorandum on the Relation between the Botanic Garden and the Museum [of the Brooklyn Institute of Arts and Sciences]', quoted in Toledano, 'Gardens within a City', 14.
19. See correspondence between Institute Director Franklin W. Hooper and Gager on such matters, including Hooper to Gager, 29 January 1913 and Gager to Hooper, 29 May 1914, Gager Papers, Library and Archives of the Brooklyn Botanic Garden (hereafter BBG).
20. Anon., 'C. Stuart Gager'.
21. Gager published botanical textbooks, including *General Botany* (1926).
22. Shaw, *Gardening and Farming*.
23. The major patron for the BBG, Alfred T. White, sponsored the storage building that housed special equipment for children, and where crops could also be cleaned and measured (Gager to Alfred White, 21 September 1915, Gager Papers, BBG; see Ackerman et al., *Social Vision of Alfred T. White*).
24. Anon., 'Interview with Frances Miner', 2.
25. For more on Gager's view of these niche collections, see his essay, 'Gardens within a garden'.
26. 'Offer free lectures at botanic gardens', *New York Times*, 18 February 1913, 19.
27. Gager to Frederic Lucas, 2 June 2014, Gager Papers, BBG.
28. Older children were assigned responsibilities, such as packaging seeds or guiding younger children in the Children's Garden (see Ronald L. Nadler to Doris Stone, 1 February 1984, 70th Anniversary Folder, BBG).
29. Boxed specimens for short-term loan became common in major museums. The American Museum of Natural History distributed collections 'comprising birds, molluscs, crabs, starfishes, and worms, sponges, corals, woods, insects, small mammals, minerals and rocks', while the BBG loaned plant specimens (Kilpatrick, *Guide to Nature Study*, 17, 21–2). One of the largest such projects was initiated in 1912 in Chicago (see Anon., *Field Museum and the Child*).
30. Cornell Nature Study leaflets provided an inexpensive educational model, often produced for rural children by state university or agricultural extension programmes (see Kohlstedt, *Teaching Children Science*, especially 87 and 93).
31. See Shaw, 'Survey of twenty years progress' and 'Visiting the botanic garden'.
32. Mickulas, *Britton's Botanical Empire*, 189.
33. Local newspapers covered the NYBG's development, noting that an expedition to Puerto Rico would provide one of the first displays in the new museum building (see 'An Eden in Bronx Park', *New York Times*, 25 September 1898, 4).

34. The only record of her teaching was a class on *Hepaticae* authorised in 1899 (NYBG Board of Managers Minutes (11 December 1899), 2, in NYBG).
35. See Minutes of the Board of Managers, 16 May 1905, NYBG.
36. Mickulas, *Britton's Botanic Empire*, 189–91.
37. A critical comment in 1923 disdained the 'dead' objects in the museum and asked for more artistic and dynamic exhibits (Lee, *Statement Concerning*; see also Rader and Cain, *Life on Display*).
38. Board of Managers Minutes, 20 May 1920, NYBG.
39. Mrs Frederick F. Thompson gave $4,000 for construction of the School Garden Shelter (Board of Managers Minutes, 19 April 1917, NYBG).
40. In the 1980s, a more systematic programme called Bronx Green-Up did work with neighbourhood children (Long et al., *New York Botanical Garden*). On late twentieth-century gardens, see Luiken, 'Chicago's Botanic Garden', Chapter 4.
41. Those who served full time for several years included Jean A. Cross, 1916–19; Elsie T. Hammond, 1921–30; Margaret M. Dorward, 1930–?; and Frances Miner, 1933–73 (Anon., *The Garden at 75*, 115). From 1930 to 1934, a black man, Martin Nash, was also an assistant. Edward Walsh to Betsy Jacobs, 9 February 1988, 70th Anniversary Correspondence File, BBG.
42. Anna Murray Vail, for example, had studied with Britton at Columbia and was hired in 1900 as the first librarian (see Vail Papers, NYBG). Elizabeth Britton, as honorary curator of mosses, and Margaret Slosson, short-term assistant curator of ferns, were the only women consistently on staff through the first three decades.
43. Fannie Parsons had, in fact, raised initial funds (see Board of Managers Minutes, 16 November 1916, 8 January 2017 and 19 April 2017, NYBG).
44. Board of Managers Minutes, 20 June 1918, Archives, NYBG.
45. These books were self-published and reviewed in *Torreya* and other journals.
46. Weber, 'William Alphonso Murrill'. A revealing account of his personal life is by James W. Kimbrough at http://www.mushroomthejournal.com/greatlakesdata/Authors/Murrill19.html (accessed 27 December 2019).
47. Toledano, 'Gardens within a City', 9–10. See Britton, 'New York Botanical Garden'.
48. On the distribution and loss of private collections in the early twentieth century see Lubar, *Inside the Lost Museum.*
49. Mickulas, *Brittain's Botanical Empire* points out that the short-term fellowships brought botanists from around the country to use new research collections based on excursions into the tropical regions of Central and South America.
50. Pauly, *Fruits and Plains*, 185–6.
51. Rusby, 'Nathaniel Lord Britton', 111. Vandals stole flowers, cut tops from coniferous evergreens and even gathered labels to be sold for the value of the lead they contained.
52. Riney-Kehrberg, *The Nature of Childhood*, 54–5.
53. Pauly, *Fruits and Plains*, 8.
54. Smith, *The Garden of Invention*; Vaught, *Cultivating California*.
55. Cornelius Vanderbilt, President of the Board of Managers of the NYBC, and his family built mansions with elaborate grounds in Rhode Island, Long Island, upstate New York and North Carolina (see Vanderbilt, *Fortune's Children*).
56. Trelease, 'Henry Shaw School of Botany', 64.
57. Trelease, 'Henry Shaw School of Botany', 68. Somewhat ironically, given Trelease's attitude toward women, in 1895 the first graduate of the new School of Botany was a woman, Isabelle Mulford, who subsequently taught the special classes for local teachers.
58. Kleinman, 'Museum in the garden', 62–3.
59. Kleinman, 'Museum in the garden'.
60. On the dearth of outdoor staff, see Greener, 'Rise of the Professional Gardener', 33–4.
61. Colman, *Education and Agriculture*.
62. Mickulas, 'Cultivating the Big Apple'. See also Pauly, *Biologists and the Promise*, 71–92.
63. The St Louis Botanical Garden public activities grew rapidly in the 1890s and continued through the 1910s: Kleinman, 'Museum in the garden', 62–3.
64. Turrill, *Royal Botanic Gardens, Kew*, 237–9.
65. Advocates of women's rights expected that horticultural education would give women new skills and related employment (see Opitz, '"Triumph of brains over brute"'; Opitz, '"Back to the land"').

66. Jane Browne Haines based her school on those in England, according to Opitz, '"Back to the land"'. See also Hopkins, 'Fruit of her Fields'.
67. 'Talks on war gardens', *New York Times* (18 March 1918), 19. Free was Head Gardener at the NYBG from 1914 to 1945.
68. Board of Managers, 17 June and 19 November 1920, NYBG. See 'Gardening course to aid veterans', *New York Times* (13 June 1920), 31.
69. Mickulas, *Britton's Botanical Empire*, 1. The American Horticultural Society, founded in 1904, housed in the city, was the centre of a network of local and state societies. Thomas Bender traces the emerging elite academic culture in *New York Intellect*.
70. Brockway, *Science and Colonial Expansion*.
71. Crain, *The Gilded Age*.
72. Mickulas, *Britton's Botanical Empire*, 7; McCracken, *Gardens of Empire*.
73. See Drayton, *Nature's Government*; Hecht, *Entangled Geographies*.
74. Wilson graduated from Harvard and took a German PhD (1882) before teaching anatomy and physiology of plants at the University of Pennsylvania (Conn, *Museums and American Intellectual Life*, 119).
75. Conn, *Museums and American Intellectual Life*, 120. Also see Rydell, *All the World's a Fair*, 168–9.
76. Lucy Langdon Williams Wilson was a teacher and founding member of the American Nature Study Society, who wrote, among her multiple textbooks, *Nature Study in Elementary Schools*. See Mathien, 'Lucy L. W. Wilson', 134–5.
77. The NYBG funded, organised and conducted over a thousand expeditions between 1897 and the 1910s, often in Central America and the West Indies (Dunkak, *Knowledge, Truth, and Service*, 28). Britton's comment is recorded in Howe, 'Nathaniel Lord Britton'.
78. McCook, *States of Nature*. The NYBG records indicate that the extensive West Indies materials facilitated museum exchanges.
79. Briggs, *Reproducing Empire*.
80. In May 1917, the United States passed the Jones Act, which gave citizenship to Puerto Ricans, although major executives continued to be appointed by the President until 1948.
81. Mickulas, *Britton's Botanical Empire*, 299.
82. Most of his major publications resulted from the trips to the Caribbean, especially Bermuda, the Bahamas and Puerto Rico. Together with P. Wilson he produced *The Botany of Puerto Rico*, 1923–9. His special interest was cactus, and he considered the four volumes of *The Cactaceae* (1919–23), written with Joseph N. Rose, his most important contribution. See the evaluation of his work in Merrill, 'Nathaniel Lord Britton' and Sastre-D.J. and Santiago-Valentin, 'Botanical explorations'.
83. Kilpatrick, *Guide to Nature Study*, 17.
84. Nathaniel Britton wrote up results quickly, and in May 1913 he published his 'Cactus studies in the West Indies'.
85. Schulten, *Geographical Imagination*.
86. Anon., *New York Botanical Garden*, 104.
87. The BBG's extensive collection of glass lantern slides, produced and coloured by Elsie McKittrick, are available digitally online; see image collection at https://www.bbg.org/collections/historicimages (accessed 30 October 2020).
88. Gager to Frederic A. Lucas, 2 June 1914, Frederic A. Lucas Papers, Box 1, Folder 20, BBG. A similar list of materials on display in the BBG Conservatory is in Kilpatrick, *Guide to Nature Study*, 21–2.
89. A series of these flyers are found in the files of the BBG.
90. This paralleled geographical school work in British schools (see Ploszajska, 'Geographical education'; Schulten, *Geographical Imagination*).
91. Dunkak, *Knowledge, Truth, and Service*, 31–2.
92. Coulter, 'Social, educational, and scientific value'.
93. Anon., '*All the Children*', 78 and 81. The BBG hired a dedicated staff member to press, mount and label 'hundreds of specimens of common flowers, weed, and tree leaves and fruits' for loan or sale to schools. Anon., *The Garden at 75*, 131.
94. File folder of letters for the 75th Anniversary, BBG. Environmental activist Barry Commoner published *The Closing Circle* in 1970 and often led Earth Day activities in the 1970s and 1980s.
95. The gardens modestly experimented with film and radio in the 1920s (see LaFollette, *Science on the Air*; Rader and Cain, *Life on Display*).

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8

Plants on the move: Kew Gardens and the London schoolroom

Laura Newman

This chapter discusses Kew's role as a major supplier of plant specimens to London classrooms. Between 1885 and 1916 more than a hundred schools in the capital were recipients of plants from Kew's Museum of Economic Botany, providing teachers with teaching aids, and students with a chance to encounter the botanical products of Britain and its empire. By pinpointing Kew's contribution to curricular initiatives such as nature study, I show how the growing presence of plants in schools formed part of a broader national and transnational phenomenon – one that simultaneously stressed the benefits of pedagogy-through-nature, and the instrumental possibilities of museums both within and without the classroom. This chapter asks what it meant to be part of a much broader botanical marketplace for schools in late nineteenth- and early twentieth-century London. By comparing the origins and workings of Kew Gardens' schools scheme with those of the London County Council (LCC) and the Imperial Institute, it highlights both the benefits and disadvantages that could present themselves to museums and other kinds of educational institutions when working with schools.

Historians have commented extensively on the repurposing of museums as instruments for public pedagogy from the mid-nineteenth century onwards. Following the Museums Act of 1845, public instruction provided one means for museums to define their institutional objectives and – in doing so – justify their reliance on the public purse through initiatives such as lecture series.[1] Museums therefore became new venues for learning, becoming both a space for 'aspiring autodidacts' and a vehicle for urban elites who wished to enact 'social change in the challenging context of the industrial city'.[2] By supporting museums,

it was argued, the state could provide for the working classes a site that embodied the newly emerging principles of rational recreation, (re)configuring what constituted legitimate leisure in the Victorian city. Historians have subsequently made much of this transformation of museums as vehicles for social control, yet there remains little work on the different kinds of institutional trajectories taken by museums in the development of early forms of what would be classed today as 'outreach'. So, too, has there been limited work examining the ways in which museums operated within a much broader and ever evolving geography of educational provision in the nineteenth- and twentieth-century city, one that linked together libraries, botanical gardens, parks and – after the 1870 Education Act – new state-funded board schools.

One of the routes through which these shared institutional prerogatives materialised was via the circulation and mobilisation of the museum in various ways – through school visits to museums, teacher training schemes, the school museum, specimen loans and donations, as well as docent instruction. Kew participated in some of these initiatives, with varying degrees of engagement. As Caroline Cornish has shown, Kew was often reluctant to fulfil the lofty educational objectives set out by Lindley's 1840 Report and its recommendations to establish a programme of public instruction. The result was to '[create] distance between the worlds of science and spectacle' at Kew.[3] Indeed, while Kew was undoubtedly an important centre for formal, behind-the-scenes instruction throughout this period – for gardeners, scientists and, later, teachers – it was only by the early 1990s that a formal learning programme for visiting schools was established at Kew Gardens.[4] At the same time, however, the case of Kew also serves as a reminder that museum education in this period assumed a myriad of forms that went beyond the school visit.

Education and the mobile museum

The concept of the mobile museum allows us to move beyond the fixed physical boundaries of the exhibition space and to recognise the multiplicity of ways in which museums have been historically mobile. Characterised by and through 'the diverse practices and technologies of mobility' in the creation of 'networked learning environments', the mobile museum has proved of central importance to discussions of how museums have evolved to operate in networked societies.[5] Bautista and Balsano propose a chronology of the mobile museum that begins

with mid-twentieth-century experimentation with shortwave radios in museums, but conclude that 'the real innovation in new museology, however, came when mobile communications . . . took the museum experience out of the physical place' through 'satellite museum spaces' in schools, libraries and other 'populist' spaces. Others have looked further back, however, and seen a number of historical mobilities in action at museums that challenge the idea of the Victorian museum as a primarily 'place-based cultural institution'.[6] In their study of the Pitt Rivers Museum, Chris Gosden and Frances Larson work to 'blur the boundaries of the Museum' by focusing on both the formal and informal ties that connected the Pitt Rivers Museum to other educationalists.[7] This chapter, too, shows how the idea of the mobile museum is a particularly helpful way of conceptualising the new kinds of collaborations and partnerships that were emerging between schools and museums in the nineteenth and early twentieth centuries, by examining how objects, correspondence and ideas circulated between the two different institutions. In doing so, we become cognisant of the key role that teachers have historically played as both consumers and creators of educational technologies.[8] Museums, increasingly fashioned as publicly accessible pedagogical spaces, were just one of the many avenues open to teachers in this period, who depended upon the generosity and expertise of others in stocking their classroom shelves.[9] The mobile museum therefore allows us to draw into our remit new kinds of actors – in this case, teachers, schoolchildren and a whole host of others involved in the education of young people in this period – who helped to distribute the museum in new ways.

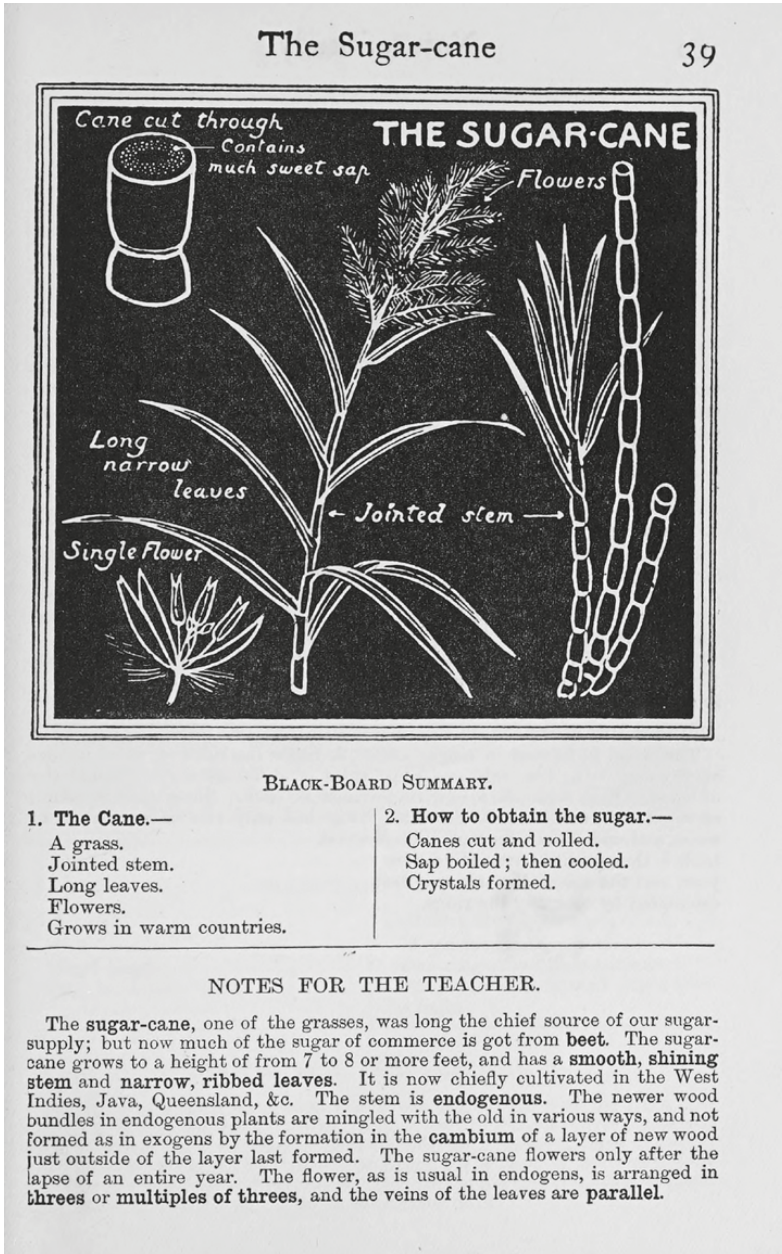
Plants and pedagogy

Historians have, however, so far failed to acknowledge how schools operated as significant repositories of plant-based material. While recognising the roles that plants have played as tools of learned sociability, there has been – with some exceptions – little recognition of the long and pervasive history that plants and their study have played in child-centred pedagogical practice.[10] Enlightenment pedagogues, in particular, saw in botany an ideal avenue for inculcating innate powers of observation among the young. Rousseau praised botanical instruction as a 'study of pure curiosity'.[11] He was joined by Locke, who advocated botanical instruction beginning at an early age.[12] The importance of encountering plants in childhood was further reaffirmed by post-Enlightenment pedagogues such as Pestalozzi and Froebel, who saw

botanical fieldwork as a means of encouraging and prioritising sensory exploration over abstract reasoning and rote learning. During this time, botany was also lauded as a naturally genteel, 'feminine' science, as expressed by prominent British educationalists such as Priscilla Bell Wakefield in her work *Introduction to Botany in a Series of Familiar Letters* (1796). In Britain, gentleman naturalists such as John Stevens Henslow – perhaps better known as Charles Darwin's botany tutor at Cambridge – put these ideas into practice when, as a clergyman-scientist based in Suffolk, he instructed local schoolgirls in botany, using it 'as an educational weapon . . . recommend[ing] it to all who are interested in raising the intellectual status of our village children'.[13]

With the introduction of (limited) compulsory elementary education in 1870, the expansion and systematisation of not only plant-based instruction, but object-centric learning as a whole, was made – at least in theory – possible. Botany continued to be lauded as an accessible subject for children, and it could be taken as a special subject in schools. Its popularity here was tenuous, however: by the late 1890s, special subjects were only taught to an estimated 1 in 50 elementary school children in England and Wales. Of these, botany was described as the least popular (save algebra).[14] Despite this, however, the pedagogical contexts in which plants or plant-based material could be, and were, deployed were in fact very broad. In particular, the growth in popularity of the object lesson from the 1860s onwards helped to ensure the relevance of plants and plant-based materials. Object lessons centred on guiding a child's sensory impressions of objects so as to inculcate and refine inert powers of observation, as well as understand more broadly the 'common' things of nature and the world at large. What is important to note for the purpose of this chapter is the impact that the object lesson had on the material character of the classroom through its reliance on a number of exhibitionary technologies that were also common to museum displays. Here, display cupboards, picture cards and wallcharts were all utilised to support the object lesson (Figure 8.1).[15]

London was particularly ripe for this shift in the material culture of the classroom. A number of prominent figures involved in its educational administration saw in the object lesson a means by which to nurture the scientific and technical capabilities of the capital's youth. London schools were in the first instance governed by the London School Board (LSB) in the wake of the 1870 Education Act, and, from 1904, by the Education Department of the London County Council (Figure 8.2). Object lessons were made mandatory by the LSB in 1871, in part due to the effort of figures such as John Hall Gladstone and T. H. Huxley.[16] Huxley promoted



The Sugar-cane 39

BLACK-BOARD SUMMARY.

1. **The Cane.—**
   A grass.
   Jointed stem.
   Long leaves.
   Flowers.
   Grows in warm countries.

2. **How to obtain the sugar.—**
   Canes cut and rolled.
   Sap boiled; then cooled.
   Crystals formed.

NOTES FOR THE TEACHER.

The **sugar-cane**, one of the grasses, was long the chief source of our sugar-supply; but now much of the sugar of commerce is got from **beet**. The sugar-cane grows to a height of from 7 to 8 or more feet, and has a **smooth, shining stem** and **narrow, ribbed leaves**. It is now chiefly cultivated in the West Indies, Java, Queensland, &c. The stem is **endogenous**. The newer wood bundles in endogenous plants are mingled with the old in various ways, and not formed as in exogens by the formation in the **cambium** of a layer of new wood just outside of the layer last formed. The sugar-cane flowers only after the lapse of an entire year. The flower, as is usual in endogens, is arranged in **threes** or **multiples of threes**, and the veins of the leaves are **parallel**.

Figure 8.1 'The sugar-cane'. From *Teacher's Notes on Nature Study: Plants and animals* (London and Glasgow: Blackie & Sons, 1900), 39. Recommended teaching aids include a piece of sugar cane, a leaf, flowers, a picture of a sugar plantation and sugar mill, and specimens of sugar and molasses.

Figure 8.2 The London School Board in session, c.1897–9. *The Queen's Empire, Volume 2: A pictorial and descriptive record*, 49. London: Cassell, 1899.

the benefits of learning through ordinary things: 'The commonest thing – a candle, a boy's squirt, a piece of chalk . . . may be made the starting points whence children may be led into the regions of science.'[17] Both Huxley and Gladstone were also vocal proponents of enhanced technical instruction, and later on Sidney Webb, too, through his work at London's Technical Educational Board.[18] In London, the popularity of the object lesson, combined with this strong support for scientific and vocational teaching, led to an environment that proved hospitable to the object-dense classroom.

Kew provides a good example of the various entanglements between schools, museums and the state that emerged during this pedagogical transition. Kew had a number of encounters with London schoolteachers through its own partnership with the government's Science and Art Department which provided extramural training for teachers in subjects such as botany. From the mid-1850s, Science and Art Department students based at the National Art Training School were also able to purchase a student ticket to visit Kew to observe and paint flowers.[19] Kew also provided the school with a regular supply of flower cuttings from the early 1850s until at least the late 1880s.[20] Beyond the supply of materials, Kew also equipped the Science and Art Department

with teaching personnel: while he was Assistant Director of the gardens, William Thiselton-Dyer served as botany demonstrator and examiner at the department in the mid-1870s.[21] In 1914, Kew introduced its first teacher training scheme, which included object handling.[22] Later on, Kew would partner with the Board of Education for more teacher training schemes: in 1923 and 1925, special teacher training courses took place in the gardens, incorporating both laboratory-based instruction and visits to the Museum of Economic Botany.[23]

The next section discusses in greater depth the ways in which London later emerged as the epicentre of the nature-study movement in late nineteenth-century Britain, and the role Kew played within this. It brings into focus the varied nature of London's botanical network, and the presence of schools, teachers and students within it, as plants were circulated throughout the city and its environs. The idea of the 'botanical marketplace' has proved pervasive among historians of science, who have studied in depth the ways in which agreed-upon protocols of specimen exchange became embedded within scientific networks, and encompassed diverse actors such as artisans, gentleman scientists and colonial housewives.[24] The next section proposes an elaboration upon such work, pointing out the presence of a distinctly scholastic network for the distribution of plants in this period.

Kew's school scheme in London

London schools were prominent among those schools receiving Kew Museum specimens between 1877 and 1916, with some 199 'dispersal events' (out of an approximate total of some 700 to schools nationally), and about 33,000 objects making their way to schools across the capital.[25] The physical proximity of Kew to London meant that specimens were cheaper, easier and quicker to transport.[26] London also had a high density of schools and young people: by 1901 around 19 per cent of the capital's population were between 4 and 14 years of age (roughly the schoolgoing age). By 1895, there were approximately 700,000 students attending board and voluntary schools in the capital.[27] By 1903, this number had increased to over 760,000.[28] Yet the sheer number of schools making applications to Kew's Museum for specimens also posed a number of operational challenges: lengthy waiting times were common due to a lack of sufficient material, with the museum supplying schools with duplicates only as and when they became available.[29]

When we look at where in London Kew specimens ended up, schools in the central boroughs of the capital (such as Westminster)[30] and nearer to Kew in the home counties (such as Surrey) were some of the biggest recipients (Figure 8.3). Nearby schools in locations such as Uxbridge, Croydon and Richmond were some of the more regular recipients.[31] Yet other concentrations of material also appear in the eastern boroughs of Tower Hamlets and Waltham Forest, as they are now known.[32] The accumulation of plants and plant specimens in schools in these areas of the capital demonstrates how proponents of nature study identified East End schoolchildren as ideal subjects to be rejuvenated through the unique pedagogical powers of nature.

Emerging in the late nineteenth and early twentieth centuries, nature study manifested through a number of different schemes and applications; indeed, as Sally Gregory Kohlstedt writes, the chimeric character of the movement and its loose boundaries went a long way to ensuring its success.[33] Taking inspiration from the methods first formalised in the Pestalozzian object lesson – including those that worked together to loosely assemble the basis of the nature-study

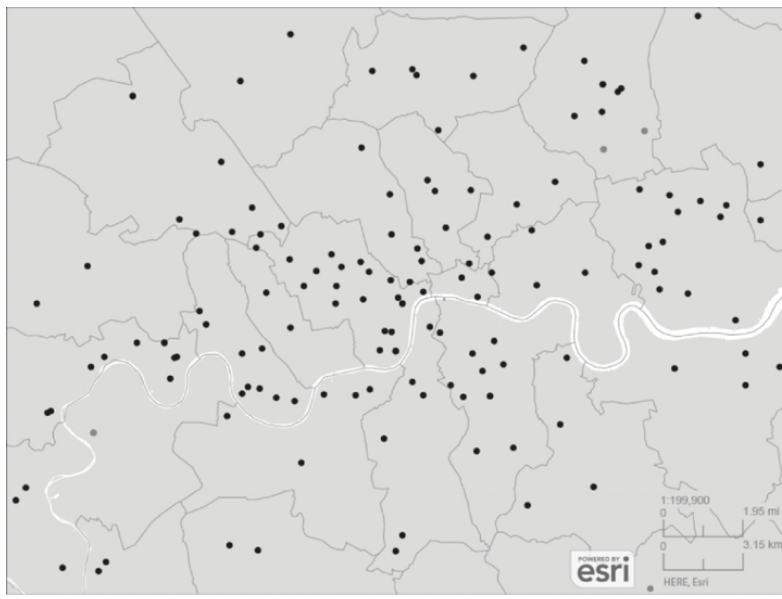


Figure 8.3 Dispersals to London schools from Kew Museums, 1877–1980. Source: Kew Museum of Economic Botany, Specimens Distributed books. Map: Jen Thornton.

curriculum – nature study was defined by a 'tactile materiality' in which children learned best from direct interaction with their environment.[34] Museums played a critical function in mediating this encounter, whether the museum be situated within the space of the classroom or without. Indeed, the school museum was a vital tool in nature-study curricula. In the words of one article published in *The Practical Teacher* (1903), school museums had become 'in these days of nature study, almost a necessity',[35] as both a practical storage solution and, more implicitly, as a means by which to inculcate proper, systematic collecting habits among children.

Beyond the classroom, urban children were also able to encounter the 'things' of nature through a variety of civic sites, such as parks and museums. London was therefore an ideal testing ground for nature study at the turn of the century, in part due to the growth of such spaces and the impact of progressive pedagogies that readily incorporated nature study into their remit. The influence of Froebelian ideas on a number of London-based kindergarten teachers in particular did much to support the introduction of nature study into the capital's classrooms.[36] The establishment of the School Nature Study Union (SNSU) in 1904 provided an organisational locus for London schoolteachers in particular, who made up the bulk of the society's membership and benefited from regular teacher training, organised nature rambles and educational texts supplied by the society.[37] Yet the success of nature study in the capital also owed much to contemporary anxieties surrounding the pernicious effects of city life on London's youth.

The epicentre of nature study in Britain was the Nature Study Museum, set up in the borough of Stepney (which now falls under Tower Hamlets), a neighbourhood described by one contemporary as 'one of the blackest spots in the sociologist's magpie map of London'.[38] Opened in 1904, and managed partly by members of the SNSU, the Nature Study Museum was regularly used by local schoolchildren, mounting an ambitious teaching programme that saw some four hundred students receiving weekly nature-study lessons at the museum by 1917.[39] Nearby Stepney schools, such as Myrdle Street Council School, took ready advantage of the museum's resources, attending regularly for lessons and visits to the museum's extensive gardens. Here, the edifying effects of nature helped, in the words of its headmistress, to provide a 'restful contrast to the busy and sordid surroundings' of East London.[40] Much like the progressive era in Chicago and New York, institutions such as the Nature Study Museum and Kew proved a critical resource to London schoolteachers who feared that their charges were growing up in 'unnatural' urban environments.[41] Teachers traded upon such anxieties

in their correspondence with Kew. The first board schoolteacher to request specimens from Kew in 1888 wrote of the power of plants to 'relieve the dull monotony of an East London life' for his East Ham students.[42] Likewise, a number of London Underground posters advertising Kew in this period used pristine and innocent images of children in nature, advertising access to the gardens and its museum by tram, bus, underground and steamboat (Figure 8.4). This idyllic representation of childhood denotes the important role that Kew and other green spaces played in the capital's youthful geographies through a conflation of childhood and children with nature and natural spaces. It is unsurprising, therefore, that we see many schools in or near London take children to Kew Gardens as part of their nature-study lessons.[43]

All this combined to make botanical specimens, in both their prepared and fresh forms, an increasingly essential classroom tool in London from the 1890s onwards. The need for a regular supply of specimens, however, was a chronic issue: one London-based teacher complained that 'it is the difficulty of obtaining specimens in sufficient quantities that has prevented the entrance of nature study into many a school time-table'.[44] This lack of plant or plant-based resources affected not only nature study, but a number of other subjects taught at London's diverse range of schools. Particularly affected were trade schools, which were an important and highly visible component of London's educational landscape: of the 134 British trade schools established by 1936, only 10 of them were situated outside London.[45] An important subset of these schools focused on training students in carpentry: the first junior technical school in London – Shoreditch Technical School – was designed for boys planning to enter the woodworking trades. Kew sent 15 tree 'branches with cones' to the school's cabinet-making department in 1903.[46] Well in advance of the national introduction in 1893 of woodwork instruction in board schools,[47] the LSB had already begun to incorporate woodworking in its elementary curriculum from 1887 onwards through the financial support of the City and Guilds London Institute and the Drapers' Company.[48] By 1897, around six hundred London board school students were receiving instruction in woodwork.[49] Subsequent instruction from the Committee of Council on Education stipulated to teachers the importance of holding 'a small collection of the chief descriptions of timber commonly employed in wood, with longitudinal and cross sections', as it provided students with 'clear ideas respecting the various kinds of hard and soft woods, the growth and structure and woods, its fibre, and grain'.[50] Yet the woodworking curriculum in London board schools included more than just a discussion

Figure 8.4 'Spring has Come' by Hilda Austin, 1914. © TfL from the London Transport Museum (1983/4/572).

of the physical properties of wood, and incorporated 'the natural history of the woods, their growth, their uses, preparation and treatment'.[51] There were various requests from London teachers in woodwork[52] who relied upon Kew for specialist teaching material that was, seemingly, otherwise hard to come by, especially as much woodworking relied upon the colonial timbers that Kew regularly accessioned and exchanged with their imperial counterparts. Put together, Kew sent approximately 458 wood samples to London schools between 1887 and 1916, making up around a third of all identifiable specimens sent to schools in the capital in this period.

Despite the continuing popularity of plants as a cross-curricular teaching aid in London schools, however, by the 1930s, the Kew schools scheme seems to have effectively ended. A response to a request for timber specimens made in 1936 by the Fleet Road LCC school was denied on the grounds that 'no regular practice is made at Kew of providing specimens for schools'.[53] Why was this? By this point, other institutions, such as the LCC and the Imperial Institute provided more reliable schemes that were better organised, better resourced and more invested – for a variety of reasons – in connecting with and supporting London schools. A brief history of these two schemes throws into relief the ways in which mechanisms for acquiring specimens for schools were becoming increasingly centralised and streamlined in the capital by the opening decades of the twentieth century in response to the regular resource pressures faced by London teachers. The two schemes I will discuss nonetheless show various entanglements with Kew, suggesting the numerous ways in which the Kew Museum enjoyed a degree of longevity and presence in London schoolrooms beyond the life of its own scheme.

The London County Council botany scheme

From the time of its inception, the LSB (later the LCC) experimented with a number of experimental initiatives in order to cope with the 'sheer scale of the enterprise of directing the educational development of [the] metropolis'.[54] With regard to nature study, the LSB needed to address the inevitable barriers that came with teaching about nature in the city. The LSB lamented that the 'element of freedom, exploration and adventure' so critical to nature study was 'almost entirely absent' in the metropolis, leaving London teachers and students with little opportunity to regularly encounter plant life.[55] A number of both informal and formal solutions

had been tried by teachers prior to the scheme. Teachers would write to local park authorities or, in some cases, even cooperate in a 'mutual aid' scheme, where rural schoolchildren sent common flowers, grasses, fruits and so on to city children in exchange for 'interesting details of town life . . . picture postcards . . . specimens from factories etc.' from the city.[56] Other resources included teachers' own gardens, florists and weekend rambles to the country; however, London teachers saw these as unreliable and expensive solutions.[57] In response to this, the LSB school botany scheme began formally in 1898, with the aim of supplying both fresh and dried plant specimens to London board schools to supplement lessons in nature study, botany, art and to provide materials for object lessons.

Throughout the life of the scheme, the supply of fresh specimens was seen as a means by which to combat what were regarded as outmoded approaches to nature teaching; if the scheme stopped, fears arose that 'blackboard demonstration would . . . become too prominent' once again in London schools.[58] Taking inspiration from a similar scheme in Berlin, both full- and part-time staff working from a depot in Hyde Park were used in the scheme. Teachers would receive weekly lists of available plants in the LCC *Gazette*, and the plants were then delivered via parcel from the depot.[59] By 1903, the scheme was supplying over four hundred boxes containing over 200,000 plant specimens to London schools.[60] The scheme expanded quickly: between 1900 and 1906, the number of schools supplied with specimens almost tripled (see Table 8.1).

A continual problem, shared by both Kew and the LCC, was ensuring that supply could match demand. Unlike Kew, the LCC sought solutions to the problem of renewing its stock by employing professional

Table 8.1 Number of London schools served by the LCC Botany Scheme, 1900–6. Source: London Metropolitan Archives Board of Education Day Schools Subcommittee Minute Book, 11 December 1906 (LCC/EO/PS/02/030).

Year	Number of schools supplied
1900	197
1901	319
1902	316
1903	427
1904	554
1905	574
1906	579

collectors to scour the capital's parks and assemble the packages sent to schools.[61] These collectors were highly skilled. One collector under the scheme, A. E. Smith, had attended Swanley Horticultural College, and held qualifications in botany, chemistry and agriculture from the Board of Education and the Royal Horticultural Society.[62] The scheme also benefited from the growth in publicly accessible, municipally owned 'green' spaces in the capital from the 1860s onwards.[63]

The LCC also capitalised upon London's vast commercial marketplace in plants to ensure schools were regularly supplied, taking advantage of the 'occasional gluts' of common flowers from nurserymen-florists, particularly when such plants were not in season.[64] Obtained at 'salesman's prices', between 1913 and 1914, the scheme dealt exclusively with Messrs Ingamells of Covent Garden, purchasing from them daffodils, hyacinths and lilies.[65] The role of the capital's nurserymen-florists in facilitating an alternative – and distinctly urban – space for the distribution of plants beyond the limits of the country house and gentlemanly exchange has been occasionally explored by historians. Such work has also done much to stress the role of nursery-gardens as sites for learned sociability within the metropole, which '[generated] shared horticultural learning'. However, such case studies have tended to focus primarily on late eighteenth- and early nineteenth-century nurserymen.[66] The case of Ingamells and others who supplied the LCC, however, suggests more work needs to be done to establish the later roles played by such agents of civic horticulture in facilitating scholastic–botanical networks, and the alternative sources of patronage and prestige enjoyed by nurserymen-florists at a time when plants colonised the classroom.

Despite the occasional respite offered by these commercial suppliers, the workload for the LCC scheme was intense, with staff dealing on average with around forty letters, fifty requisition forms, two hundred orders and two hundred returns daily, alongside their collecting duties.[67] By 1909, the scheme was costing the LCC around £900 a year, with some £500 going towards staff costs and a further £247 going towards carriage.[68] Despite the high level of organisation and intense pace of work, however, demand continued to outpace supply: by 1906, it was reported that over a hundred schools were still waiting for specimens.[69] By 1910, this figure had increased to five hundred.[70] The scheme was suspended during the First World War. In the inter-war period, the scheme continued to struggle to meet its ambitious aims of meeting the botanical needs of London schools – by 1928, teachers were still complaining about being 'struck off' the list of schools being supplied with specimens, yet the LCC claimed that they could not meet demand, despite their small army of collectors.[71]

Here, however, Kew continued to play an important, if unacknowledged, role in the scheme; a role that helps us to realise the ways in which London's botanical marketplace was characterised by intersecting professional and institutional allegiances that all worked together – albeit often loosely – to bring plants into the classroom. Kew had, from 1877 onwards, periodically sent duplicates to the LSB for dispersal to schools.[72] Yet, under the scheme, Kew's role in supplying London schoolchildren with fresh plants became formalised, in part due to the close intra-professional ties which Kew maintained with horticulturalists in the capital. The scheme's superintendent, Mr Williams, had extensive experience as both a gardener and as a student and teacher of science, including a certificate in geographical botany from Kew before taking up his post at the LCC in 1899.[73] From its inception, Williams used his Kew connections to help support his work. Boxes for surplus cuttings and specimens were placed within the gardens, and at several other sites, including the Royal Horticultural Gardens in Chiswick.[74] The Kew Museum also made gifts to the LCC scheme on two occasions, once in 1900 and again two years later. The 1900 donation consisted of 149 specimens of wood and 54 'miscellaneous museum duplicates',[75] therefore diversifying the LCC's scheme, which typically only offered freshly cut plants. The 1902 gift was even more sizeable: it included 36 specimens of wood, 'each specimen being large enough to cut up into a number of smaller ones'. It also included 842 specimens of 'various fruits, seeds, etc.'[76] This helped to meet the tentative (and ultimately unrealised) ambitions of the LSB, and later the LCC, to diversify its offerings by branching out into supplying schools not only with fresh and dried plant material, but also with other kinds of natural history and art specimens, in effect becoming a one-stop-shop for object lesson specimens for schoolrooms across the capital.[77]

The LCC's aim to collect, collate and centralise classroom material can be seen through their depot – an iron shed that measured 21 feet by 21 feet, with its own office and packing room[78] – which served, alongside Kew's Museum, as an example of one of the botanical 'clearing houses' that catered to London schools in this period (see also Chapter 4 in this volume). But the LCC's supply of fresh and dried plants was circumscribed, working through its limited resources and collecting practices to reflect a botanical world that was – for the most part – specific to London's green spaces and, to a limited extent, the English countryside. This is unsurprising, given how the scheme's pedagogical objectives prioritised nature study in the first instance, valuing most 'the commonest objects, consisting of such things as a child would see in his own garden, or in

public parks, or during a ramble in the country'.[79] With this in mind, the next section considers in greater depth another botanical clearing house – that of the Imperial Institute – and the ways in which it designated itself as a unique botanical resource for teaching children about empire.

The Imperial Institute's schools specimen scheme

Originally conceived as a memorial to the Queen's Jubilee, the Imperial Institute opened in 1893 to act as a locus of information for imperial industry and commerce. At various points under the control of the Colonial Office and the Office for Overseas Trade, the Institute was envisioned as being 'at once a Museum, an Exhibition, and the proper locality for the discussion of Colonial and Indian subjects' (Figure 8.5).[80] It included various resources for those involved in colonial industries, such as specialist libraries and reference collections of raw samples.[81] It also – anticipating its later schools scheme – circulated small travelling collections of colonial samples to colleges, universities and private firms, alongside a number of more public-facing educational schemes, including display galleries and public lecture series.[82]

These initiatives were designed to help establish the Institute as 'a centre and clearing house for information, investigation and exhibition of the natural resources of the Empire, in order to promote inter-Imperial commerce and industry'.[83] However, as John MacKenzie has discussed,

Figure 8.5 Picture postcard of the Imperial Institute, c.1905.

the Institute was often unsuccessful in capturing the audience numbers or obtaining the reach it desired, not only among industry, but also among the public at large.[84] To this end, in the 1920s, the Institute turned its attention towards establishing itself as a space in which imperial youths would be made particularly welcome. In 1926, the Institute established an educational subcommittee, consisting of delegates from the Board of Education, the LCC, the National Union of Teachers and various other bodies, to advise it on the redevelopment of the galleries.[85] The results were a number of ethnographic dioramas and other various forms of tableaux that were used to affect a holistic view of the ways in which the resources and peoples of empire were connected. In a 1927 article, the Institute Director, Sir William Furse, described how these displays educated young visitors about the role that plants in particular played in imperial industry, one in which they could see:

> how and where in the Empire such things as sugar, fruits, tea, coffee and wheat are produced; they will gain an idea of what a rubber plantation looks like in Malaya; how important is sisal in East Africa, copra in the Solomon Islands, and palm oil in Nigeria, and what commodities of daily use each of these tropical products is turned into.[86]

In this way, the Institute's galleries were designed to be the 'Storyland of the Empire . . . for thousands of children throughout the United Kingdom'.[87] Visitor research analysed schools by their level of study and their location: in 1929, a total of 186 schools visited, the majority of them elementary schools coming from nearby boroughs of west and south London such as Chelsea, Westminster and Wandsworth.[88] When they arrived, teachers could benefit from special quizzes set up for their students by the Institute, which encouraged them to explore the galleries, where children could use the displays to answer questions such as how tall sugar-cane grass grew in South Africa.[89] Here, the Institute acted as a convenient material and epistemic resource for both teachers and students alike. Indeed, the Institute's new direction after 1926 speaks to a consciously child-centred approach to exhibition design, one in which learning outcomes were clearly waymarked for the child visitor through eye-catching displays and special learning aids.[90] Beyond this, the Institute also worked to make itself mobile, with portable visual technologies such as postcards and posters on plant-based topics such as coconut production in Ceylon or the clove industry in Zanzibar making their way into classrooms.[91] During the next few years, the Institute also

introduced an extensive school film programme[92] and a lantern slide loan scheme,[93] and supervised student essay competitions.[94]

Complementing all these activities was the Institute's own schools specimen service, which was advertised from around 1928. The circulation of specimens and other kinds of teaching tools by the Institute demonstrates, alongside Kew, an example of the mobile museum in action. Indeed, as Mark Crinson writes, the principle of distribution – whether through text, object or image – was a defining feature of the Institute's aim to 'foster a more self-conscious imperialism . . . geared to the systematic exploitation of imperial resources'.[95] The aim of the schools specimen service made this clear: '[to make] Empire products more real to the rising generation'.[96] The specimens list was coherently and systematically organised, with botanical specimens being classed by both country of origin and use. Under 'East Africa', for example, were included such crops as barley, cocoa beans, coir, sisal hemp, chillies, cloves and mangrove bark.[97] Specimens came ready labelled.[98] By 1931, the Institute was proudly boasting of having 'equipped' over a hundred school museums that year.[99]

The Institute's scheme operated within an evolving educational landscape. Catering to an ever-expanding group of young people in post-primary education in the inter-war and post-war periods – marked by the formal division of primary and secondary schooling and the introduction of compulsory secondary education with the Butler Act (1944) – the Institute arguably did much to extend the life cycle of the imperial curriculum in British schools. In this way, the Institute's specimen scheme operated within a context of educational provision that differed markedly in some ways from that of Kew and the LCC. In London, which had already experimented with secondary school provision in the late nineteenth and early twentieth centuries, the aftermath of the 1944 Act witnessed a significant growth in state-funded secondary schools: the ambitious 'London School Plan' (1947) detailed the construction of over a hundred new 'high school units' in the capital.[100]

In its early stages, as at Kew, the Institute's scheme consisted primarily of the distribution of existing duplicates. However, over time, and echoing the case of the LCC, the Institute made efforts to renew its stock for schools.[101] Like the LCC, the Institute relied upon a diverse and often eclectic range of suppliers based in both London and the empire. Echoing Kew's own dependence upon colonial government agents for the provision of its museum,[102] suppliers for the Institute's school service in the post-war period included the Union of South Africa for white maize and wheat,[103] the Nigeria Office for palm kernels and castor seeds,[104]

and the Ugandan and Kenyan departments of agriculture for copra, coffee and cotton.[105] It also traded upon its commercial connections, accumulating school specimens of sisal from Wigglesworth & Co.,[106] and rubber from the British Rubber Development Board.[107] The history of the Institute's schools scheme shows the multiple hubs of activity at work in London's scholastic marketplace in plants, bringing into its fold not only local hubs of activity, but also a global marketplace in plant exchange that incorporated actors from the realms of colonial politics, business and education.

Echoing the case of the LCC, however, Kew was also a semi-regular donor to the Institute between 1892 and 1931, distributing approximately 116 specimens across 15 dispersal events. Three of these events occurred just before or after the beginning of the Institute's school scheme in 1928, which suggests that some may have been destined for the specimens service,[108] although the case for this is not definitive. Rather, the case of the Institute speaks to Kew's shifting place in a much larger and continually expanding network of educational commodities and services in which plants (in their various states) played a critical role in the capital.

Conclusion

This chapter has shown that the botanical marketplace for London schools was characterised by a great degree of institutional diversity, organisational capacity and curricular applications. This was in itself reflective of London's unique educational landscape, which saw plant-centred teaching as a remedy to a number of pressing questions centring on the imperial, civic and scientific citizenship of London schoolchildren.

Either as a means by which to define and demonstrate institutional relevance, or as a way of addressing chronic resource pressures, plants and plant-based materials – as an essential component of classroom learning – helped to fulfil the institutional objectives of both the LCC and the Imperial Institute. The Imperial Institute and LCC schemes both expanded in size and complexity over time, reflecting not only the long-standing importance of plants in their various states as learning materials, but also, in the case of the Institute, new directions in child-centric museum pedagogy.

At a time when the material allocation of botanical resources to schools was becoming increasingly diverse and bureaucratic, Kew's

schools scheme looks more ad hoc when compared to similar schemes operating in the capital. At the same time, however, in the complex genealogy of London's scholastic marketplace in plants, the distribution of both botanical expertise and material by Kew means that it functioned as the common ancestor to both LCC and Imperial Institute schemes. In this way, we can better appreciate the ways in which Kew, in its role as a botanical 'clearing house', allowed not just itself, but a number of other London-based institutions, to forge new kinds of intergenerational, intra-institutional and intra-professional partnerships through the circulation of plant and plant-based material.

All of the schemes discussed in this chapter were aided by a number of technologies of distribution and dissemination that allowed both plants and expertise to circulate more freely in the capital than ever before, whether these were boxes for surplus cuttings, the transit vans bringing boxes of freshly cut daffodils to schools or, alternatively, picture postcards of coffee production. Whether through the dispersal of materials or expertise, all three schemes show 'analogue antecedents' of today's distributed museum in action in late nineteenth- and early twentieth-century London,[109] and better articulate the various ways in which the late nineteenth- and early twentieth-century mobile museum contributed to the classroom.

Notes

1. Naylor, 'The field, the museum'.
2. Woodson-Boulton, 'Victorian museums'.
3. Cornish, 'Curating Science', 232.
4. Desmond, *History of the Royal Botanic Gardens, Kew*, 313, 357.
5. Bautista and Balsano, 'Understanding the distributed museum', 55.
6. Bautista and Balsano, 'Understanding the distributed museum', 57.
7. Gosden and Larson, *Knowing Things*, 11.
8. Lawn and Grosvenor, '"When in doubt, preserve"'.
9. For more, see Newman and Driver, 'Kew Gardens'.
10. See Keene, *Object Lessons*, Chapter 4.
11. Quoted in MacDonald, 'Malthus and the philanthropists', 10.
12. Lascarides and Hinitz, *History of Early Childhood Education*, 49.
13. Henslow and Skepper, *Flora of Suffolk*, v.
14. Board of Education, *Special Reports*, 62–3.
15. For an expansion of this argument see Lawn, *Modelling the Future*.
16. See Coleman and Mansell, 'Science, religion and the London School Board'.
17. Huxley, 'Struggle for existence', 207.
18. For more on Webb's work, see Brennan, 'Sidney Webb'.
19. Letter to Director from Richard Burchett, head teacher of Normal Training School, 4 December 1855, MR/41, Archives, Royal Botanic Gardens, Kew (hereafter, Archives, Kew).
20. Letter from National Art Training School, 17 November 1885, MR/41, Archives, Kew.
21. Letter from Joseph Hooker to Norman MacLeod, 13 January 1876, MR/41, Archives, Kew.
22. School Letter Book Vol. 3. 27 April 1914, f.830, Economic Botany Collection (hereafter, EBC), Kew.

23. *Review of the Work of the Royal Botanic Gardens During 1925* (Kew, 1926), 17.
24. On artisan botanists, see Secord, 'Science in the pub'. On women botanists in the British Empire, see, for example, Maroske, '"A taste for botanic science"'.
25. On the definition and importance of 'dispersal events', see Cornish and Driver, '"Specimens Distributed"'.
26. School Letter Book Vol. 1, 22 September 1888, 8. EBC, Kew.
27. Board of Education, *General Divisional Reports by HM Inspectors of Schools.* London: HMSO, 1895, 1.
28. See Rubenstein, 'Socialization and the London School Board', 232.
29. Newman and Driver, 'Kew Gardens'.
30. Specimen sets were sent to Westminster schools on 13 occasions between 1885 and 1916.
31. Richmond: six, Croydon: six, Uxbridge: four.
32. Between 1885 and 1916, Tower Hamlets received specimens on 16 occasions and Waltham Forest on 6 occasions.
33. Kohlstedt, *Teaching Children Science*, 3.
34. Kohlstedt, *Teaching Children Science*, 9.
35. Anon., 'Municipal museums and the elementary school'.
36. Read, 'Bringing Froebel'.
37. 'Nature study in London schools'.
38. Atkinson, 'St-George-in-the-East', n.p.
39. Hibbert-Ware, 'Autumn term'.
40. Brooks, 'The teachers' point of view'.
41. Kohlstedt, *Teaching Children Science*, 71.
42. School Letter Book Vol. 1, 30 August 1888, 4, EBC, Kew.
43. See, for example, St Paul's Logbook (Girls') 1889–1921, 18 May 1905, 205, DRO/060/056, London Metropolitan Archives (hereafter, LMA); Anon., *History of the Walthamstow School Board*, 39.
44. Wyss, 'Nature study'.
45. Banks, *Parity and Prestige*, 106.
46. Museum of Economic Botany, Kew, Specimens Distributed Book, 1901–1990, 37, EBC, Kew.
47. Sanderson, *Education and Economic Decline*, 28.
48. Sanderson, *The Missing Stratum*, 19.
49. Anon., 'Technical education', 374.
50. Committee of Council on Education, *Report, 1897–98*, 747.
51. Gordon, 'The London School Board', 24.
52. School Letter Books Vol. 1, 47, 287; Vol. 2, 390; Vol. 3, 841, 846, 895, EBC, Kew.
53. Presentations and Loans from the Museums, 1934–1955, letter dated 17 July 1936, 1/MUS/22, Archives, Kew.
54. McCulloch, 'History of urban education'.
55. Board of Education Consultative Committee of London Colleges and Secondary Schools February Report (May 1930), n.p., IE/TPN/6, Archives, Institute of Education.
56. 'Nature study – schools mutual aid scheme', 1908, *LCC Gazette* (9 March), n.p.
57. Minutes Showing Origin and History of the Botany Scheme, 1898–1910. Report of the Education Officer, 15 June 1909, n.p., LCC/EO/PS/02/030, LMA.
58. Memorandum dated 12 July 1909, n,p., LCC/EO/PS/02/030, LMA.
59. Scheme for Supplying the Schools of the Board With Specimens of Flowers, Leaves, Cuttings, Seeds &c., 1903, n.p., LCC/EO/PS/02/030, LMA.
60. London Board of Education Day Schools Subcommittee Minute Book, 4 January 1904, n.p., LCC/EO/PS/02/030, LMA.
61. Education Officer's Department Nature Study – Staff (1905–1925), n.d., c.1925, n.p., LCC/EO/PS/02/033, LMA.
62. Supply of Specimens for Nature Study, 10 December 1907, n.p., LCC/EO/PS/02/030, LMA.
63. See Reeder, 'London and green space'.
64. Memorandum dated 12 July 1910, n.p., LCC/EO/PS/02/030, LMA.
65. See, for example, Report by Education Officer on the Purchase of Cut Flowers for the LCC Finance Committee, 8 July 1914., n.p., LCC/EO/PS/02/030, LMA.
66. Coulton, 'Curiosity, Commerce, and Conversation', 11.
67. Supply of Specimens for Nature Study, 10 December 1907, n.p., LCC/EO/PS/02/030, LMA.

68. Board of Education Day Schools Subcommittee Minute Book, 15 June 1909, n.p., LCC/EO/PS/02/030, LMA.
69. Board of Education Day Schools Subcommittee Minute Book, 28 February 1906, n.p., LCC/EO/PS/02/030, LMA.
70. Board of Education Day Schools Subcommittee Minute Book, 12 July 1910, n.p., LCC/EO/PS/02/030, LMA.
71. Minute Book, 1928–1936 volume. See 25, 34, 78, 93/018, School Natural Science Society Papers & Correspondence, Leeds University Special Collections.
72. Cornish, 'Curating Science', 217.
73. Board of Education Day Schools Subcommittee Minute Book, Appendix, LCC/EO/PS/02/030, LMA.
74. Scheme for Supplying the Schools of the Board With Specimens of Flowers, Leaves, Cuttings, Seeds &c (1903), n.p., LCC/EO/PS/02/030, LMA.
75. Specimens Distributed Book Vol. 1, 31 May 1900, 552, EBC, Kew.
76. Specimens Distributed Book Vol. 2, 4 April 1902, 24, EBC, Kew.
77. See, for example, Day Schools Subcommittee Report by the Education Adviser and the Chief Inspector, 24 September 1904, n.p., LCC/EO/PS/02/030, LMA.
78. 'School Board for London School Management Department's Special Subjects Sub-Department: Botany Scheme' (Lady Day, 1903), n.p., LCC/EO/PS/02/030, LMA.
79. Report of the Education Officer, 15 June 1909, n.p., LCC/EO/PS/02/030, LMA.
80. Anon., *The Imperial Institute*, 14.
81. Crinson, 'Imperial story-lands', 102.
82. MacKenzie, *Propaganda and Empire*, 126.
83. Furse, 'The work of the Imperial Institute', 646.
84. MacKenzie, *Propaganda and Empire*, Chapter 5.
85. Imperial Institute Schools Specimen Service, 'The Exhibition Galleries of the Imperial Institute', c.1928, 1, PRO/30/76 IIP/50, TNA.
86. Furse, 'A permanent Wembley'.
87. Talk given at Edmonton, Alberta: 'Empire Service at the Imperial Institute; How Canada Benefits', September 1938, 2, MR-37, Appendix A, Archives, Kew.
88. Imperial Institute Schools Specimen Service, Memorandum of organised school parties etc. during the year 1929, PRO/30/323, TNA.
89. School quiz, c.1940, PRO 30/76, TNA.
90. One such display installed in 1949 was a 'large new relief model map of Australia on which several score of small very well made toy animals have been placed in positions to show, approximately at any rate, the distribution of sheep, beef cattle, dairy cattle, pigs, etc., in the Commonwealth', Draft of preface to Annual Report for 1949, n.p., PRO 30/76, TNA.
91. 'Economic Products of Empire Origin: List of Specimens Suitable for School Museums', n.d., c.1947/8, n.p., PRO/30/76, TNA.
92. Letter from Education Committee dated 19 July 1927, PRO/30/76, TNA.
93. Notes for report by Chairman of the Education Subcommittee, c. July 1927, PRO/30/76, TNA.
94. Letter from Royal Colonial Institute to Sir William Furse, 16 January 1928, PRO/30/76, TNA.
95. Crinson, 'Imperial story-lands', 102.
96. Letter from Sir Harry Lindsay to Col M. J. Stewart, 1 January 1952, PRO/30/76, TNA.
97. 'Economic Products of Empire Origin: List of Specimens Suitable for School Museums', n.d., n.p., PRO 30/76, TNA.
98. 'Economic Products of Empire Origin: List of Specimens Suitable for School Museums', c.1947/8, PRO 30/76, TNA.
99. Cook, 'Educational work', 143.
100. Anon., 'London School Plan', *Times Education Supplement* (22 February 1947): 1.
101. See, for example, Memorandum 11 November 1954, n.p., PRO 30/76, TNA.
102. Cornish, Driver and Nesbitt, 'Economic Botany Collection at Kew'.
103. 'List of suppliers for school specimens service, n.d., c.1947–8', n.p., PRO 30/76, TNA.
104. Memorandum c.1952, n.p., PRO 30/76, TNA.
105. Memorandum c.1953–4, n.p., PRO 30/76, TNA.
106. Memorandum c.1952, n.p., PRO 30/76, TNA.
107. Letter from G. S. Cook, 25 November 1948, n.p., PRO 30/76, TNA.

108. Specimens Distributed Book Vol. 2, entries for 8 June 1928, 195; 30 May 1930, 206; 28 March 1931, 215, EBC, Kew.
109. Bautista and Balsano, 'Understanding the distributed museum', 59.

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9

Circulations of paradise (or, how to use a specimen to best personal advantage)

Jude Philp

In 1598, based on Dutch plottings of the southern sky, the cartographer Petrus Plancius named the constellation Apus, with its orange, yellow and red giant stars, 'Paradiesvögel Apus Indica' (footless paradise bird of the Indonesian Archipelago). New Guineans prepared birds of paradise this way for trade across the Indonesian Archipelago, but Europeans initially thought that the birds literally had no legs.[1] A drawing depicting the southern sky appeared not long after, forever encapsulating European knowledge about *Paradisaea apoda* in name and imagery (Figure 9.1). This first attempt to map the global celestial patterns is indicative of the ambition of European science – to catalogue, know and describe all that existed.

Working from the colonial archive, this chapter investigates the transformation of nature into scientific capital through the mobilisation of *Paradisaea* specimens in the Australian Museum. This transformation of birds of paradise combined decisions at the museum with those at the site of collection about the potential value of a specimen to different audiences. My aim is to understand how things were re-codified by naturalists, and to understand what attributes were maintained of the cultural realms previously inhabited by these birds. I hope to contribute to meeting the need identified by biologist Miriam Supuma for 'a clearer discernment of the intricate relationship between human-environment dimensions', thereby responding to her call to 'repopulate' natural history collections with the interventions of the peoples on whose land the specimens, as species, once lived.[2]

Figure 9.1 'Tabula Quadragesimanona Pavo', the southern sky with the 'legless' bird of paradise depicted (right). John Bayer, *Uranometria* (1603). Courtesy: Linda Hall Library.

Critical to the transformation of nature into science was the form of the specimen. From recent anthropologically based museum studies, in particular, comes the recognition that the physical form of an object, its weight, the materials used in its fabrication and the composition of form are all essential to understanding what a thing may be. Alongside this are its temporal dimensions, such as the context in which a given thing may be seen and understood. Writing about photographs, Elizabeth Edwards and Janice Hart put it succinctly: 'These material characteristics have a profound impact on the way images are "read", as different material forms both signal and determine different expectations and use patterns.'[3] In this chapter, the materials in question are composed from dead *Paradisaea* species which were modified to represent their living form by various people involved in their circulation (Figure 9.2). 'Trade skins' and 'scientific specimens' are the two principal forms of *Paradisaea* examined. These common terms declare their audiences – 'traders' versus 'scientists'. Understanding the different requirements of these two communities is part of the purpose of this chapter.

Figure 9.2 A mounted (exhibition) specimen of *Cicinnurus regius* (Linnaeus, 1758), collected between 1870 and 1890 (NHB.2317). © Macleay Collections, Chau Chak Wing Museum.

The seven species of *Paradisaea* are largely restricted to mountainous areas of New Guinea and associated islands.[4] *Paradisaea apoda* and *Paradisaea minor* have been known to people outside New Guinea for perhaps a millennium, with increased attention from Europeans from the fifteenth century onwards.[5] Why large volumes of these insect- and fruit-eating species were continuously sought after and collected throughout the nineteenth century is part of the story of scientific progress, which went hand in hand with advancements in geographically codified knowledge tied to colonisation (Figure 9.3). New Guinea first became known in Europe through Portuguese and later Dutch investment in a trade empire based in the Indonesian Archipelago. It is from this western part of New Guinea that the birds were first collected in the tens of thousands.[6] Only in the early 1870s did collectors move eastwards as colonisation of New Guinea was contemplated by the German and British empires. The collectors examined here were largely working in precolonial contexts. In what follows, the term 'western New Guinea' indicates the mainland of what is now West Papua, while 'eastern New Guinea' indicates today's mainland Papua New Guinea (Figure 9.4).

Figure 9.3 Study skins of a young male (NHB.2300), a female (NHB.2297) and the first egg (NHB.8532) known to science of *Paradisaea raggiana* Sclater, 1873. © Macleay Collections, Chau Chak Wing Museum, courtesy: Carl Bento.

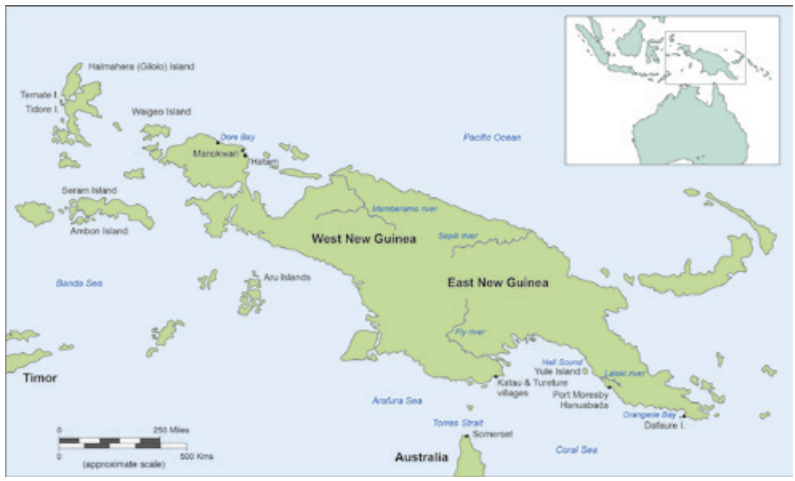

Figure 9.4 Sketch map of New Guinea showing the principal places mentioned in the text. Image: Jude Philp/Malcolm Kelsey.

The next section introduces the characteristics of the bird of paradise family and provides an account of knowledge about the birds collected in western and eastern New Guinea. The core of the chapter focuses on the Australian Museum's trade in specimens during a period when the scientific goals of collecting were shifting in the late nineteenth century. In conclusion, I argue that nineteenth-century collecting made it possible to 'liberate' species from the various knowledge and use systems of New Guinean and Indonesian Archipelago peoples in order to enable their circulation as scientific commodities. This transformation into scientific commodity was more devastating to the future of the species than the previous centuries of controlled trade.

The family Paradisaeidae

The Jimi Valley, Jiwaka Province, Papua New Guinea was unknown to explorers in the nineteenth century, but the Kundagai taxonomies for the birds of paradise of their region would have been recognisable, being logically like those of European science: determining species difference through a combination of physical and behavioural traits.[7] Kundagai clans recognise 15 species of Paradisaeidae which occupy the Jimi Valley and ancestral mountains. The locally named 'kombam' or *Astrapia stephaniae* is most important to their understanding of the past

and the beginnings of humanity.[8] They also traded with Koiari people in the Port Moresby hinterlands for plumes to gift to kin.[9] Across this vast and culturally diverse island, where over eight hundred languages are still spoken,[10] echoes of various knowledge systems leached out along trade routes, seeping from the highlands and hinterlands in and out to the islands of the Indonesian and Bismarck archipelagos and the Torres Strait. It is from these disparate ends of trade networks that Europeans first acquired their knowledge of Paradisaeidae.

The common crow-like ancestor of all Paradisaeidae species is ancient (over twenty million years in evolutionary terms),[11] as is modern humans' habitation of New Guinea, Australia and the Indonesian islands (over fifty thousand years). In their places of origin, the birds were, and still are, intimately known by their human neighbours. That intimacy includes knowledge of habitat, range, food, anatomy, displays, calls and other behaviours. It also includes the use of long-standing deliberate conservation methods, such as seasonal hunting and specific harvesting practices, and the special protection to species important to a given community.[12] In this context, the cultural and linguistic diversity of New Guinea's peoples as a whole needs to be emphasised.[13]

There are 41 distinct species in the family Paradisaeidae.[14] The seven species in the genus *Paradisaea* are promiscuous birds with dramatic displays that 'employ the rare courtship behaviour known as lek display, in which groups of males attend traditional courtship "arenas" where they display to females who visit solely for the purpose of mating'.[15] Like the proverbial 'wall flowers' of ballroom dances, females are often characterised by biologists only as discerning observers of the flashy, colourful males during communal lek dances, but they too have particular dance steps, including jumping, nudging and beak rubbing.[16] Unlike most other family members, females of *Paradisaea apoda* are a similar size to the male, but, like others, they have predominantly brown plumage, as do the juvenile males. Male *Paradisaea apoda* live most of the year in clan groups based on fruiting trees, where calling and dancing towards each other is also common.[17] Dramatic feathers come into full plumage for mating season,[18] when males perform for visiting females with the complex dance displays that dramatise their characteristic iridescent coloration and the vocal songs and the clicks, clacks and whooshing noises produced through their beaks, feathers and feather-wires.[19] Each female rarely lays more than one egg following the frenetic copulations of the dances. Only the female builds the nest and nurtures and feeds the chick.[20]

This kind of knowledge about species variation, habitat, range and behaviour took scientists of European origin over four hundred years of work to discover. Much of the data came directly from museum collections. It has taken another hundred years or so of sporadic intensive fieldwork, DNA investigation and theoretical reasoning to understand why and how these variations have happened.[21] In this century, work with citizens of Papua New Guinea and Indonesia has increased international understanding of behaviour and range.[22] Despite numerous publications detailing the complexities of New Guinean knowledge,[23] the most persistently related information about the birds in European languages is their own folly of its identification as a legless bird of paradise.[24]

Circulating trade goods

On 12 November 1521, the Maluku Islands' Sultan of Tidore and the Portuguese King's emissaries established a trade relationship in the Indonesian Archipelago that set the pattern for centuries of commerce in woods and spices. At Tidore, a marketplace was set aside for trade in Indo-Islamic units of weight for Europeans' goods of red fabric, rough cloth, glass cups and mercury.[25] Maluku leaders were designated to accompany the Europeans to other islands in their canoes. Through these methods – markets placed at the site of power and companions appointed to 'help' navigation – the various sultanates controlled their assets and maintained pre-existing trade alliances.[26] In the spice trade, the birds were a celebrated side-story, but one that had important consequences for science because European traders could not communicate directly with those who prepared the birds for sale: the birds' habitats were concealed, and the market for which the bird skins were preserved was confined to the local trade.

The male birds which New Guineans hunted and prepared for foreigners were of various forms, reflecting their multicultural uses as offerings, ornaments, talismans and pets. Some were legless, others had no wings or head, most had bones removed, and some were only plumage attached to skin. To sustain travel and extend the marketability of the birds, they were further altered through chemistry – carefully smoked, and sometimes rubbed with varieties of camphor wood. In this skin form, they were packed and stored within tubes made from dried bamboo. It was perhaps the packaging (which fixed the birds into a tubular form),

Figure 9.5 *Paradijsvogel* (1625–9), Jacques Callot. Before public museums, European knowledge about the birds was limited. A decade before this etching, Jan Brueghel the Elder depicted a perching, footed bird in *The Garden of Eden with the Fall of Man* (1612–13). Courtesy: Rijksmuseum, Amsterdam (RP-P-OB-4913).

as much as the absence of bones, that caused the birds to rocket through the skies in some European depictions (Figure 9.5).

With their increased incursion into New Guinean territories, Europeans began to note evidence of Indigenous peoples' controls of the marketplace – such as placing signs of ownership on trees where birds of paradise perched, pathways booby-trapped with sharp spikes, and gossip about the ferocity of inland peoples.[27] Between 1522 and 1800, local traders succeeded in obscuring and controlling knowledge of the origin of all but 8 regional birds of paradise species, of the 37 that inhabit the archipelago and western New Guinea. In doing so, they also obscured the forms of plain females and juvenile male and female birds, as it was the fabulous males that were part of existing trade relations. It was not until the voyage of *La Coquille* (1822–5) that the French naturalist René Primevère Lesson first sighted a bird in flight (Figure 9.6).

Figure 9.6 *Paradisaea minor* and the identificatory features of the *Paradisaea* genus, depicted on Lesson's return. Plates 1 and 3 in René Lesson, *Histoire naturelle des oiseaux de Paradis et des épimaques*. Paris: Arthus Bertrand, 1835. Courtesy: University of Melbourne Library Digitisation Services.

Objects of science

René Lesson was part of a new generation of researchers employed to work on existing and swiftly expanding museum collections, which led to changes in administrative and technical documentation, and in the form of the bird skins collected in the Indonesian Archipelago. The transformation of skins is most obvious in the 1828 Netherlands Triton expedition and settlement party to New Guinea, which proclaimed Dutch possession of New Guinea's western half.[28] Coenraad Temminck of the Natural History Museum, Leiden, trained the accompanying naturalists, including the taxidermist Salomon Müller.[29] The surviving birds in Leiden show the pursuit of science – for each male bird of paradise there are many more females. Skeletons, eggs and nests were also collected in great numbers.[30] The existence of female and skeletal forms suggests that Müller personally accompanied hunting parties into the hinterlands of Triton Bay, New Guinea mainland, for these forms were not part of

trade. On return to Europe, Müller assisted Temminck in preparing the birds anew, now made into weird reflections of the form[31] which was most familiar to European audiences from the hand-coloured plates of natural history publications.[32] To transform the skins into signifiers of taxonomic difference, any wadding placed in the body cavity to soak up liquids would be removed, skins softened (probably with water), arsenic soap or other preservative applied, and wires pushed into the bird from skull to feet to replace the skeleton. Clean wadding would then have been pushed into the body cavities. With final manipulations to feet to resemble a perched bird, and coloured lead-glass eyes pushed into eye sockets and with eyelids arranged, a 'living' sculpture was made (Figures 9.2 and 9.7).

Figure 9.7 The male syntype of *Paradisea magnifica major*, collected by Müller at Lobo, Kaimana (Triton) Bay, summer 1828. Courtesy: Naturalis Biodiversity Center, The Netherlands (RMNH.AVES PAR.90584).

Another feature of museum practice in Temminck's era was the attachment of red-inked labels tied to specimens to denote typical specimens.[33] Working with paper-based systems, the storage of specimens with labels was crucial both to looking after tens of thousands of specimens and to retrieving specific specimens for the continued work of comparative zoology. At the British Museum, John Gray curated the collections retaining the type specimens, arguing that 'such specimens, with the names attached and so authenticated, would always remain open to future investigators'.[34] Previous generations had placed specimens of such interest on exhibition, or replaced skin specimens when a new one arrived that better exhibited the 'typical' features rendered by the description, or simply because it was in a better condition. But by the 1840s, curators began to specifically label type specimens and, in the words of zoologist Nicholas Vigors, to 'preserve [them] as the most sacred'.[35] This increased desire for accuracy, indicated by work on the type concept, is also in evidence in both the form of the specimens desired and in the publications that define their differences.

During the 1830s and 1840s, a number of international meetings were held to establish agreed conventions for the naming and grouping of species.[36] Led by British naturalist Hugh Strickland, these meetings established that the animal from which the first published description of the species was drawn would be the unique 'type' specimen, the name given to it by the author would be *the* recognised name.[37] Strickland's a priori system meant that a name ascribed on 7 May 1847, for example, took priority over another described and published on 8 May 1847. The starting point for zoological nomenclature was agreed to be Carl Linnaeus's 1758 publication, the tenth edition of *Systema naturae*.

The effects of these changes were also evident in the field, with ways of collecting for museums becoming standardised, driven by the questions and issues surrounding species. Eyewitness accounts of the birds in their habitat became increasingly frequent. The collected skin took a particular form, with all the bones intact, increasingly accompanied by 'liquid nature': whole or parts of an animal contained in spirit.[38] This form was ideal for anatomical deliberations, and also to prevent inexperienced collectors mangling specimens by overstuffing or through poor field-preservation methods. Birds began to be tagged with details that the specimens alone could not answer: place, date and time of day of capture, colour of eyes, contents of stomach, sex and life stage (Figure 9.8). In these new forms, local hunters and traders were made marginal to the collection of these new kinds of trade items. These potential 'type specimens' and 'new species' were valuable items both for

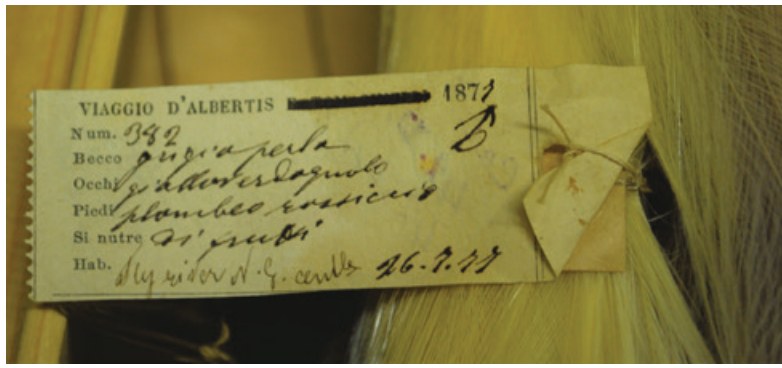

Figure 9.8 A label on a *Paradisaea apoda* specimen in the Museum of Genoa collected by Luigi D'Albertis, 1877. Image: Jude Philp, with thanks to Giuliano Doria, Museum of Genoa, for permission to publish.

the men of science who needed to examine them for reference purposes, and to the museum.

'When you white men come to our country, we will kill you all'

An unidentified man at Amberbaki, western New Guinea told Maria Luigi D'Albertis, 'When you white men come to our country, we will kill you all' in 1872.[39] D'Albertis was one of a number of scientists who went to the area following Alfred Russel Wallace's work in the region in the 1850s to collect birds of paradise. Wallace and D'Albertis exemplified the changes in the economics of collecting, by working within the increasingly commercial structures of the specimen trade, securing markets for specimens prior to departure, gaining support by interested museums and collectors through advance sales, and publishing narratives that added to the specimens' popular appeal.

Wallace spent eight years collecting fauna in the region. While much of the second volume of his published narrative was devoted to descriptions of birds of paradise, he actually spent only seven months in their habitats.[40] And while he desperately wanted to observe and shoot specimens, his access was blocked by pre-existing trade empires, forcing him to acquire specimens via colonial trade structures.[41] These included the Indo-Malay sultanates, whose long-standing negotiated networks still controlled a variety of products relating to the spice trade, the smaller alliances formed between New Guineans and offshore

islanders,[42] arrangements made by the Dutch, British and Portuguese to ease control for trade access to spices, and interventions by now-local Dutchmen such as A. A. Bruijn. Although the long-tailed *Astrapia nigra* was endemic to the highlands of New Guinea's Dorey Bay, and known in Europe from 1788, Wallace wrote that 'it appears, however, that Dorey is not the place for Birds of Paradise, none of the natives being accustomed to preserve them'.[43] Instead Wallace's successes came from the offshore islands. The new species that would grace the cover of his narrative and carry his name (*Semioptera wallacii* Gould 1859) was shot by his Malay assistant Ali at Halmahera Island. This was ground well covered from the first Portuguese landings in 1522, and demonstrates how tightly access was controlled. It was with the long-known *P. apoda* and *P. minor* that Wallace was able to surprise the world. He was the first to record *P. apoda* play in the dappled sunlight in Aru island forest, while his hunters Ali, Baderoon and Baso supplied further novel details about local hunting. His second *Narrative* includes an illustrative scene of frolicking birds and hunters lying concealed in tree boughs, armed with bow and blunt arrows to obtain their pray.[44] From a European merchant in Singapore, he purchased two live specimens of male *P. minor*, the first to be seen in Europe, for public display in the Royal Zoological Gardens.[45]

Sensational and public activity increased Wallace's own reputation and the commercial viability of his collecting efforts. His partnership with a specialist London agent, Samuel Stevens, gave him the necessary financial and social backing to make his expedition successful.[46] To meet his social, scientific and monetary needs, he collected more than two sets of certain animals. One set was pre-purchased by the British Museum, which lent validity to his work and advertised the quality of the specimens, one set was retained for his own study, and further sets of duplicates were sold through the London market to support his work. Birds from Aru islands alone sold for £1,000 in London. And while the British Museum curators were free to publish novelties, those precious type specimens remained his property, until these too were purchased by the museum.[47]

Luigi Maria D'Albertis[48] was more aggressive in his attempts to roam the New Guinea mountains, disbelieving coastal accounts of ferocious mountain people. Over the course of his *Narrative* of his work during 1872–3, he recorded gossip about local rajas and chiefs, threats upon his life, sickness and boasts of his abilities, along with details of trade and purchase. As interested in people as in birds of paradise, he frequently includes his interpretations of people's actions, along with their portraits and names. An excellent marksman, he also took opportunity to purchase

specimens wherever he went, such as the male *Paradisea minor* 'sold to me, flesh and all, for a dollar apiece. [The seller] is also a taxidermist, and he showed me some fairly well-prepared skins, which he meant to sell to merchants at Terate and Macassar.'[49] D'Albertis purchased the 'fleshed' bird, but not those prepared.

Unlike Wallace, D'Albertis did not use unsupervised hunters and never believed words of warning upon his life. But he was not foolhardy, being strategic in paying off and taking on assistance at each point of his journey, ensuring the effectiveness of the influence and knowledge of his 'carriers'. He also accepted women as carriers during his expedition inland, an important declaration of peaceful intent to others met along the way. Under the protection of 'the Corano of Hatam', he was able to travel into the highlands of western New Guinea to a height of 5,000 feet in his determination to see with his own eyes the habitats of birds of paradise. His desires were understood, and one September morning, setting out from the village camp, the 'niedda' or *Lophorina atra* was pointed out to him in the dappled forest light, before he was led further on to a forested grove. Here, D'Albertis details how his guide continually directed him to what he needed to see, making him wait before shooting so he might understand more of the *Parotia sexpennis* dancing in front of them. This 'Coran-a' of local nomenclature was duly examined by D'Albertis in the village – first its stomach contents (*Myristica* and fig fruit), then the distinctive musculature that enabled the dancing displays and finally the cranial structure.[50] His account suggests little awareness that there may have been consequences for the Corano of Hatam and his people in allowing this foreigner to see the secrets of their forest, ignoring the warnings of potential attacks by mountain tribesmen, both corporeal and spiritual.[51] In this way, D'Albertis succeeded with his collections. His first expedition ended with a bang as he left on the *Vittor Pisani* bound for Sydney. Stopping at Orangerie Bay, off Dafaure island on the southeast coast of New Guinea, a novel bird of paradise was offered for trade. Despite its local style of preparation, a 'pelle imperfette' in his words, he purchased the trade item, which was swiftly sent on to William Sclater at London's Royal Zoological Society for publication as a new species to be named in honour of his friend and supporter Marquis Raggia (Figure 9.9).

Hearing of Adolf Meyer's intentions to climb Mount Arfak, in western New Guinea, D'Albertis determined to make his name as an indefatigable explorer par excellence in eastern New Guinea.[52] This he attempted to do between 1875 and 1878, first setting up a home on Roro people's land at Yule Island, from where he could freely come and go in his favoured hunting company, accompanied only by local guides and a

Figure 9.9 Goldie used images such as this to communicate with hunters. *Paradisaea raggiana* reproduced from Gould and Hart (1875–88) by D'Albertis for *New Guinea: What I did and what I saw*, Vol. 1, 1880, 222. © Board of Trustees of the Royal Botanic Gardens, Kew.

crew of traders-hunters from the Pacific and mainland Asia. Among them, Bob from Fiji was the most trusted.[53] D'Albertis frequently comments on the actions of his New Guinean guides, on one occasion noting that the birds of paradise that were not in evidence before an incantation came soon after it. He seems less aware of transgressing others' hunting grounds, writing 'I cannot understand why they attack us,' although his own answer contains a possible rationale: 'I would be friendly, not only from humane, but also from interested motives, for experience has taught me how useful the natives are in assisting a naturalist to form his collections.'[54] Chief among his scientific achievements are the data he collated about his bird specimens, each annotated with the location of their acquisition, stomach contents and other details. In doing so, he also greatly added to the rudimentary European knowledge of geography, particularly for the Fly River region, and he was able to establish for the first time the wider distribution of *P. apoda*.[55]

That Wallace and D'Albertis chose to work in these situations is not surprising. Like many scientific men of their era, they were dedicated to natural history and curious about the world. That it was possible to support their work by selling their collections reflects an aspect of natural history which helped to increase its appeal more widely. By settling in eastern New Guinea, D'Albertis was competing with a small number of allied parties of commercial collectors, for whom 'museum' specimens were one of many potential products for sale. Unlike D'Albertis and Wallace, commercial collectors rarely directly influenced the course of science or popular knowledge. Their experiences could provide a basis for later professional museum work;[56] more commonly, collection was simply a way to earn a living. Moving between working for missions, prospecting and working in tandem with miners, loggers and bêche-de-mer and coconut (copra) collectors, they collected almost anonymously for museums and botanical gardens across the world. With the London Missionary Society stations in Torres Strait (from 1871) and Port Moresby (from 1874), their lives were made slightly less precarious.

Some of the collectors that D'Albertis encountered personally had arrived in New Guinea with William John Macleay's *Chevert* Expedition (1875).[57] This bold, modern collecting expedition was the first of its kind launched from Australia, collecting and surveying in all areas of natural history from Sydney to Katau village, west of Yule Island.[58] On 29 May 1875, with great fanfare, the *Chevert* left Sydney with Macleay's hand-picked collectors: George Masters (ex-Australian Museum, Macleay's curator), Edward Spalding (professional collector), John Brazier (conchologist, occasional curator, professional collector),

William Petterd (professional collector), William James (medical doctor, professional collector) and Thomas Reedy (botanist collecting for Sir William MacArthur). Alongside them were adventurers such as Lawrence Hargrave (engineer) and Macleay's cousin Arthur Onslow, and a 'kanaka' crew of Rotumah men hired in Sydney. At Katau, further collectors were enlisted and paid with trade goods, thanks to the cooperation of the Kiwai leader, Maino. From a collector's point of view, the journey was highly productive. At Hall Sound alone, 100 birds were collected. Although no *Paradisaea raggiana* were obtained, Petterd noted that they were available for sale at the women's market.[59]

The *Chevert* crossed paths with other collectors during the expedition. At Somerset, Cape York, in June 1875, they had news of Kendall Broadbent, a professional collector working for the Australian Museum, and D'Albertis, who they eventually met with at Yule Island. Resting in August at Erub (Darnley) Island in the east of the Torres Strait, they met Octavius C. Stone, a gentleman collector and explorer, and Reverend Samuel Macfarlane, the London Missionary Society representative who collected for financial gain for the British Museum.[60] By October, Macleay, Onslow, Edwards and Masters returned to Sydney. Amid the collections to be unpacked was the first *P. raggiana* egg collected for science (Figure 9.3).[61]

The last months of 1875 were busy. The small London Missionary Society mission stations threaded along the southeast coast and staffed with Pacific Islander mission teachers were a lifeline from which collectors seldom strayed far. Near the border with Dutch New Guinea, Macfarlane joined D'Albertis to explore the Fly River area with the support of Torres Strait Islander and Katau connections, particularly with Maino and Auti of Katau and Tureture.[62] Macfarlane also teamed up with Octavius Stone to explore the Mai-Kussa.[63] From here, Stone recruited Broadbent and Petterd to collect with him at Port Moresby and Koiari hinterlands (October 1875 to January 1876), an expedition that included Hargrave, Broadbent and London Missionary Society missionary William Lawes. With Stone recruiting Petterd, Dr James moved on to Yule Island, working with Jimmy Caledonia, from Mare in New Caledonia,[64] and Carl Thorngren, the Nordic trader local to Torres Strait and New Guinea. Broadbent for a time collected at Manumanu, a short way west at Redscar Bay.

Many of these collectors returned to the region in the following years, with D'Albertis exploring the Fly in 1876 with Hargrave, and again in 1877 with a Chinese and Pacific Islander crew and collectors led by Bob from Fiji. In 1876, another influential collector came to Port Moresby,

botanist Andrew Goldie.[65] Working with the Australian Museum's staff collector, Alexander Morton, along with William Blunden and James Shaw, collecting began in earnest in Sogeri country at Laloki, inland from Port Moresby.[66] There was a sense of competition and urgency in the work, as captured by Broadbent in 1878: 'There is a good many white men here now. A great many of them rich I have had the fever but am better . . .'[67]

Lest it be thought that Port Moresby was not already at the heart of large-scale trading, both Motu and Koitabu peoples of Port Moresby were involved in the maritime *hiri* trade centred around trade in pottery vessels and sago. Involving months of preparation and negotiation, the years when *hiri* occurred meant people were travelling great distances to meet trade partners along the southeast coast.[68] The striking mixture of bird feathers worn for dances and ceremonial occasions that were a feature of the trade was noted by the collectors. Not stated was the potential for trade in birds of paradise during *hiri* expeditions – instead, collectors (and, later, museum curators) tended to assume that a person wearing bird of paradise feathers or skins was a signal also of the presence of paradise birds in that area.[69] Unlike in western New Guinea, these existing trades were not tapped into by the Europeans.

For those exploring the Port Moresby area, the Motu and Koita men and women of Hanuabada township were greatly relied upon as carriers, guides and companions for the collectors, and in all these roles they were essential for both the collectors' access to information and for peaceful travel.[70] Foreigners' communication with these multilingual people was largely through the assistance of the small number of workers at the Port Moresby base of the London Missionary Society. Ruatoka and Tagane, a Maori couple from Tamarua, Mangaia in the Cook Islands (stationed initially at Manumanu in 1873), became central to foreigners' work and health, along with Peri at Boera.[71] Working with collectors, for the mission and for the fisheries industries were men, and occasionally women, recruited as carriers and boat crew (Figure 9.10). Named among them were George Belford, Jimmy Caledonia and Peter Lifu.

Between 1873 and 1879, Pacific, Asian and European men collected thousands of birds; as for Wallace before them, birds of paradise were useful money earners.[72] Further specimens came from men who flocked to New Guinea following Peter Lifu's accidental discovery of gold, including Edward Rolles and Carl Hunstein, who eventually joined Goldie in the 1880s.[73] There was great variation in prices offered to the field collectors working in southeast New Guinea. Those without connections to museums (where they could sell on their

Figure 9.10 Without the assistance of people such as these unidentified Koiari and Motu people and Pacific Islander (wearing hat), exploration would not have been possible. Port Moresby, c.1879. Courtesy: Macleay Collections, Chau Chak Wing Museum (HP83.60.8246).

personal 'duplicates') were paid wages. D'Albertis supplemented the £3 monthly wages of the 'coloured men' by offering prize money for cassowaries and birds of paradise.[74] Those without literacy, and those with darker skin, were paid less, and generally paid in trade goods, whether the task was collecting, carrying loads or acting as guides.[75] Those with literacy but less skill could command higher prices if they could demonstrate greater advantage in other ways. Goldie, for example, demonstrated his ability to coordinate activities, to be a gentleman, to negotiate and to supply. Although he was lacking in knowledge of zoology and familiarity with guns, by acting as agent to 'his' collectors, he could augment his earning and status. Stone allowed his collectors, such as Broadbent, to make (and sell) duplicate personal collections. But they were all collecting in the same areas. A collection sold by Morton to the Australian Museum, for example, may have been identical, or highly similar, to one sold by Goldie. The groups that these collectors formed, and their various commercial dealings, ensured that the birds from the southeast New Guinea coast circulated widely, dominating the museum's collections over the next 20 years, and infiltrating collections internationally.

The collectors and the Australian Museum

Collectors travelling in Dutch New Guinea were able to resupply and recuperate nearby in colonial centres. In the 1870s, this was not yet possible in New Guinea. Sydney, with its taxidermy shops and established museum, became the de-facto port for this trade.[76] The Australian Museum was nearly 50 years old in 1874 when curator Edward Ramsay began his curatorial work in tumultuous circumstances. His predecessor, Gerard Krefft, had been at the centre of a parliamentary inquiry which resulted in his dismissal from the museum. Much of the proceedings had revolved around the differences between scientific work and self-aggrandisement or personal benefit. Although museum specimen exchanges did not involve money, claims about financial gains through exchange were aired at the inquiry.[77] The Australian Museum was part of an international system of exchanges with museums and private dealers, who published lists of exchange desiderata and their 'duplicate' exchange material, as discussed in Chapters 4 and 5 of this book. While specimens were costed, once a correspondence was struck up, such deals could take decades to balance out. As Nichols points out, the exchange system at this period was neither a purely commercial-administrative arrangement, nor a mechanism towards creating social value.[78] However, as I will show through the example of Ramsay's 1883 tour, exchange relationships could affect both, raising the stature of the museum through 'scientific posturing', while enhancing the collection in an economically beneficial way. The choices that were made in exchange involved both social and commercial decisions to determine a 'fair value'.[79]

There are no records of birds of paradise in the Australian Museum collections prior to Ramsay's time. This may reflect a combination of lack of documentation and change in museum planning, as it was only following Krefft's departure that the Australian Museum instigated detailed administrative practices and moved towards signalling possession of New Guinea in an otherwise New South Wales-Australian focused collection.[80] It is in the museum's 'A' register that *Paradisaea raggiana* are first noted, offered in 1878 by Alfred Roberts, executor for Dr William James, who had been murdered at Yule Island. The bird took two forms: a skin and a feathered belt.[81] In the months that follow come further *P. raggiana*[82] – some in ethnographic forms, as feather tufts on clubs or as headdresses,[83] others as natural history specimens. In August, 4 skins were received from Morton's first trip to the Laloki river area, then, in November, 10 from Broadbent collecting in the Port Moresby region,

including male, female and juvenile specimens, and, finally, a single skin specimen from Goldie in December. All were working together.

Of the collectors, Broadbent was the most experienced, and it is from him that the greatest successes were made in terms of immediate public benefit. With a general price for birds of paradise of 10 shillings, Broadbent alone was paid additional sums for males, 50 shillings each, a rare signal of quality. Ramsay directed the pairs be sent to the taxidermist to mount in the public gallery.[84] In making such judgements, curators such as Ramsay were playing a long game. When assessing hundreds of skins offered by a collector, as Ramsay did, quick decisions needed to be made about a specimen's potential fitness for exhibition, commercial price, relationship to the existing collection, potential for exchange and relationship to current scientific knowledge of species. The museum's purchase schedules contain Ramsay's valuations on the skins, with notes 'new to science', 'rare', 'good specimen', 'bad', 'good for exchange' peppered through the attached lists.[85] From this, he made his recommendations to the trustees.

Arguably, the most important sites for the display of the knowledge that the new species represented were not in the galleries but in the pages of scientific journals, in newspapers and at natural history society gatherings.[86] With the arrival of steamships and telegraph cables, there was a speeding up of communication between the hemispheres (and with the Thursday Island telegraph cable, a closeness of communication to the collectors). With the prestige of publishing new species came competition, and institutions and individuals made good use of the immediacy of discoveries, placing notice of new species in newspapers and circulars prior to printing longer formal descriptions in journals.[87] Ramsay at the Australian Museum, Sclater at London's Zoological Society, Tommaso Salvadori of Turin University's Musei di Zoologia and Richard Bowdler Sharpe at the British Museum, led the identification and publication of descriptions from the southeast New Guinea collectors' specimens.

Publication achieved the final stage of the transformation of living bird to scientific 'object'. These detailed descriptions were a marker of curatorial expertise and knowledge, a display of personal and institutional capital. Details of collectors were occasionally contained within – signals that could assist or damn specific collectors.[88] Convention stated that the person describing a novel specimen, and the person it was named after, could not be one and the same. Strickland's Code introduced another tenet to this: 'we fully concur with those who censure the practice of naming species after persons of no scientific reputation, as curiosity dealers . . . Peruvian priestesses . . . or Hottentots.'[89] This

allowed for an absolute transference of value from the specimen to an authorised person, as the naming also assumed with it a standing within science itself. Macleay unusually honoured Maino in this way; D'Albertis chose to honour his benefactor, Count Raggiana, a beneficial act for his preparations for returning to New Guinea (Figure 9.9).

From Linnean times, it was accepted that 'two collected specimens of the same species counted as duplicates *of each other*' (italics in original).[90] These were frequently exchanged between collectors. Through the continuation of this archaic system of zoological museum practice, duplicates became part of the value-adding arena of museums in the late nineteenth century, as discussed elsewhere in this volume by Catherine Nichols among others. After the broad acceptance of type specimen status within the museum, duplicates acquired through the same collection event were duplicates of the type, and could be similarly valued.[91] Expert in such activity was Enrico Giglioli, who, from 1877, enriched the University of Florence collection with exotic species by establishing a worldwide exchange network. His keen interest in the origins of knowledge and collections meant that collector records were maintained, not just with the birds on labels, but in index systems.[92] Into the Florence collection came donations of birds from D'Albertis's work via Giacomo Doria of the Genoa Museum and, in 1876, birds gifted in Sydney from Dr James's executor.[93]

Circulation

Commenting on recent acquisitions in 1883, Ramsay stated: 'I have received from Mr Wilson of Mason Bros. collections containing over 1,000 skins collected by Messrs Rolles and Hunstein, and other members of Mr Goldie's party.'[94] Before writing this, Ramsay had already published four articles on Goldie specimens. Although not all were purchased by the Australian Museum, Goldie had allowed Ramsay to view and publish from the collections – picking out and naming the new species and those of geographical interest. This kind of scientific positioning was useful to both. It advertised Goldie's work, establishing an international scientific value for it, which was further enhanced by Goldie through his own correspondence and publications.[95] Through the birds, Ramsay was able to assert scientific rigour and purposefulness for the museum following the Krefft inquiry, and to place himself on an equal footing with his scientifically successful predecessor. The thousand skins purchased in 1883, however, were not to either man's advantage. Goldie had paid the

collectors, and he was spending further money on warehousing, postage and shipping over three years. Two other big collections were offered by Goldie in 1879 and 1880, but with the trustees' refusal, the skins had languished in his agent's warehouse, picked over by other collectors such as Macleay, New Zealand's James Hector and Ramsay's own family.[96] Up to this point, just over £300 had been paid out to acquire the southeast New Guinea specimens. The birds in the 'Mason Bros.' collection were valued at double that amount.[97]

Amid the variety of birds acquired were more *Paradisaea* – in fact, an extraordinary number. These, Ramsay declared, would be good for exchange, and to that end, he took them with him to establish trades with others at the 1883 International Fisheries exhibition in London. There was already a flooded market for the birds there. Four years previously, Richard Sharpe of the British Museum commented on new collections from southeast New Guinea, claiming that 'Each consignment which reaches England is more or less a repetition of those which have gone before.'[98] Regardless of the repetition, Sharpe took into the collections a 'considerable' series of *P. raggiana*. Most of Ramsay's specimens were exchanged with private individuals and consuls working across the empire from China to Madras. On landing in England, Ramsay established contact with the British Museum's taxidermist-agent Edward Gerrard, and arranged to have one skin mounted; through exchange, he also acquired another talismanic species, the lemur, with an aye-aye skin valued at £10. An additional six birds of paradise were valued at £12, Ramsay noting 'cost £3'. To Enrico Giglioli at Florence, with whom the Australian Museum already had a robust exchange relationship, another seven paradise birds were assigned.[99]

Ramsay returned to Sydney with new knowledge of European collections and of European exhibition standards. Another discovery from the southeast collections was made from Hunstein's skins, *Parotia lawesii*[100] from the Astrolabe mountain region. Sharpe's extensive work on John Gould's five volumes of *Birds of New Guinea* (1875–88) resulted in plates and descriptions of Ramsay's and Sharpe's discoveries within the eastern New Guinea collections. Noting Ramsay's discovery, he commented on the British Museum's successful acquisition of a male, a female and a juvenile male out of the duplicates.[101] Curators were showing themselves adept at using these specimens to personal advantage. Commercial collectors such as Hunstein and Broadbent, who supplied specimens and the information about the species, were not well placed to gain such advantage from their work, as they relied upon scant mentions in scientific papers in order to make gains in foreign markets

such as London. Those, such as Goldie and Stone, who could turn their adventurous shooting, trading and observation into popular narratives were able to make a living from their exploits.

Of the bird specimens that came into the Australian Museum from New Guinea in the 1870s, 28 were described as new species.[102] Broadbent acquired 12; Alexander Morton, the museum's appointed collector, acquired 2; Goldie, Hunstein, Rolles and Shaw between them collected 15, with Hunstein the most successful of them. Of the thousands of skins secured, the museum still wanted specimens from two sources valued for their scientific credibility, although the birds themselves were already part of the collection. These were eventually secured through exchange.[103] The domination of the bird of paradise trade by museum curators waned in the following decades, as specimens began to circulate through purchases and exchange into new markets. In the American Museum of Natural History (which had acquired Sir Walter Rothschild's bird skins), specimens from these collectors were instrumental for Ernst Mayr's groundbreaking twentieth-century work on bird systematics. By the 1980s, the scant locality data in the curators' publications would become essential to biogeographers in their mapping of the history of New Guinea and the relational dispersal of species.[104]

Liquid nature

Across New Guinea, people's care in fostering, nesting, exclusively hunting plumed males and protecting their knowledge of habitat sites had allowed them to exploit male birds for use and trade without threatening the continuance of the populations. Their hunting methods – which protected the plumage through netting birds as they slept at night and by shooting at them with butt-ended arrows – were noted but not emulated by the collectors. The pursuit of scientific knowledge that I have described in this chapter meant that, as New Guineans continued to make and use plumes and skins to great advantage, commercial collectors were also pursuing the species. By the 1880s, increased interest in ethnography was turning scientific attention to feathered objects, possibly leading to further over-hunting to meet the new markets.

In his discussion of modern neoliberal conservation strategies, sociologist Bram Büscher coins the term 'liquid nature', referring to 'nature made fit to circulate in capitalist commodity markets'.[105] Büscher's observation on the commodification of nature conservation is equally pertinent in the nineteenth-century scientific landscape I have

described, with its various positions of personal advantage. In that century, agreements about how to best produce scientific knowledge led to the collection of thousands of *Paradisaea* in distinctive and prescriptive forms which distinguished them from other kinds of trade. The most obvious feature of this transformation from trade to scientific object is the appropriation of every aspect of a bird of paradise's life history. While the internationalisation of plumes for personal decoration through the millinery industry is long held to have threatened the continuance of the species, because of the sheer quantities obtained, only males in full plumage were required to maintain that trade. In this last respect, and in the use of local shooters from the archipelago, the market conformed to older Indigenous uses and trade within the region. In contrast, science-led interest led to the acquisition of every aspect of a bird of paradise's life history, including innards, nests, eggs, females and juveniles. This, along with the removal of New Guinean controls over collecting, represented a potentially dangerous transformation in an ancient trade.

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Notes

1. The publication printed 'apis', meaning bee, not 'apus' meaning 'no feet'. In John Bayer's celestial atlas, which depicts the animals charted by Petrus Plancius in 1598, *P. apoda* is clearly depicted: Bayer, *Uranometria*.
2. Supuma, 'Endemic birds', 6.
3. Edwards and Hart, 'Introduction: Photographs as objects', 1.
4. Five *Paradisaea* species are distributed between the Moluccas and Cape York.

5. Stresemann, 'Die Entdeckungsgeschichte der Paradiesvögel'; Swadling, *Plumes from Paradise*; Donkin, *Between East and West*.
6. Swadling, *Plumes from Paradise*, Chapter 2.
7. Healey, 'Folk taxonomy', 21.
8. Healey, 'Folk taxonomy', 19–34.
9. Healey, *Maring Hunters and Traders*, Chapter 2.
10. Foley, 'The languages of New Guinea', 359 gives the number of three hundred speakers as typical of the size of each language community. Eight hundred languages is a conservative figure, based on limited data.
11. 'Birds-of-Paradise Project', http://www.birdsofparadiseproject.org/content.php?page=115, accessed 6 November 2020.
12. Kwapena, 'Traditional conservation'; Philosoph, 'Study of a West Sepik people'.
13. Douglas and Ballard, 'Race, place and civilisation'; Scaglion, 'Chiefly models in Papua New Guinea'. Marilyn Strathern analyses the difficulties in European understanding of New Guinea's cultural diversity in *Gender of the Gift*.
14. Defining species difference is the constant work of systematics and taxonomy. With theoretical differences come different counts of species variation. For example, the International Ornithological Congress determined 43 species, while Pratt and Beehler argue for 41. See Rasmussen and Donsker, *IOC World Bird List*; Pratt and Beehler, *Birds of New Guinea*, 473.
15. Beehler, 'Birds of paradise', 79.
16. Konrad and Somadikarta, 'Courtship of the greater bird of paradise', 21.
17. Diamond, 'Birds of paradise'.
18. Supuma, 'Endemic birds', 94.
19. Miles and Fuxjager, 'Synergistic selection regimens'.
20. Beehler, 'Birds of paradise', 82; Healey, 'Folk taxonomy'; Davis and Beehler, 'Nesting behaviour'. In Western science, much more information exists about males than females.
21. The slow acquisition of knowledge was made more difficult because of the frequency of naturally occurring hybrids (Heads, 'Birds of paradise').
22. Many biologists acknowledge the assistance of anonymous locals in locating the birds, while international acknowledgement of New Guinean peoples' biological knowledge is popularly understood through David Attenborough documentaries.
23. Sillitoe, 'Maggots in their ears'.
24. Stresemann, 'Die Entdeckungsgeschichte der Paradiesvögel', 263–91.
25. There is enormous literature on markets and commodities. See especially McWilliam, 'The spiritual commons'. On Papua New Guinean economics in transition, Gregory, *Gifts and Commodities*.
26. Holger Warnk includes titles of allegiance and slaves as part of this in 'The coming of Islam'. Donkin ('Between East and West') indicates the relationship between trade and religious observance in the flow of goods in and out of the region.
27. Goodman, 'The Sosolot exchange network', 444. For an overview of the domestic networks maintained across the archipelago and in New Guinea, see Ellen, *Banda Zone*.
28. The proclamation was issued at Fort du Bus by A. J. van Delden, the government commissioner (Huizinga, 'Tidore and the north coast of New Guinea').
29. Miracle, 'Temminck's work on biogeography'. The Rijksmuseum van Natuurlijke Historie was formed in 1820 from three distinct collections (Louis Napoleon, Leiden University and Temminck the elder). It is now called the Naturalis Biodiversity Centre. Cultural material from the same voyages is principally maintained at the Museum Volkenkunde, also in Leiden, and the Tropenmuseum in Amsterdam.
30. Of birds, 6,500 skins, 700 skeletons, 150 nests and 400 eggs were collected (Troelstra, *Bibliography of Natural History Travel Narratives*, 315–16).
31. Philp, 'The natural object'.
32. Temminck et al., *Nouveau recueil de planches coloriées d'oiseaux*.
33. For medieval and early modern preparations, see Schulze-Hagen et al., 'Avian taxidermy in Europe'; for the eighteenth and nineteenth centuries, see Farber, 'The development of taxidermy'.
34. Witteveen, 'Suppressing synonymy'.
35. Witteveen, 'Suppressing synonymy', 169.
36. Farber, 'The type-concept in zoology'.
37. Strickland et al., 'Report of a committee', 105; Farber, 'The type-concept in zoology'.

38. Büscher, 'Nature on the move'.
39. Quoted in D'Albertis, *New Guinea*, Vol. I, 68.
40. George, 'Alfred Wallace'.
41. Wallace was famously disillusioned by Dorey Bay (Manokwari), the site of Lesson's sighting, but was astute in his comments that he was a poor competitor to the existing trade alliances with Tidore (Wallace, *Malay Archipelago*, Vol. 2, 320–2).
42. Ellen, *Banda Zone*.
43. Wallace, *Malay Archipelago*, 2, 311.
44. Wallace, *Malay Archipelago*, 2, frontispiece; Gould, 'Highly interesting series of birds'.
45. Anon., 'The paradise-birds in the Zoological Society's gardens', *Illustrated London News*, 12 April 1862.
46. Camerini, 'Wallace in the field'.
47. George, 'Alfred Wallace'.
48. D'Albertis partly travelled in company with the botanist Oduardo Beccari, who also collected birds of paradise.
49. D'Albertis, *New Guinea*, 1, 67.
50. D'Albertis, *New Guinea*, 1, 107.
51. On one occasion, D'Albertis found the Corano shooting arrows into the night (D'Albertis, *New Guinea*, 1, 130).
52. Meyer, Director of the Dresden Museum, made several notable discoveries, including the diminutive *Pteridophora alberti*, 1894.
53. Bob was a shooter for two expeditions. In 1877, before the Somerset magistrate, D'Albertis accused him and Tom of theft, mutiny, desertion and murder (D'Albertis, *New Guinea*, 1, 46, 362–4).
54. D'Albertis, *New Guinea*, 1, 280.
55. D'Albertis, *New Guinea*, 1, 263.
56. William Petterd fluctuated between business and public museum work (Anon., 'Petterd, William Frederick').
57. Macleay was a parliamentarian, squatter, Australian Museum Trustee and inheritor of one of the great eighteenth-century entomology collections. He founded the Linnean Society of New South Wales in 1874; the results of the *Chevert* were published in the society's *Proceedings* over the next decade.
58. Although considered a success for natural history, the expedition was strongly criticised for not opening up colonial opportunity (see Goode, *Rape of the Fly*).
59. William Petterd, *The Mercury* (Hobart, Tasmania), 13 May 1876, 3–4.
60. Macleay's diary of the expedition is held by the State Library of New South Wales, Mitchell Collection; a transcript is held by in the Macleay Collections archive, Sydney University Museums.
61. Macleay Collections, NHB.8532; *The Advertiser*, 6 April 1905, 4. The commerce of Macleay's collecting on the *Chevert* and through private collectors is discussed in Ville et al., 'Macleay's choice'.
62. David et al., 'Individuals in Kulkalgal history'.
63. Stone, 'Letter from Octavius C. Stone'.
64. Moore and Mullins, 'Andrew Goldie's Memoir', 65 n.109.
65. Goldie was initially collecting botanical specimens for S. B. Williams of London and Ferdinand von Mueller, Melbourne. See Sharpe, 'Ornithology of New Guinea'. For research on Goldie, including a transcription of his field diary, see Mullins et al., *Andrew Goldie in New Guinea.*
66. The accounts of Morton and Goldie differ, Morton stating that he and 'one of Mr Goldies men' went inland on 19 July while Goldie travelled by boat southwards, joining them after a few months (and 100 birds) and moving the camp to the Laloki River (AMS7 E.60.78). Goldie states that he went with Morton long enough to describe a flock of *Paradisea regiana* [*sic*], and 'leaving Morton and Blunden to collect for a month, while I went on a cruise', returning to find they had 'collected in my absence 200 skins' (Moore and Mullins, 'Andrew Goldie's Memoir', 66, 70).
67. Kendall Broadbent to E. P. Ramsay, Australian Museum Archives, AMS7 C40.77–4.
68. See David et al., 'Historicizing Motu ceramics'.
69. Ramsay, for example, wrote 'That this bird inhabits the south-east end of New Guinea, is proved by the occurrence of feathers in various headdresses' (Ramsay, 'Contributions', 244).

70. See Goode, *Rape of the Fly*, for an examination of these collectors' sexual morality and conduct in the 1870s.
71. Crocombe, 'Ruatoka (1846–1903)'; Morton, 'Notes of a trip'. Boera township, a short distance west of Port Moresby, is a collection locality for Goldie's collections.
72. Wallace sent Stevens 16 *P. reggia*, 26 *P. apoda* from Aru island and 24 *P. rubra* specimens from Waigiou (Baker, 'Alfred Russel Wallace's record').
73. Moore and Mullins, 'Andrew Goldie's Memoir', 121, n.272; 124, n.284.
74. D'Albertis, *New Guinea*, 299; Goode, *Rape of the Fly*, 157.
75. A shift in monetary payment is noted in the 1880s–1890s.
76. Coote, '"Pray write me a list of species"', 85–6.
77. Australian Museum, *Report of the Trustees*.
78. Nichols, 'The Smithsonian Institution'; Ville et al., 'Macleay's choice'.
79. Nichols, 'The Smithsonian Institution', 14; Ville et al., 'Macleay's choice'.
80. Strahan, *Rare and Curious Specimens*, 44. For a contemporary view of growing interests in annexation from the 1870s, see Griffin, 'New Guinea'.
81. Registered as A.1382 and A.1383 respectively: Australian Museum Archives, AMS55 Purchase Schedule 11, C:10:78.
82. In all cases, the *P. raggiana* were part of bigger lots of birds, including other Paradisaeidae species.
83. These were destroyed in the fire that engulfed the Sydney International Exhibition buildings.
84. AMS55 Purchase Schedule 1, 28 November 1878. The 84 species collected were registered under A2983–A3162.
85. Australian Museum Archives, AMS55 Purchase Schedule, 29/1884. The Australian Museum purchased birds of paradise from international dealers; those detailed on this Purchase Schedule may well have been Broadbent or Goldie specimens, as others from these collectors are part of Boucard's collections in the Paris Museum of Natural History.
86. The extent of the museum's responsibility to educate the broader public in scientific knowledge was debated by Owen and Huxley in this era (Yanni, 'Divine display or secular science').
87. Sharpe ('Mr. O. C. Stone's expedition') includes three new species in Stone's collections from Petterd and Broadbent.
88. For example, Sharpe, 'Description', 313.
89. Strickland, 'Report of a committee', 117
90. Witteveen, 'Suppressing synonymy', 170.
91. Witteveen, 'Suppressing synonymy', 170.
92. For an example of Giglioli's meticulous record keeping see Barbagli, 'Herpetological collecting in Italy', 18.
93. Barbagli and Violani, 'Origin and development'.
94. Ramsay, 'Contributions to the zoology of New Guinea Part VII'.
95. Goldie's self-advertising was frequently at the expense of other collectors in his party: 'I first engaged 3 European assistants, they were only boys void of any experience and one kanaka.' Moore and Mullins, 'Andrew Goldie's Memoir', 64.
96. The Ramsays' 'Dobroyde' collection included 1,712 bird skins and 1,602 sets of eggs, purchased by the Australian Museum for £500 (Hindwood, 'The "Dobroyde" ornithological collection', 231–2).
97. In the wake of the 1882 Garden Palace fire, which destroyed the ethnographic collections, it was a fruitful purchase: Australian Museum Archives AMS55 Purchase Schedule 25, letter dated 15 December 1883.
98. Sharpe, 'On collections', 685.
99. Ramsay's exchanges are noted in Exchange Register, 1875 AM5058.
100. Ramsay, 'Contributions to the zoology of New Guinea'.
101. Gould and Sharpe, *The Birds of New Guinea*, 23.
102. Longmore, 'Type specimens'.
103. Despite colonial support from New South Wales, no D'Albertis specimens came directly to the Australian Museum, nor any from the visiting HMS *Challenger* expedition (1872–6), save through an exchange with the National Museum, Scotland.
104. Heads, 'Birds of paradise'.
105. Büscher, 'Nature on the move', 22.

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10

Circulation as negotiation and loss: Egyptian antiquities from British excavations, 1880–present

Alice Stevenson

The Artefacts of Excavation project (2013–17) examined more than a century of distribution of finds from British-led excavations in Egypt to institutions worldwide.[1] The research documented antiquities moving into, between and out of 350 institutions in 27 countries across five continents. It was a study that started out not from any specific museum or field collection site, but from the fact of distribution – of circulation – itself. Previously, I have focused on the different motivations for collecting Egyptian material in a variety of contexts,[2] but in this chapter, I want to look more closely at the nature and implications of circulation itself.

Historian of science Kapil Raj has argued that circulation can be considered a 'site of knowledge formation', with objects transiting through both large-scale colonial mechanisms and more locally focused collecting initiatives, incorporating a larger cast of individuals in the propagation and transformation of material than standard narratives generally encompass.[3] Most histories of collections have proceeded on the basis of specific sites of accumulation, 'centres of calculation', in discrete locales, such as the British Museum or the Pitt Rivers Museum, rather than looking comparatively at the broader picture of movements across the museum sector as a whole at local, regional and international scales. Conceptualising circulation as a form of negotiation or 'flow' allows for this wider morphology of collection practices to be visualised, inviting more expansive examinations of wider trends, not only in the accumulation of material, but also in its dispossession.[4]

Taking such an approach allows four key phases in the evolving diaspora of antiquities from Egypt to be identified from the 1880s onwards. Each is characterised by a different structure of circulation, suggestive of wider social transformations in attitudes toward things (what we have termed 'object habits'):[5]

(1) 1883 to 1922, when an extensive global dispersal of antiquities can be mapped across the UK, Europe, the British Empire and Japan
(2) the inter-war years, when alternative technologies of collecting were developed in response to restrictions on the export of archaeological material and a contraction of the distribution network (for example, as seen in an increase in the exchange of reproductions)
(3) the post-Second World War period, when disposal, far more than acquisition, came to define museum activities
(4) the post-1983 period, in which the export of antiquities from Egypt was drastically curtailed and, from the 2000s, ended entirely, but with objects continuing to circulate on the antiquities market.

In this chapter, I will only mention a few types of negotiations that were played out over phases one and three to highlight issues, before turning to a consideration of the legacies of this phenomenon and conceptualising what a fifth phase in this history of circulation might look like. For this last part, I want to examine how the knowledge that was lost in the process of circulation might be reclaimed through a 'reverse flow', in order to re-engage dispersed collections with the country and peoples of Egypt.

Phase one, 1883–1922: negotiating circulation

Egyptological artefacts are today commonplace in museum collections, but this does not mean that their acquisition has been even or straightforward. Fa-ti Fan, for instance, has observed that while the term 'circulation' might imply a smooth stream of objects, the movement of material requires work; some things travel far and fast, others stall.[6] He suggests, therefore, that when we refer to the circulation of things, what is really under scrutiny is a series of negotiations. This is certainly the case for the dispersal of finds from archaeological work in Egypt to the world's museums, notably from the 1880s to the First World War, when a confluence of trends across political agendas, social mores,

intellectual discourses and economic developments created the ideal conditions for the movement and reception of Egyptian objects. The symbiotic development of the field sciences, such as archaeology, with the proliferation of museums in the late Victorian era contributed significantly to what became the most expansive and intense period in the circulation of antiquities. But this phenomenon was also embedded within wider society's deeply ingrained, object-focused construction and experience of knowledge across the long nineteenth century.[7]

The UK's Egypt Exploration Fund (EEF) was responsible for the first legal and wholesale distribution of materials from archaeological fieldwork. The fund was founded in 1882, the same year in which the British military bombed Alexandria, advanced on Cairo and absorbed Egypt into the empire as a 'veiled protectorate'. *The Times* newspaper's announcement of the fund's establishment on 1 April 1882 was delivered with an enticing headline: 'Egyptian Antiquities'. The column, however, concluded that 'it must be distinctly understood that by the law of Egypt no antiquities can be removed from the country'. Nevertheless, two years later, several hundred artefacts, procured through excavations financed by a transnational system of patronage, arrived in Britain for distribution to museums across the country, Europe and the USA. As is more fully documented elsewhere, transcending Egyptian antiquities laws was the result of a protracted series of negotiations between British archaeologist Flinders Petrie and the French head of the Antiquities Service, Gaston Maspero, to establish 'partage', or a 'share of finds', between the main museum in Egypt (at that time at Bulaq) and the foreign excavator.[8]

The system negotiated by Petrie and Maspero highlights Kapil Raj's point that not everything was equally mobile,[9] as only certain objects could be released from state control under this agreement. Partly this was due to the nature of the material itself – only the unique or monumental were in effect subject to state legislation – but even so, the onward mobility of objects was not a given; it had to be negotiated. The processes of assessing the circulatory potential of artefacts occurred at several junctures, extending the work of curation across multiple locations. Negotiations as to the onward mobility of things were made across excavation field sites as to what to retain and what to leave behind: in Cairo, as to what would be sent to the Egyptian Museum and what would be released for export; in London, as to what would be displayed at the temporary exhibitions and what would not; and in the distribution network, as to what artefacts institutions should or should not receive. And in all these contexts, assessments were made relative to the idea of the museum. In

Egypt, the potential for export was decided relative to existing collections in the country, with any 'duplicates' deemed permissible for dispersal (see Chapter 5 for discussion of the mutable and complex nature of identifying 'duplicates'). Also considered within these negotiations were the needs of foreign museum collections, which gave further momentum to the circulation of finds outside of Egypt. As Petrie explained at the EEF annual general meeting in 1883: 'In a season of steady work . . . we may be certain to obtain new and interesting results, to enrich our museums with unique and valuable objects, and to win the keys to all our existing collections, by systematic excavation and research.'[10]

Circulation was therefore a vital component in the transformation of these objects into archaeological artefacts, putting the field site in concert with the museum. The museum was both the 'pull' and the 'push' in circulatory currents. In order for finds to become mobile – to transcend legislation and meet partage conditions – they first had to be constructed as 'minor antiquities', 'objects of no particular value, but worth taking to England'.[11] Yet, on their arrival into Britain, these same unexceptional 'minor antiquities' were rehabilitated as valuable material witnesses to a range of concerns: evidencing biblical and classical narratives,[12] leveraging occult activities,[13] empowering women and suffrage campaigns,[14] and acting as ballasts for eugenic ideologies[15] or as pivotal nodes within cultural evolutionary sequences. Given this extensive range of motivations for acquisition, it seems appropriate to question the idea that these objects could be examples of Latour's 'immutable mobiles',[16] transferring only information about ancient Egyptian cultures and chronologies. Through circulation, these objects proved themselves to be highly mutable sources of knowledge. This aligns with broader arguments in the history of science that have highlighted the distinguishing features of circulation as a form of mobility: 'In circulation, things, men and notions often transform themselves. Circulation is therefore a value-loaded term which implies an incremental aspect and not the simple reproduction across space of already formed structures and notions.'[17]

Contrary, then, to Latour's emphasis on 'immutable mobiles', these scholars foreground the intrinsically transformative nature of circulation, as has long been recognised by object biographical approaches in anthropology and archaeology.[18] Instances that underscore this point include those where it was the very process of acquisition itself, rather than an interest in the brute facts of the objects or their use in display per se, that was more important. Being able to secure antiquities was a means to negotiate personal status and professional relations, especially when this occurred at significant geographical removes from field sites

or centres of calculation. As Mary Helms argued, geographical distance is a symbolic construction invested with power, involving intangible knowledge of distant lands that may be made manifest by materials from those places.[19] It is not necessarily the specialist nature of such knowledge that is significant, but the politics that are involved in dealing with and acquiring such information.

The example of Egyptian antiquities sent to New Zealand and Australia is a case in point. In New Zealand, a rather humble consignment of pottery vessels excavated under the aegis of the EEF arrived for the first time in 1909 (Figure 10.1) and it was the Prime Minister himself, Joseph Ward, who personally sent the thanks 'of the Government and the people of New Zealand' to the EEF London office for the gift.[20] When the EEF's Local Honorary Secretary in New Zealand, George Lambert, wrote to Augustus Hamilton, Director of the Dominion Museum, he amplified the political significance of the acquisition: 'the Prime Minister', he reminded Hamilton, had a 'great interest in everything pertaining to the advancement of the Dominion', including links with the EEF.[21] No mention was made in any of the communications between the fund,

Figure 10.1 Dominion Museum, east wing interior, Wellington, c.1936. Courtesy: Alexander Turnbull Library, Wellington, New Zealand (Ref: 1/1-025012-G).

Lambert, Ward or Hamilton of the material qualities of the artefacts themselves, their scientific value or their historical significance. In Lambert's own effusive words, the museum's acquisitions were simply 'the means of procuring for me the honour of an introduction to your [Hamilton's] esteemed self the good fortune of whose friendship I shall ever esteem as the privilege of acquaintance'.[22] Objects themselves were also subject to profound transformations in identity, and it is notable that in circulation these things often became more British than Egyptian. For instance, when pottery and stone monuments from excavations at Dendereh were acquired by Melbourne's National Gallery in 1898, they were reported in the influential daily newspaper *The Age* under the headline 'an antique gift from England', placing the emphasis for acquisitions with the metropole and not the originating country.[23] The legacies of such transformations have significant repercussions today, a point to which I will return.

In mapping the full extent of the dispersals across this phase, the methodology adopted by the Kew Mobile Museum project is useful (see Chapter 4).[24] Instead of assessing the number of individual objects circulated, 'dispersal events' are quantified.[25] It is an approach that mitigates the idiosyncrasies of the distribution documentation, which evolved from vague allusions in Victorian ledgers to 'a selection of minor antiquities' to itemised lists printed on dot-matrix printers a century later. It also helpfully maintains the focus on the patterns of circulation by minimising the comparative distortions of small institutions obtaining large numbers of humble objects, from large organisations that acquired only a handful of monumental artefacts. Similarly, it aids in distinguishing the results of one-off large donations from regular subscriptions. There is the additional complication that multiple organisations were involved in conducting fieldwork – with the EEF being joined by the Egyptian Research Account (ERA) in 1893, the British School of Archaeology in Egypt (BSAE) in 1905 and John Garstang's work based at the University of Liverpool from 1902 onwards – in setting up a series of obligations to museums, universities, schools and religious organisations worldwide in order to fund their work. Each of these groups might conduct fieldwork at several different sites in any one season. Moreover, they occasionally exhibited and distributed finds together, and institutions could sponsor more than one archaeological enterprise. Accounting for which museums were receiving material in any given year simplifies all these complexities. In the context of the Artefacts of Excavation data, therefore, each year in which an organisation was a recipient of finds was counted, regardless

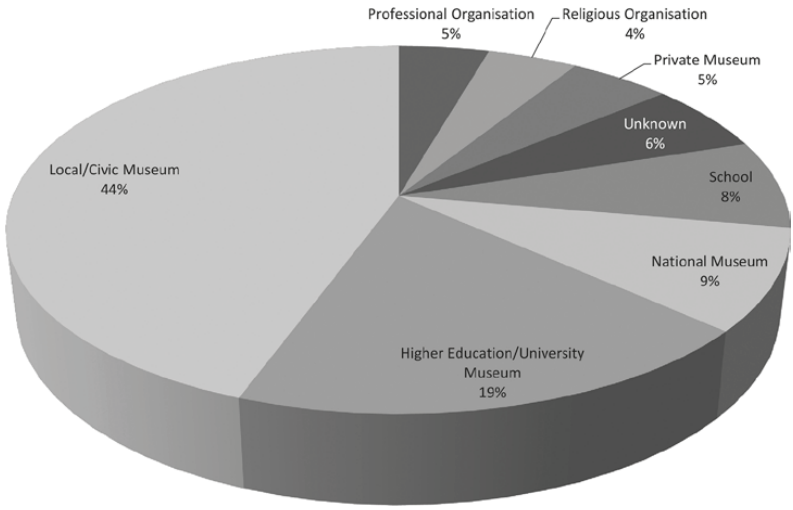
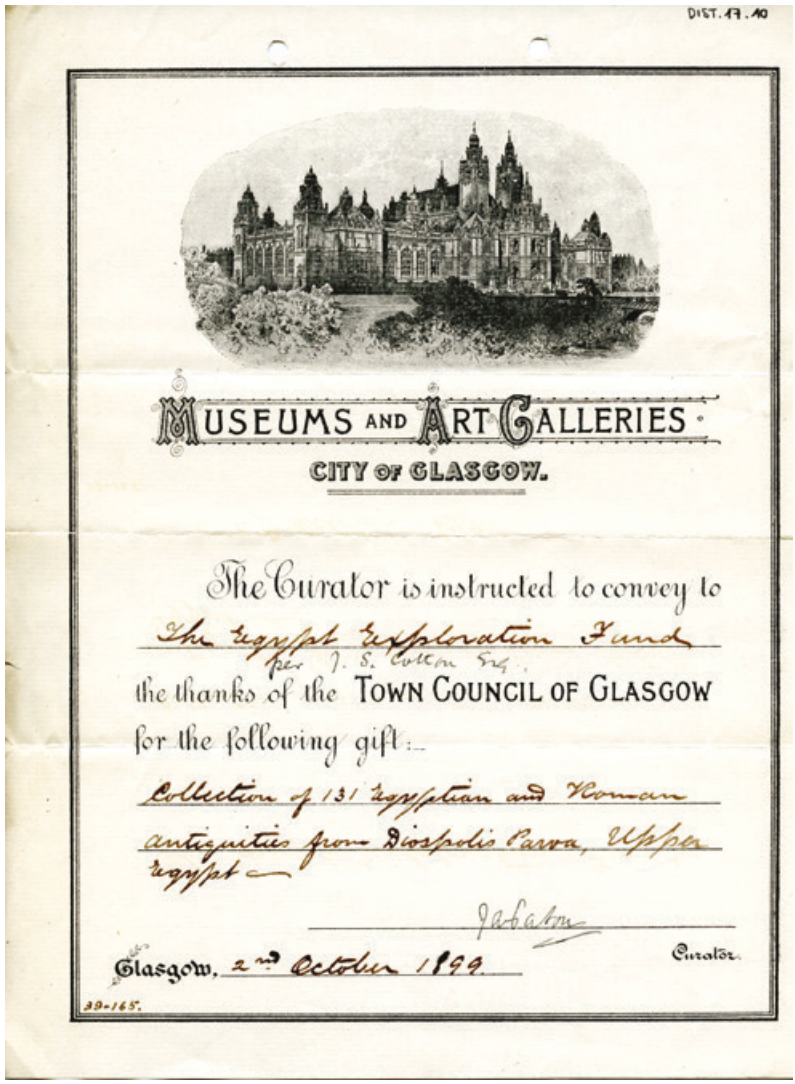


Figure 10.2 Total distribution events 1883–1922 by recipient category, n=180. Source: project database (https://egyptartefacts.griffith.ox.ac.uk/destinations-index).

of the number, size or significance of the artefacts acquired or how many organisations they received finds from.[26]

The resulting visualisations highlight how the concept of circulation can provide a counterpoint to models that privilege centre/periphery binaries.[27] For Egyptian collections, the primary centre of calculation subject to most scrutiny has been the British Museum.[28] Yet acquisitions by the British Museum only represent 2.8 per cent of an estimated 1,182 distribution events that were instigated between 1883 and 1922. What is evident from mapping the division of archaeological finds is how the global was localised in an exceptionally wide array of settings (Figure 10.2) – schools, universities, religious groups and municipal museums – that have received much less critical analysis from scholars than larger institutions (but see Chapter 8 for discussion of school specimen collections). For instance, in the UK, while the British Museum certainly still exerted a strong pull on particular items, with Petrie recalling that he 'had a hard fight over the division of things; some of the Committee wanted to grab all the plums for the British Museum',[29] it is clear that in the late nineteenth century, wherever 'a local museum [was], there is an eager desire on the part of the authorities and townsfolk to obtain objects for their museum' (Figure 10.3).[30] Prominent individual subscribers to the EEF could nominate local institutions to be the recipients of their share of finds, or else the demographic profile of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MUSEUMS AND ART GALLERIES

CITY OF GLASGOW.

The Curator is instructed to convey to

The Egypt Exploration Fund

per J. S. Cotton Esq.

the thanks of the TOWN COUNCIL OF GLASGOW

for the following gift:—

Collection of 131 Egyptian and Roman

antiquities from Diospolis Parva, Upper

Egypt —

Jabalon

Curator.

Glasgow, 2nd October 1899.

39-165.

Figure 10.3 Letter of thanks from Glasgow City Council for antiquities received from the Egypt Exploration Fund's excavations at Hu, 1899. Courtesy: Egypt Exploration Society (DIST 17.10).

donations would be utilised as one point of reference in EEF committee decisions to recommend donations to specific locations. Alternatively, if someone was prepared to defray the costs of freight, then they could direct material to the institution of their choice, while museums themselves could more directly petition the EEF with funding for a share in the spoils

of excavation. These sponsorship models extended the agency for the collection of material among a variety of protagonists, many of whom sought to participate in the distribution network as a means of bolstering civic status, a particularly important goal for women at this time, who frequently appear as donors to the EEF.[31]

Looking at the most frequent recipients of finds brings these practices into relief, with a notable presence of UK regional museums ranking alongside institutions such as the British Museum (Table 10.1). Of some 180 institutions worldwide that received material between 1883 and 1922, the top 20 included museums in Manchester, Edinburgh,

Table 10.1 Top 20 recipients of finds from British archaeological excavations, 1883–1922.

Museum	**Number of distribution events**	**Museum**	**Number of distribution events**
British Museum	33	Fitzwilliam Museum	22
Manchester Museum	31	Liverpool, World Museum	22
Boston Museum of Fine Arts	30	Glasgow, Kelvingrove Museum	22
Edinburgh, Royal Scottish Museum	28	Brussels Musées royaux d'Art et d'Histoire	20
University of Pennsylvania	28	Reading Museum & Art Gallery	17
Bolton Museum	26	Greenock McLean Museum & Art Gallery	17
Ashmolean Museum	24	Dundee McManus Art Gallery & Museum	15
Bristol City Museum & Art Gallery	23	Metropolitan Museum of Art	13
Chicago Oriental Museum	23	Toronto	13
UCL	22	Oxford, Pitt Rivers Museum	12

Figure 10.4 4,500-year-old granite lion from excavations of the Egypt Exploration Fund in 1891, sent to Greenock Museum in 1891, sold in 1966 to a private collection and purchased by the Metropolitan Museum of Art in 2000 (accession no. 2000.485). Courtesy: Metropolitan Museum of Art.

Bolton, Bristol, Glasgow, Reading, Greenock and Dundee, all of which accumulated substantial collections of Egyptian archaeology over a period of between 15 and 26 years. In the case of the Scottish seaport town of Greenock, the modest McLean Museum secured more than 550 objects through funding from a local industrialist, Thomas Law Patterson, a sugar refinery manager, who took on the role of local honorary secretary for the EEF in Greenock, and in the 1880s acted as a chairman for the McLean Museum Board of Trustees. He instigated an annual donation of £2 to the EEF, drummed up interest through the local *Greenock Telegraph* newspaper and administered the reception of substantial concessions of antiquities, among which were a bas-relief slab from Bubastis, a mummy cartonnage and a recumbent stone lion from Herakleopolis (Figure 10.4).[32]

Despite continuous field seasons from 1883 to 1915, and notwithstanding the growth of museums over the same period, the circulation of finds from field to museum was not a given. The fluctuating pattern of dispersal events (Figure 10.5) suggests that the relationship between the two required continual negotiation. Take, for instance, the peaks in distribution. These are observable in 1886, 1895, 1901 and 1907, and reach an apex in 1914, when antiquities, primarily small finds

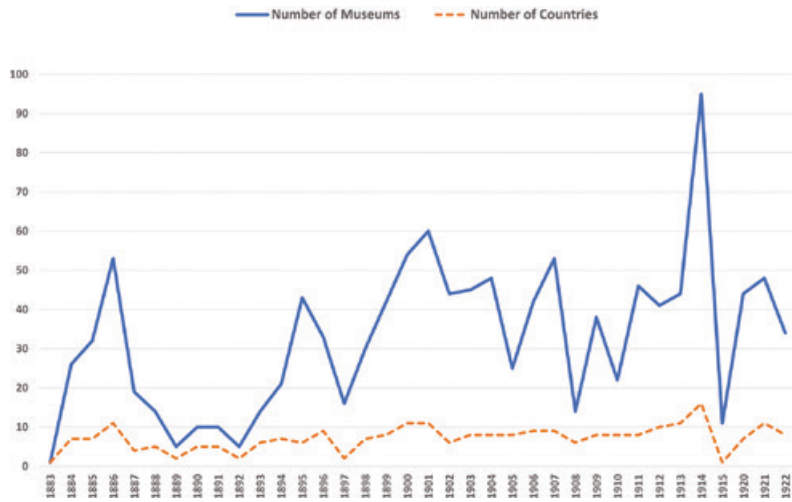

Figure 10.5 Total annual distribution events 1883–1922. Source: project database (https://egyptartefacts.griffith.ox.ac.uk/destinations-index).

from cemetery excavations at Harageh and Lahun, were dispatched to at least 95 museums, including institutions in New Zealand, Australia, Denmark, the USA, South Africa, Japan, Germany, Poland, Switzerland, Sweden, Austria, Canada, Ireland and what is now the Czech Republic. The common factor in all these instances was the agency of Flinders Petrie and (from 1897 onwards) his wife, the archaeologist Hilda Petrie. Their interests in portable antiquities stood in sharp contrast to the EEF's other dig director, Édouard Naville, who preferred working amid large temples and who was frequently critical of the EEF's desire to export antiquities. Petrie ceased to work for the fund after the 1885–6 excavations at Naukratis. The drop in distribution events thereafter is attributable to a reduction in artefacts available for circulation and the constriction of the distribution network once Petrie's sponsorship and return obligations became tied to two private financers, rather than to institutions. In 1895, the discoveries of thousands of richly furnished tombs of what Petrie claimed were a 'new race' were subject to a wider dispersal than usual, undertaken by Petrie personally in order to disseminate the findings and his interpretation of them. Petrie returned to the employment of the EEF briefly at the turn of the century to direct fieldwork in the Early Dynastic royal cemetery of Abydos, resulting in another extensive circulation of small finds in 1901. After resigning once again from the fund in 1905, Flinders Petrie and his wife Hilda established the BSAE, and the 1907 peak can be attributed to their proactive fundraising efforts for their new

outfit; Flinders undertook an arduous lecture tour around the UK, and Hilda led a tireless letter-writing campaign. By 1913, subscriptions had quadrupled to around £4,600.[33]

The extent of these circulations is also clearly visualised in the distribution lists. These documents were not created for posterity, but were working ledgers in which the value of objects was negotiated through categorisation, monetisation and standardisation. Such archives, however, only offer a partial picture of the movements of Egyptian antiquities from excavations, as there were other mechanisms of circulation; waifs and strays were whisked out of Egypt as souvenirs or diplomatic concessions, or else quietly given away on their arrival in the UK to benefactors, or to friends and family of the excavators. They hint at the networks that arose parallel to and in tandem with official channels of circulation, but which were restructured along alternative interests and the needs of archaeologists and patrons. These artefacts were never subject to archival reckoning, but over time they have also percolated into museums worldwide. An example from February 2019 includes numerous textile samples pasted on to cardboard from the BSAE's 1912–14 excavations at Tarkhan, which were offered to the Leiterin des Deutschen Textilmuseums in Krefeld, Germany after having been picked up in a local flea market.

Phase three: the post-war decades

The decades following the Second World War provide a striking contrast to the pattern of circulation documented in phase one. There were only around 38 sporadic distribution events from fresh fieldwork, dividing material between 17 institutions in the UK, the USA and the Netherlands in the 1960s and 1970s. Geopolitical shifts were largely responsible for the inability of British-led teams to work in Egypt, including the Suez Canal crisis. Yet this was a period in which archaeological artefacts became increasingly nomadic, a result of a trend towards rationalising and shedding established Egyptology collections rather than acquiring new ones. Objects now tracked circuitous routes from their original destinations to fresh settings via the antiquities market and even the museum shop. Although this shift was partly precipitated by the destruction of collections during the war, physical devastation was not the only threat they faced. I have argued elsewhere that more insidious was a widespread, societal change in attitude towards 'exotic' things.[34] The fragmentation of empire, the erosion of the narrative of civilisation, the post-war embrace of minimalism, the continuing

ascent of modernist art in museum collections, austerity and the rise of futurism are some of the factors that conspired to render Egyptian antiquities less relevant to museum displays in the 1950s and 1960s. These wider social conditions, rather than simply changes in museum practice or disciplinary focus, are key to understanding the context in which objects that had entered the museum became more mobile in the 1950s through to the 1970s.

These forces were evident to many curators at the time. Donald H. Harden, the Assistant Keeper of the Ashmolean Museum's Antiquities Department, in a commentary on museum disposals at the Museum Association conference in 1955 noted that it was:

> not just curators who are responsible for this change in emphasis in our museum policy. Indeed, I have said that they follow fashion; and I must add that that fashion is to be seen in other fields than museums also, most particularly perhaps in the public's own homes, where the modern emphasis for some time has been on plain walls and lack of ornament in place of the overstocked rooms of our Victorian and Edwardian predecessors . . . Of course too, the basic characteristic of the new policy – emphasis on the local and the known, in place of the exotic and less understood – makes life much easier for many of us curators, for our purview and knowledge can, with all propriety, be more circumscribed.[35]

These attitudes are evident in the marked lack of interest evident in UK regional museums in acquiring Egyptian antiquities, and the widespread disposal of pre-existing collections. For example, when in 1949 the BSAE offered material to museums in Rochdale, Norwich, Halifax, Glasgow, Dewsbury, Cardiff, Brighton, Birmingham and Bristol, every single one declined. The Director of Halifax Museum, for instance, advised that because 'the policy of this museum now confines our general collections to British origin' they could not accept the BSAE's offer.[36] Similarly, the librarian at Dewsbury Museum wrote to apologise that 'the scope of the Dewsbury Museum is now limited to local interest'.[37] Meanwhile, the Director of Glasgow Art Gallery and Museums remarked in his letter of refusal that 'the display area is far too over-crowded and that to alleviate this, much material has had to be stored'.[38] The refocus on regional identities and the decluttering of displays led to a widespread reconfiguration of the geography of collections. In Edinburgh, for instance, the Royal Museum transferred Egyptian artefacts to institutions in Paisley, Durham and even Sydney,

Australia, while other objects were sold, and a small number were destroyed. Large, monumental pieces were drawn back towards the metropoles, such as the disposals from Greenock's McLean Museum in 1965 (Figure 10.4), many items from which were later purchased by the Metropolitan Museum of Art in New York (which had itself disposed of several hundred 'minor' Egyptian artefacts to the public through its shop in 1953). Smaller items occasionally found their way to specialist collections, with the Petrie Museum of Egyptian Archaeology absorbing pieces from public museums in Weston-super-Mare and Peterborough in 1960, for example. Others found new leases of life within fresh frames, such as the Egyptian artefacts that had spent 50 years in Reading's red and grey Victorian gothic museum building in its busy town centre, before being re-accommodated within a Modernist concrete and aluminium-domed National Museum construction in Accra, on the eve of Ghana's independence in 1957.[39]

Phase five: looking backward, going forward, reversing flow

Over time, the ability of objects to move out of Egypt and out of museums has decreased to the point where it is now difficult, if not impossible, for antiquities to circulate legally or ethically (except for loans). One hundred years after finds from the EEF's first dig in Egypt arrived in the British Museum, Egypt passed Law 117 'Protection of Antiquities' (1983), establishing that all monuments and artefacts uncovered in Egypt were the property of the Egyptian government. In 2010, Egypt passed an even stricter amendment, stating that no finds whatsoever were permitted to leave the country, not even a single seed for radiocarbon dating. While the illegal flow of objects out of Egypt has not been stemmed, while museums do still exceptionally seek to dispose of antiquities, and while the circulation of such artefacts continues through the international art market, I want here to focus on a way in which circulation might more positively continue, but along the lesser-travelled path from foreign museums back to Egypt. And rather than discuss the physical translocation of things, I will consider the circulation of knowledge about the collections that have left Egypt, and new ways in which museum practices might themselves become more mobile.

The dispersal of finds witnessed between 1883 and 1983 was so extensive that Egyptological material has historically been more widely spread and far more accessible across institutions in the UK and the USA than in Egypt itself, where the growth of regional museums in

nineteenth-century Britain was not matched until the mid-1970s, when a trend toward regionalisation in Egypt emerged.[40] Yet there had been a long-standing and sustained critique in Egypt concerning foreign removal and circulation of the country's heritage. In 1835, a decree was brought in by the Khedive, Mahammad Ali, because of alarm that 'foreigners are destroying ancient edifices, extracting stones and other worked objects and exporting them to foreign countries'.[41] Throughout 1922, Egyptian archaeologist Selim Hassan wrote a series of critical articles for *Al Ahram* based on visits to European museums, 'Our antiquities in European museums' (اثارنا المصرية في متاحف اوروبا), expressing concern about their presence there, and in 2012, a book by a previous member of the national committee of heritage repatriation critical of the export of Egyptian antiquities was entitled *Legal Thefts*.[42]

While modern Egyptians have been alienated from the country's heritage, its absorption throughout the Global North has led to its profound transformation into 'Western' or 'universal' art. In part, this could be attributed to the 'museum effect', a well-documented phenomenon 'observed by museologists whereby an object is radically dislocated from its point of origin, wrenched from its context and rendered a frozen work of art in the surrounds of the museum'.[43] Some objects seem to have been more susceptible to these processes than others. Material from ancient Egypt, in particular, has become a fundamental museum trope that is today a fixture in public expectations of what should be encountered during museum visits and which is rarely subject to critical framing, even in ethnographic museums more sensitive to colonial legacies.

Transforming material into art like our own is not, however, simply a product of static museum display and ways of looking, as argued by Alpers.[44] It is also a result of the dynamics of circulation. In the movement of material away from Egypt, and between institutions, a two-fold process of othering occurred: modern-day Egyptians from archaeological finds on the one hand, while assimilating ancient Egypt into Western narratives on the other. And this was achieved as much through the processes of loss during transit as by the transfer of knowledge. Literature on circulation often seeks to document the latter, but loss is equally a feature 'in which objects and knowledge became disintegrated in the process of circulation' and in these 'histories of disentanglement, gaps between material objects and the knowledge formerly inscribed in them occurred'.[45]

Where Egyptological material is concerned, most serious has been the way in which antiquities were severed from the Egyptian landscape and its peoples through their appropriation into Eurocentric narratives of civilisation and Western progress. As a result, the agency of Egyptians

in the procurement, engagement or interpretation of these collections has been elided.[46] Community consultations and audience research concerning galleries of ancient Egyptian cultures have highlighted the problematic consequences of this: largely negative and dismissive views of modern Egypt among museum visitors in contrast to the reverence for its ancient (almost exclusively pharaonic) past.[47] In turn, modern Egyptians' disenfranchisement both from representation and from participation in Western Egyptology, together with the taken-for-granted status of their country's antiquities, has long made many Egyptians distrustful of foreign institutions.[48] Finally, the circulation of antiquities has influenced their perceived status in the minds of many Egyptians, who are deeply suspicious that artefacts exported and circulated beyond Egypt's borders must be of a higher cultural and economic value than what has been left behind.

These attitudes are understandable, given that little information about the fate of artefacts removed to foreign museums has ever been accessible to Egyptians and it has too often been assumed that ancient Egyptian material is an 'orphaned culture'.[49] Such viewpoints overlook the realities of the centuries in which diverse groups have inhabited the landscape of northeastern Africa, imbuing and drawing meaning from it. The antiquities that speak to these interactions are not so easily divorced from those settings, and modern 'connected' communities continue to elicit meaning in their presence.[50] Financial transactions, intellectual traditions, language barriers and colonial archival systems, compounded by domestic power struggles, have, however, alienated Egyptians from these collections.

A few strategies have been adopted, in a limited number of contexts, to address these inequities, from contemporary art installations providing Egyptian commentary to the inclusion of Egyptian voices in collecting histories.[51] These interventions can be considered attempts at reconceptualising museums or gallery spaces as 'contact zones'.[52] Yet efforts in this vein have proceeded largely to improve representation within some Western museums, not to truly enfranchise those at both physical and social removes from the museum.[53] And this is where the idea of a 'mobile museum' that engages its collection beyond its physical location has enormous potential, especially if those efforts are directed toward ends not necessarily benefiting the museum first and foremost, but contemporary communities where collections are of ongoing relevance. Such efforts would be in keeping with calls for an Indigenous archaeology that seeks to engage not just with scholarly or professional archaeology, but also with a broader understanding of archaeology 'as the discourses and practice involving ancient things'.[54]

These are some of the principles behind a follow-on project to Artefacts of Excavation, which commenced in August 2019. It responds to emerging agendas in Egypt, where antiquities abroad have become of increasing concern since the 2011 Arab Spring. This is evident in the revival of the repatriation department at the Egyptian Ministry of Antiquities in 2016, as well as in the intensification of Egyptian citizen-activism on social media against the display and storage of ancient Egyptian objects outside of Egypt. Negative perceptions of Western museums have been further compounded in recent years by the high-profile disposal via commercial sale of material previously exported by archaeologists, among them collections held by the St Louis Branch of the Archaeological Institute of America in 2014 and the Toledo Museum, Ohio, in 2017.[55] There is, therefore, a well-founded distrust in many parts of Egypt about foreign museums' ability to act as ethical stewards of its heritage. Egyptian objects seem to circulate more easily abroad than Egyptians themselves.

A new initiative – entitled Egypt's Dispersed Heritage – seeks to address the knowledge gap that exists between Egypt and museum collections abroad by making transparent the history of antiquities circulation, its extent and scope. It is a history which is largely unaccounted for and remains obscure for many Egyptians, including academics and Ministry of Antiquities personnel. For instance, the current Director of the Egyptian Government's repatriation department, Shaaban Abdel-Gawad, noted an almost complete absence of records concerning Egyptian artefacts stored and displayed outside Egypt.[56]

Much of the debate concerning restitution has focused on objects, but when thinking about circulation and its history, other materials and stories that were swept up alongside them in a larger mixed assemblage of documents, drawings, maps, photographs and casts need to be considered. Objects never circulated in isolation. Archaeological finds were shaped by specific ways of knowing, and were inscribed by forms of control in tandem with these other material products of fieldwork. These should be exposed as much as the inherent facts of the objects' biographies themselves and their location.

One of the first aims of our new project, therefore, is to make information about the circulation of collections accessible in Egyptian Arabic for a range of professional and public audiences. The focus is not one specific collection, but to discuss the circumstances of circulation itself with Egyptian communities through locally meaningful platforms of expression, from street performance and storytelling, to comic book art,[57] as an alternative to static sculpture and modern art, which

in some Egyptian communities retains connotations of exclusionary elite culture. Initiatives will be led by Heba Abd el-Gawad in Egyptian Arabic, working with a range of Egyptian partners in Cairo, including cultural enterprises such as Mahatat Contemporary Art, independent venues such as El Sawy Culture Wheel and community development organisations such as Tawesol, to allow knowledge about UK museum collections to be placed into dynamic conversation with Egyptian communities. By providing basic information about where collections are, how they got there and the resources available for accessing them (including archival material), we hope to empower Egyptians to feel that they can connect with them, construct narratives of their own around them and benefit from that engagement.

A second, related part of this project seeks to use case studies of selected Egyptian artefacts from a range of UK museums as more focused points of engagement with groups in Egypt. The aim is to realise the idea of artefacts (rather than museums) as contact zones,[58] in the sense that these objects are potential sites of intersecting histories that 'have overlapping, but different, sets of meanings to museums and source communities'.[59] This part of the project will juxtapose Egyptian expressions with UK museum collections in a series of pop-up exhibitions and events, not to placate or justify the place of Egyptian objects in foreign museums, but to reveal to the visiting public in the UK Egyptian antiquities within the frame of modern Egypt. We aim to work not just in exhibitionary spaces, but to extend interventions to other places of engagement. This includes the museum shop, as museum visits do not end in the gallery, and continues to commercial spaces, where consumption continues and circulation of other forms of museum representations begins. Sadly, stereotypes of Egypt tend to be reinforced in merchandise, from tomb-robbing games to books illustrated with a colonial gaze. Our partnership with Tawasol, for example, aims to address this by bringing modern Egyptian craft products, inspired by collections, to the UK for museum retail purposes and returning the proceeds to Egyptian communities.

These approaches are particularly relevant in the case of Egypt because, despite a few compelling, high-profile repatriation requests for iconic objects and artefacts removed illegally post-1970, it is not necessarily the wholesale return of hundreds of thousands of objects worldwide that is uniformly sought.[60] Instead, it is higher-profile participation in discourses around the international popularity of Egyptian material. Crucially, however, just as the motivations for drawing material out of Egypt and toward multiple locations were historically diverse, so

too are contemporary agendas within Egypt. Repatriation requests are often made at the behest of state-run organisations for political and nationalistic ends that do not necessarily reflect other public interests, including those suspicious of state rhetoric and use of heritage. Thus, our project aims to engage a range of publics outside of museums, in an array of formats, across a variety of platforms to fragment narratives and reanimate these objects with intersecting, perhaps conflicting, views on the place of Egyptian heritage. Doing so embraces and seeks to realise the fact that circulation is about transforming the status of things and people.

Acknowledgements

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Notes

1. All the data is available on the Artefacts of Excavation web resource, hosted by the University of Oxford's Griffith Institute: http://egyptartefacts.griffith.ox.ac.uk/ (accessed 23 September 2019).
2. Stevenson, *Scattered Finds*.
3. Raj, 'Beyond postcolonialism'.
4. Fan, 'Circulating material objects'; Raj, 'Beyond postcolonialism'.
5. Stevenson et al., 'The object habit'.
6. Fan, 'Circulating material objects'.
7. Stevenson, *Scattered Finds*.
8. Stevenson, *Scattered Finds*.
9. Raj, 'Beyond postcolonialism', 344–5.
10. Petrie, *Egypt Exploration Fund*, 10.
11. Letter from Flinders Petrie to Gaston Maspero, 9 June 1884, EES.COR.16.f.34, Archive, Egypt Exploration Society (EES).
12. Gange, *Dialogues with the Dead*.
13. Dobson, 'Sphinx at the séance'.
14. Hill, *Women and Museums*.
15. Challis, *Archaeology of Race*.
16. Latour, *Science in Action*.
17. Markovits et al., *Society and Circulation*.
18. Gosden and Marshall, 'The cultural biography of objects'.
19. Helms, *Ulysses' Sail*.
20. Letter from Joseph Ward to George Lambert, 16 November 1909, EES.DIST.29.42a, EES Archive.
21. Letter from George Lambert to Augustus Hamilton, 26 November 1909. In O'Rourke, 'Dominion Museum'. (Thanks to Andrea Hearfield for sending me a copy.)
22. Letter from George Lambert to Augustus Hamilton, 26 November 1909. In O'Rourke, 'Dominion Museum'.
23. Davies, 'An antique gift', 5.

24. Cornish and Driver, '"Specimens Distributed"'.
25. See also Owen, 'Collections of Sir John Lubbock'; Wingfield, 'Donors, loaners'.
26. Individuals are also listed in the distribution lists, such as Jesse Hayworth and Martyn Kennard, but are not counted here since their onward donation of material to museums was ad hoc and not guaranteed.
27. Raj, 'Beyond postcolonialism', 344.
28. Jasanoff, *Edge of Empire*; Moser, *Wondrous Curiosities*; Colla, *Conflicted Antiquities*.
29. Letter from Flinders Petrie to Sara Yorke Stevenson, 29 July 1900, University of Pennsylvania, Penn Museum archives, call number 0011. With thanks to John Baines for copies of these letters.
30. Amelia Edward, cited in James, *Excavating in Egypt*, 33.
31. Hill, *Women and Museums*.
32. *Greenock Telegraph*, 29 December 1891.
33. Drower, *Flinders Petrie*.
34. Stevenson, *Scattered Finds*, Chapter 5.
35. Harden, 'The cult of the known', 153.
36. Letter from Robert Patterson to Hilda Petrie, 4 January 1949, Petrie Museum Archives, UCL (Petrie Museum, UCL).
37. Letter from F. W. Smith to Hilda Petrie, 3 January 1949, Petrie Museum, UCL.
38. Letter from Stuart M. K. Henderson to Hilda Petrie, 4 January 1949, Petrie Museum, UCL.
39. Stevenson, *Scattered Finds*, 206–10.
40. Doyon, 'Poetics of Egyptian museum practice', 7.
41. Cited in Reid, *Whose Pharaohs?*, 21.
42. Ashmawi, *Legal Thefts.*
43. Alberti, *Morbid Curiosities*, 193.
44. Alpers, 'The museum as a way of seeing', 25–32.
45. Schillings and van Wickeren, 'Towards a material and spatial history', 212.
46. Quirke, *Hidden Hands*; Doyon, 'History of archaeology'.
47. Exell, 'Innovation and reaction'; MacDonald and Shaw, 'Uncovering ancient Egypt'.
48. Hassan, 'Egyptian antiquities'; Ashmawi, *Legal Thefts*; Quirke and Stevenson, 'Sekhemka sale'.
49. Swain, *Introduction to Museum Archaeology*, 293.
50. Ingold, 'Ancestry'; Tully, 'Re-presenting ancient Egypt'; Tully, 'Re-imagining Egypt'.
51. Serpico and Abd el-Gawad, *Beyond Beauty*.
52. Clifford, *Routes*, 188–219.
53. Boast, 'Neo-colonial collaboration'.
54. Hamilakis, 'Decolonizing Greek archaeology', 276; Steel, 'Organisations set out stall'; Stevenson, 'Conflict antiquities'.
55. Tsirogiannis, 'Nekyia'.
56. Shehata, 'Stolen Egyptian antiquities during the occupation', *Youm7*, 4 December 2016 [in Arabic].
57. Golding and Modest, 'Introduction', 3.
58. Peers and Brown, 'Introduction', 4–8.
59. Peers and Brown, 'Introduction', 5.
60. For example, in a recent article, former Minister of State for Antiquities Affairs and repatriation activist Zawi Hawass commented that: 'We sometimes give our artifacts [to] loans and exhibitions . . . we open the country for Europeans to excavate and work; all of this is done willingly without asking for anything back . . . if we ask for unique artifacts to be in their home country, this is completely legal and reasonable.' Cited in Beauchemin, 'Should the British', n.p.

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11

Colonising memory: Indigenous heritage and community engagement

Claudia Augustat

In recent years, the development of collaborative projects with representatives of Indigenous communities has become common practice in many ethnographic museums around the world. It is widely accepted that exhibitions about Indigenous people and their heritage, especially in former settler colonies, including the United States, Canada and Australia, are no longer possible without their active participation. The emergence of such practices raises wider questions concerning power relations within the museum space, especially concerning the sharing of authority, the rethinking of the ownership of collections and the role of Indigenous curatorship, as also explored in chapters by Luciana Martins and Paul Basu in this book.[1] In this chapter, I consider the issue of circulation in the context of ideas about the reactivation of collections through engagement with Indigenous communities across lowland South America, specifically in Amazonia. Objects in museum ethnographic collections have typically been decontextualised from their daily and ritual use and recreated as material heritage in the museum context. In the case of the examples discussed in this chapter, they have served as means of remembering aspects of Indigenous culture that have frequently been lost or forgotten. However, what happens when the circle closes and the objects, loaded with new meaning, return to their communities of origin through collaborative work?

In the Weltmuseum Wien (World Museum Vienna), collaborative work with heritage communities became an important issue during a five-year process of rethinking narratives and representational practices

in order to recreate the permanent galleries as a postcolonial space prior to the reopening of the museum in October 2017. Some account of the history and collections of its predecessor, the Museum of Ethnology, is necessary in order to provide a context for this revisionary museum practice. The museum was founded in 1928 in the Corps de Logis of the imperial castle Neue Burg in the city centre of Vienna. Its collections were mainly ethnographic, but there were also archaeological artefacts, especially from Central and South America. Some of the museum's objects came from the cabinet of curiosities of Ferdinand of Tyrol, such as the famous ancient Mexican feather headdress mentioned as early as 1598 in an inventory from the Ambras castle in Innsbruck. More systematic collections were inherited from the nineteenth century. In 1807, for example, Franz I of Austria acquired a substantial collection of ethnographic material at auction in London, including artefacts from the Pacific expeditions of Captain Cook. An Austrian Mission was sent to Brazil in 1817, following the marriage of Archduchess Leopoldine to Dom Pedro, heir to the Portuguese throne. The majority of the royal ethnographic collection was kept at this time in the Museum of Natural History. Although Austria was not a colonial power, its scientific and royal networks contributed substantially to the proliferation of collections in Vienna, so that by 1900, sixty-five thousand objects were registered in the inventory.

When Vienna's Museum of Ethnology opened in 1928, its galleries were organised according to region: West, East and Central Asia, Africa, Middle East, South and Southeast Asia, Indonesia and North and Central America. The themes of its exhibitions reflected subsequent political changes, during the era when Austria was absorbed into the Greater German Reich and, after the Second World War, when the museum began to move away from the presentation of non-European cultures as peoples without history. However, the museum's permanent exhibition was increasingly anachronistic, and, in 2004, the museum was closed for renovation. There followed a sequence of temporary exhibitions, until the case was made in 2012 for refurbishment of the museum as a whole. The newly appointed museum director, Steven Engelsman, was well aware of the criticisms that ethnographic museums have faced in recent decades, particularly concerning their regional approach, their apparently encyclopedic claims to completeness and their stereotypical presentation of individual cultures. Another point of critique was the entanglement between the histories of collecting and colonialism, a theme much debated among the staff of the museum over the last decade. The museum, renamed in 2012 as Weltmuseum Wien, participated

in two projects co-funded by the European Commission: RIME (the International Network of Ethnographic Museums, 2008–13) and SWICH (Sharing a World of Inclusion, Creativity and Heritage, 2014–18). Both projects reflected wider debates over the role of ethnographic museums in a globalising and multicultural world and an increasingly differentiated European society. Considering the radical changes that societies all over the world have experienced, museums necessarily had to redefine their priorities. They moved from 'being about something to being for somebody', as Stephen E. Weil put it in an article in *Daedalus* in 1999.[2] For a long time, the needs of objects – as understood and defined by curators and conservators – had been the priority. Now, the needs and desires of people, especially source communities, moved into focus, with the collections being seen as resources for collaboration.[3]

Engelsman summarised the new position of the museum as follows:

> As a scientific institution, the museum explained the world order and at the same time legitimized the colonial project. The end of colonialism after the Second World War plunged the ethnographic museums of the world for the first time into a deep crisis. . . . The ethnographic museum as a 'user manual' for 'exotic peoples' had had its day. . . . It took more than forty years for a change to be put into effect in the ethnographic museums. Instead of speaking about and evaluating others, one began instead to question one's own patterns and worldviews, and to involve the affected people themselves in the museum. Under the slogan of 'inclusion', the museums made efforts from then on to create collaborative relationships with the countries from which their collections originated.[4]

Over the last decade, an increasing number of collaborative collections-based projects have emerged. There has been an increasing number of visits from representatives of Indigenous societies to the South America department at the Weltmuseum Wien, subject, of course, to the obvious logistical and financial challenges involved. In addition to the shifting focus of museum activity already noted, museum curators were motivated by a desire to increase knowledge about historical collections that are often poorly documented. In developing such projects, both continuities and discontinuities between historical collections and contemporary realities for Indigenous societies became apparent, raising wider questions about cultural memory. In this context, the ideas of Jan Assmann, a German Egyptologist and scholar of religious studies, help to shed light on the significance of the past for the development of

contemporary collective identities. Assmann sees the formation of group identity as the central function of cultural memory, and he recognises its highly selective nature: the group prefers to remember what fits their image of themselves and their present needs.[5] Thus, cultural memory is directly related to the present, which shapes the perception of the past, or, in the words of the archaeologist Cornelius Holtorf: 'Cultural memory is not about giving testimony of past events, as accurately and truthful as possible, nor is it necessarily about ensuring cultural continuity: it is about making meaningful statements about the past in a given cultural context of the present.'[6]

The case of the Sateré-Mawé

Given the role of contemporary cultural contexts in mobilising cultural memory, it is not surprising that Indigenous and scientific perspectives on historical collections and objects do not always coincide. In 2012, curators at the Weltmuseum Wien worked together with representatives of the Sateré-Mawé people of the mid-Amazon River, on the border of the Brazilian states of Amazonas and Pará, in the run-up to the museum's exhibition Beyond Brazil (Figure 11.1).[7] Among the objects we looked at together were artefacts designed to enable the consumption of the

Figure 11.1 Collaborative work: Cécile Bründlmeyer, Obadias Batista Garcia, Ranulfo de Oliveira, Wolfgang Kapfhammer and Claudia Augustat discussing snuff utensils from the Natterer Collection. Vienna, March 2012. Video still: Claudia Augustat.

hallucinogenic drug *paricá*, collected by the Austrian naturalist Johann Natterer in the early nineteenth century (Figure 11.2). Among the Sateré-Mawé, the drug has been out of use since the beginning of the twentieth century, and shamanism has to a large extent been supplanted

Figure 11.2 Ritual equipment. Sateré-Mawé, Lower Amazonas, Brazil. 1830. Wood, bones of a stag, feathers, hair of the great anteater, bamboo, string, pigment, L. max. 33 cm. Natterer Coll., Inv. Nos. 1.363, 1.372, 1.373, 1.381. Courtesy: KHM-Museumsverband.

by Christian, especially evangelical, beliefs. In fact, the two Indigenous delegates – Ranulfo de Oliviera and Obadias Batista Garcia – saw these particular objects for the first time in their lives. Nevertheless, the objects triggered a lively discussion, provoked especially by the animal materials used.

For Ranulfo and Obadias, Natterer's characterisation of these objects simply as 'pestles' and 'a broom' was an insufficient account of their function and meaning. They recognised the ontological status of such artefacts as mediators of communication with nonhuman entities in the sylvan cosmos of the Sateré-Mawé. They saw them as symbols of shamanic agency. Such objects were used by the shamans 'to call' their 'masters'. Like many other Indigenous groups in Amazonia, the Sateré-Mawé seek to gather a plenitude of game animals within a domain under the control of spirit masters.[8] To be able to access this abundance of game, shamans set up a strategy that consists in putting oneself on the same level as the 'spirit masters'. Sateré-Mawé shamans did this by way of incorporating these spirits. To accomplish this, our colleagues explained, they wielded the objects, thus assuming the very attributes associated with these powerful spirit masters, enabling them to enter into the spirit realm. This pestle (shown in Figure 11.2) is made of hardwood and adorned with toucan feathers. The shaman would seek to assume toucan qualities, because this bird is known for its ability to regurgitate kernels of palm fruit. It is considered to be able to perform one of the classic healing techniques of Amazonian shamans, who suck pathogenic particles out of their patients' bodies and regurgitate them for public scrutiny, demonstrating the efficacy of the shaman's practice. The use of animal materials in the shaping of the pestle ensures the connection with the corresponding animal spirit under the influence of *paricá*. By sharing their knowledge, these representatives of the Sateré-Mawé thus provided the key to a deeper understanding of these objects. Even though such shamanic practices do not play a major role today, the ontologies connected to them are still vitally relevant.

The case of the Makushi

Indigenous encounters with historical collections, however, do not always serve to reactivate memories and knowledge. In some cases, objects once part of the cultural heritage of a particular group are no longer recognised as such. During a collecting trip to Guyana in 2005,

for example, I presented photographic documentation of the Vienna museum's Makushi collection to the inhabitants of some villages of the northern Rupununi savanna (Figure 11.3), as the first part of a wider study of material culture and cultural heritage.[9] This collection consisted of approximately 150 objects collected in the nineteenth century by three collectors: the above-mentioned Johann Natterer, the German naturalist Robert Schomburgk and José Paranagua, who was governor of the Brazilian state of Amazon between 1882 and 1884. Among the collection were wooden block clubs, feather ornaments, a blowgun with quivers, necklaces of animals' teeth and beaded aprons, which went out of use among the Makushi a long time ago (Figures 11.4 and 11.5).

On seeing photographs of these objects, the general reaction of the Makushi was a mixture of admiration and regret: admiration for the technical and artistic capabilities of their ancestors, and regret that this part of their culture had been lost. Even if these objects are no longer used, many people recalled that they once were part of their material culture. The feather headdresses were recognised as chiefly objects. It was also suggested that the colours of the feathers had a symbolic meaning on

Figure 11.3 Makushi looking at the photo documentation of the Viennese collections. Rupununi savanna, Guyana. 2005. Photograph: Claudia Augustat.

Figure 11.4 Apron. Makushi, Guyana. 1830. Glass beads, cotton, W. 30 cm. Natterer Coll., Inv. No. 2.083. Courtesy: KHM-Museumsverband.

the basis of their awareness that this applied to similar artefacts made by other ethnic groups. The beaded aprons were recalled as having been worn by old women when they were children. For the shaman of the Surama village, these aprons brought back memories of a time when women were easy victims of sexual assaults and were in danger of being robbed during tribal conflicts. He was the only man who recognised the block clubs and connected them to intertribal warfare. Thus, for him, the past connected with such objects was a time of violence and insecurity. On the other hand, most people were unable or unwilling to identify the clubs, and said that the Makushi had never had objects like these.

For me, this 'forgetting' of an object is the most interesting aspect of Makushi cultural memory revealed in my fieldwork. As a weapon, the block club was considered by the Surama shaman to be a symbol of tribal warfare in the past. The present-day Makushi prefer to emphasise their solidarity with other Indigenous peoples in Guyana, in a form of pan-Indianism, thus exemplifying how contemporary social and political concerns influence what is preserved in cultural memory. Such new commitments to peaceful coexistence are further evidenced in the fact that any trace of historical tribal warfare is downplayed during cultural shows performed in the villages or at Georgetown today.[10]

Both the foregoing examples, from the Sateré-Mawé and the Makushi, show how fruitful and important the collaborative work with Indigenous communities can be. They also give a glimpse into some of the ways in which memories are mobilised and re-mobilised

Figure 11.5 Club. Makushi, Guyana. 1830. Wood, cotton, stone, L. 36 cm. Natterer Coll., Inv. No. 2.058. Courtesy: KHM-Museumsverband.

in engagement with historical collections. In this context, it is useful to recall Assmann's emphasis on the different ways in which societies develop their own specific cultures of memorialisation.[11] This becomes clear, for example, when one considers the role of personal possessions in cultural practices of remembering the deceased. In Western societies, we usually keep some of the belongings of the deceased as mementoes, distributing them for safekeeping among relatives and close friends. Even if not everything is kept, it would be unthinkable for us to destroy these objects completely. But this is exactly what happens in many Amazonian societies. In other words, through such practices, they have developed a

culture of forgetting. As Anne-Christine Taylor puts it: 'Far from stressing continuity with their ancestors and enshrining their memory in names, epics or monuments, lowland Amerindians expend considerable time and ingenuity in losing their dead, forgetting their names and deeds and emphasizing their remoteness from the world of the living.'[12]

The Western museum is not only a place where heritage is preserved, researched and communicated, it is also associated with very particular ways of recreating heritage and memorialising the past. So, what happens when the museum as memory machine encounters Indigenous cultures of memory, especially when remembering means to forget?

The case of the Warí

The question of forgetting, and its relation to cultural heritage, first came to my mind in 2011 when I visited the Warí – an Indigenous group living in Rondônia in Brazil – together with my colleague and friend Beth Conklin from Vanderbilt University in Nashville. Beth has been doing fieldwork with the Warí since 1985, and her research focuses specifically on the practice of endocannibalism (that is, anthropophagy within a community) in the pre-contact era.[13]

As curator of the South American collections at the Weltmuseum Wien, my connection to the Warí was through a collection of artefacts from their pre- and early contact time which had been assembled by our former director Etta Becker-Donner in the 1950s. In 1954, Etta Becker-Donner carried out two expeditions leaving from the city Guajará Mirim to the settlements of the Warí, who at this time were known as Paaca Nova (Figure 11.6). However, finding only abandoned shelters and villages on this occasion, she collected only objects which had been left behind, including baskets, drinking vessels, ceramic fragments and corn-cob remains.

Two years later, Becker-Donner was given the opportunity to attend one of the first peaceful contacts with the Warí through the representative of the SPI (Indian Protection Service) and the American New Tribes Mission. On this occasion, she received some objects as gifts from the Warí. Her ethnographic collections, photographs and film footage from her travels document a decisive moment in the history of the Warí, otherwise only preserved in their oral tradition, the memories of all those involved and in some rare archives held at the SPI. The holdings in the Vienna museum represent snapshots, detached from what was

Figure 11.6 Etta Becker-Donner resting on a Warí bed during her expedition in 1954. Courtesy: KHM-Museumsverband.

before and what came after, as Becker-Donner herself did not continue research on the Warí after 1956. However, the research and publications of Beth Conklin and the Brazilian anthropologist Aparecida Vilaça allow her collections to be situated within the passage of time, and thus into a larger context. They no longer appear as documents of an isolated event, but are part of a story that continues into the present day.

In July 2011, together with Beth Conklin, I visited the Warí community of Santo André on the Pacaás Novos River in order to share with the residents copies of Etta Becker-Donner's notes and photographs and talk to them about their experience of first contact. In the footsteps of Becker-Donner, we took a FUNAI[14] boat up the Pacaás Novos past Tanajura, where the contact had taken place. We did not stop there but continued to Santo André, where Beth has done most of her fieldwork, and we were warmly welcomed (Figure 11.7). The interest in the archival materials from the 1950s was enormous, and people would quickly gather around us to look at what we had brought. The children were especially enthusiastic about the photographs, and the laptop on which we showed them. While no one remembered Etta Becker-Donner herself, the residents were able to identify many of the depicted Warís. Adults recognised their parents, aunts, uncles and grandparents, and were able to show them to their children.

In the process of showing and talking, the anonymous faces in Becker-Donner's photograph archive acquired names. And then, unexpectedly,

Figure 11.7 Warí looking at the photographs of Etta Becker-Donner. July 2011. Courtesy: Claudia Augustat.

the unbelievable happened: we met a Warí man who actually appeared in one of these photographs. By this time, however, Oro Nao was very old, and because of serious visual impairment he could barely recognise the photographs. His date of birth (as given in his social security card, which we were shown) was 19 June 1912, which would make him only a year younger than Etta Becker-Donner: two people whose utterly different worlds had coincided for a brief moment in August 1956, just as the lifeworld of the Warí was to change radically and forever.

The Warí's interest in Becker-Donner's photograph archive is noteworthy, as it seems to reflect a change in their culture of remembrance. As mentioned above, in the pre-contact era, the Warí practised endocannibalism, meaning they consumed at least part of the corpses of their dead. In her book *Consuming Grief*, Conklin succeeds in making this ritual, which we find difficult to grasp, understandable. As she states, 'For Warí before the contact, cannibalism was the norm. It was how their people had disposed of their dead for as long as anyone could remember, and it was considered the proper, most honourable way to treat a corpse.'[15] During her conversations with Warí elders, she developed the concept of 'compassionate cannibalism'. This was a practice rationalised by expressions of respect, not only for the person of the deceased, but also

for their family: 'This was necessary, they say, because a corpse left intact is a painful reminder of the lost loved one, a focus for memories of the person who had passed away . . . eradicating the body removed the most tangible focus for memory and grief.'[16] The Warí understand the body as a repository of social relationships. Conklin suggests that it is 'composed of substances acquired from other people', like ovum, sperm and breast milk, and by the exchange of food and other fluids during life.[17] In other words, the body is a result of reciprocal relationships which are highly valued among the Warí. While the death of a person is a rupture in these relationships, it is difficult for the dead and the living alike to let go of each other. A clear line between the world of the living and the dead needs to be drawn. In order to ease the arrival of the dead in the underworld, and to hinder their way back into the world of the living, their personal possessions are burned, in pre-contact times even their houses. Places that have a strong connection to the dead are altered: neighbouring houses get new doors, new paths are created, and trees under which the dead liked to sit are felled. For the bereaved, these are ways of avoiding memories. Together with the traditional way of dealing with the corpse, these practices help to depersonalise the individual and create an anonymous ancestor spirit: after an intense mourning period of three days, the body would be split, roasted and consumed. With the destruction of the body, the identity of the person vanishes and nothing remains to remember.

How does this account of the Warí culture of memory and forgetting help us to understand their relationship with the images of collections from the Weltmuseum Wien? In my experience, the photographs of artefacts were unproblematic, since these objects could not be assigned directly to any deceased person: instead, they were interpreted as being evidence of their cultural heritage. However, photographs of people were an entirely different case. Images of the dead were responded to through a mourning process which might bear comparison with the treatment of the deceased body: they were hugged and destroyed. In her fieldwork visits to the Warí, Beth Conklin always brought photographs from her previous stays. Before distributing them, she first tried to find out if anyone had died since her last visit. Then she sorted out the corresponding photographs in order to avoid painful and unwanted memories. However, on a recent visit, she was asked specifically to bring back her photographs of the dead. It seems that parents wanted to show their children their deceased grandparents or other relatives. This change in attitude perhaps reflects the wider transformation in burial rites which came about in the 1960s under pressure from missionaries and others. The Warí have learned to live with cemeteries.

During our stay with the Warí in 2011, other ideas about heritage were discussed. We recorded a long interview with Jimon Maram about the first contact, during which he drew on his father's memories. He talked about the arrival of the SPI and about the disastrous epidemic following the first contact in the 1950s. He also talked very frankly about 'eating the dead', saying: 'I want to remember this story; I do not want people to forget it. We do not want to eat [the dead] anymore. We just want to remember what the ancestors did. We need to have a museum, in order to remember.'[18] Then he turned to the photographs:

> This is about why we really need these photographs [of the ancestors, from the museum's collection]. You never saw this [the Warí people and places in the old photographs], but I did see all that. . . . This is why we want to create a museum. For these young people today, to see [the pictures of the past]. I really want to put this [museum] in the school. And when the 19th [of April, Brazil's national Day of the Indian] comes, we can show the film. We will show what Warí are like, how our old customs were. Today everything is changing. And I do not want to lose our traditions. Because we need this, children need it. . . . [We need to know] where we came from, where we lived.

From a memory that is actively forgotten to a past that is to be recovered through the creation of a museum: can we detect in this process a fundamental change in relation to temporality? The present changes at a pace that makes one's own past appear less and less familiar: modernisation and musealisation often go hand in hand.[19] Remembering becomes more important than forgetting. For Jimon Maram, at least, Etta Becker-Donner's visual archives should be the core of such a museum. To remember the dead as persons will become an important part of the reconstruction of one's own history and the definition of one's own identity, even cultural survival – a significant change in the culture of remembrance of the Warí.

The case of the Yanomami

The final example to be discussed here is the Yanomami, an Indigenous group inhabiting the border region of Venezuela and Brazil. The Yanomami conceive death as an insult against the community, threatening social disintegration: in this context, grief serves to

efface rather than to sustain memories of the dead.[20] Among the Yanomami, the social value of an object consists not only of its materiality and practical function, but also of its value as an item of exchange. In exchange, the object becomes a gift in the Maussian sense: it creates relationships of reciprocity between individuals and, in a wider sphere, local groups.[21] During encounters between the inhabitants of two *shabono* (villages), a ritualised exchange of *rahaka* (arrowheads) takes place. *Rahaka* are man-made, but no man ever hunts with those he makes himself, because it is believed that they would never hit their target. Consequently, the exchange of arrowheads is a cultural necessity, requiring communities to seek allies in other villages. A man's collection of *rahaka* is therefore a material concretisation and reification of his friendships with other men. During a visit to another village, the male guests will explain the origin of their *rahaka* to the hosts, thus describing their wider 'net of allies' within the tribal group.[22] Sometimes, moreover, the word *rahaka* is substituted for the name of a deceased person, due to a Yanomami taboo on pronouncing the name of the dead. 'A precious arrow point fell out of my quiver' is a euphemism that eloquently demonstrates the close identification between a person and their *rahaka* (Figure 11.8). *Rahaka* play a particularly important role during the funeral rites of a warrior, during which the various arrowheads he had produced and given to his allies in other communities are reclaimed and returned to his village. The Yanomami cremate their dead, together with all their personal belongings. Because of their role in exchange, objects embody the social relations of a person, and thus have to be destroyed after the owner's death. Moreover, endocannibalism is another practice linked to the destruction of the person. Ashes are prepared from the cremated bones and possessions of the deceased, to be mixed into a plantain soup for consumption during a series of memorial feasts. The quiver and returned *rahaka* of the deceased are kept back until the final mortuary ceremony, when the very last of his ashes are consumed. At this point, the person is gone and all his former relationships are dissolved.[23]

The Yanomami conceptualisation of *rahaka* recalls Weiner's concept of inalienable possessions:

> The primary value of inalienability, however, is expressed through the power these objects have to define who one is in a historical sense. The objects act as a vehicle for bringing past times into the present, so that histories of ancestors, titles, or mythological events become an intimate part of a person's present identity.[24]

Figure 11.8 Bone arrowheads (*ãtãri ãhi hetho*) and bamboo arrowhead (*rahaka*). Yanomami, Upper Orinoco, Venezuela. Palm wood, monkey bone, bast fibre, resin, bamboo, L. max. 31.3 cm. Eibl-Eibesfeldt Coll., Inv. Nos. 185.442–185.444. Courtesy: KHM-Museumsverband.

The *rahaka* define a man's social personhood as much as he creates these objects.

What are the implications of this discussion of *rahaka* exchange and destruction for an understanding of the Yanomami perspective on heritage, especially in the context of Western museums? In a sense, the very idea of a museum contradicts the efforts of the Yanomami 'to consistently extinguish their past manifested in objects'.[25] In 2010, Davi Kopenawa, a significant shaman and political leader of the Yanomami, visited the Museum Fünf Kontinente (Five Continents Museum) in Munich to see a presentation of the Fittkau collection.[26] As reported in a contemporary newspaper article by the journalist Helmut Mauró, Yanomami beliefs required that all the belongings of a deceased person be destroyed after their death. If this were not to happen, the deceased would persist as undead beings, bringing misfortune on the community. Mauró describes Kopenawa's reaction to the museum exhibition as follows:

> In this respect, the horror of Davi Kopenawa is deadly serious, and his otherwise calm and generally cheerful expression darkens at the sight of the Yanomami treasures. With eyebrows knit, he makes what the Yanonami call the face of the jaguar – this is their weapon against any kind of pain.[27]

These words are Mauró's, not Kopenawa's, and we do not know for sure that his reaction was linked directly to the obligation to destroy the personal belongings of the deceased. Kopenawa is reported to have said that the artefacts concerned had been acquired by white people in exchange for 'tin pots and Christian promises of salvation'. An accompanying photograph shows him in front of pieces from a region occupied by the Xingu Indians rather than the Yanomami. The anthropologist Gabriele Herzog-Schröder, who met Davi Kopenawa during his visit to Munich, could not recall the Fittkau collection being considered particularly problematic from his perspective.[28]

In the case of the Yanomami, it is apparent that the versions of cultural memory embedded in such ethnographic collections were invented and constructed by outsiders. They are an anachronism: they are misplaced in time. If this misplacement in terms of time seems unproblematic to Western visitors, it is because of a simultaneous displacement in terms of space. Visitors see these objects housed and displayed in European museums, not as connected to the memory of an individual but as embodying a culture. Yet for the Indigenous groups

concerned, the objects are certainly dangerous. As the Tukano shaman Ovídio Barreto explains:

> What this 'people' took with them, especially the tiaras, continues to exist there like dead persons; a lot of time has passed and they have died. Even if we were to bring them back, they would be of no use, for they would no longer *communicate* their knowledge to us because their *masters* have already passed away. We no longer know whom they belonged to, which people or clans, because this information is absolutely necessary in order to be able to formulate the right *bahsesse* [ritual to activate the spiritual energy of an object] to use and preserve it. If we were to take them back one day, we would risk getting many incurable diseases, so it is good to leave them where they are. For me, the house, which they call a museum, where they keep the *bahsá busa* [tiaras] and other Indian objects, is a palace of the dead.[29]

Conclusion

Collaborative projects are now part of best practice in ethnographic and world culture museums. Yet, as the examples presented here show, contradictions are also being revealed in the process: objects are not recognised, photographs and names are subject to taboos, and objects of the deceased are understood as potentially dangerous. The ontologies of Western museums and those of Indigenous communities can appear to be irreconcilable. However, the example of the Warí also suggests that Indigenous concepts are not static. The request to view photographs of deceased family members indicates a change in the culture of remembrance. The extent to which this was triggered through cooperation with visiting anthropologists is a matter for further investigation. During the visit in 2011, the wish to create a museum was formulated by Jimon Maram. It was not clear if this wish existed before, or was initiated by, the visit.

We should be aware that in collaborative cross-cultural projects, there is always a danger of what psychoanalysts call countertransference. Especially when such projects take place in Western museums, the impression that these institutions can make on Indigenous representatives should not be underestimated. For some of these visitors, it is their first trip outside their own settlement area and for many of them, the experience is unfamiliar. The projects in which they

are involved are normally curated by museum staff and they focus on the needs of the museum, for example, in relation to conservation practice or interpretation. While objectives and needs on the side of the museum are often clearly defined (such as the acquisition of knowledge or the presentation of multiple voices in exhibitions), this is not always the case on the Indigenous side. This is particularly true where a project is proactively initiated by the museum and does not arise in response to, for example, a demand for restitution from the Indigenous side. Moreover, in the case of communities where practices of forgetting are firmly embedded, another still more troubling question arises: can such projects, which among other things seek to decolonise museum practices, actually lead to the colonisation of memory?

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Notes

1. See Van Broekhoven et al., *Sharing Knowledge*; Kreps, 'Changing the rules of the road'; Jean-Louis et al., *Linked Heritage*.
2. Weil, 'From being about something'.
3. Kreps, 'Changing the rules of the road'.
4. Böhacker, 'A necklace of stories', 316.
5. Assmann, *Das kulturelle Gedächtnis*, 8.
6. Holtorf, 'Life-histories of megaliths'.
7. Augustat, *Beyond Brazil*.
8. See Kohn, *How Forests Think*.
9. Augustat, 'Material culture and cultural memory'.
10. Riley, 'Guyanese history'.
11. Assmann, *Das kulturelle Gedächtnis*, 18.
12. Taylor, 'Remembering to forget', 653.
13. Conklin, *Consuming Grief*; Vilaça, *Strange Enemies*.
14. Fundação Nacional do Índio (former SPI), the organisation responsible for issuing permission to visit Indigenous territories.
15. Conklin, *Consuming Grief*, 18.
16. Conklin, *Consuming Grief*, 19–20.
17. Conklin, *Consuming Grief*, 133.
18. Interview on 7 July 2011, Santo André. Unpublished transcription by Beth A. Conklin.
19. Lübbe, 'Zeit-Verhältnisse'.
20. Herzog-Schröder, *Okoyõma, die Krebsjägerinnen*, 30.
21. Mauss, *Die Gabe*.
22. Herzog-Schröder, *Okoyõma, die Krebsjägerinnen*, 218.
23. Herzog-Schröder, *Okoyõma, die Krebsjägerinnen*, 219.
24. Weiner, 'Inalienable wealth', 210.

25. Herzog-Schröder, 'Der geschenkte Korb', 31.
26. Ernst Josef Fittkau (1927–2012) was a zoologist and a former director of the Bavarian State Collection of Zoology.
27. Mauró, 'Indianische Beutekunst', 13.
28. Personal communication.
29. Lima Barreto, 'Im Palast der Toten', 62. Italics in original.

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12

The flow of things: mobilising museum collections of nineteenth-century Fijian liku (fibre skirts) and veiqia (female tattooing)

Karen Jacobs

In the Economic Botany Collection at Kew are three liku (fibre skirts) collected in Fiji in 1860 by Dr Berthold Carl Seemann (1825–71), a German botanist who studied at the Royal Botanic Gardens, Kew. During his time in Fiji, he conducted tours around and through Viti Levu and recorded, identified and collected Fijian flora and objects, among which are the three liku, which differ in style.[1] Seemann made an effort to understand the different types of liku worn by Indigenous Fijian women, and he distinguished 'permanent' from 'temporary' liku. This corresponded to the local division between liku made from dried fibre as valuables and liku made for short-term use. Kew currently holds two liku that Seemann labelled 'permanent', both made of *Hibiscus tiliaceus* (Figure 12.1). One is a liku dradra, which was given to a girl when she reached puberty. It was made by tying hibiscus fibre strips of equal length to a simple waistband. The other is a liku se droka, which was reserved for women of status who wore it during formal occasions. As examples of temporary liku, Seemann recorded liku made of banana or coconut leaves, or the scented leaves of the vono climbing plant (Apocynaceae, *Alyxia stellata*).[2] These were usually made on the spot to be worn for a short while and then discarded. Temporary liku are generally not represented in museum collections. Yet Seemann collected a liku made of vono leaves, and thus made a temporary liku 'permanent' by collecting it. This liku is currently preserved at Kew as a specimen in a wooden frame (Figure 12.2). The frame emphasises that this is no

Figure 12.1 Liku se droka, collected in Fiji in 1860 by Dr Berthold Seemann. Skirt part, width 89 cm, length 20 cm. Currently in the Economic Botany Collection, Royal Botanic Gardens, Kew. Hibiscus, 65747. Courtesy: Board of Trustees of the Royal Botanic Gardens, Kew.

longer a garment closely connected to the tattooed female wearer, but that it has become a museum object. Clothing and the body operate dialectically; clothing imbues the body with social meaning, while the body gives life and fullness to dress.[3] The close link between clothing, body modifications and the body is obscured when clothing is collected and becomes a museum object.

A museum object was not made as such, but is created the moment it enters the museum, when it undergoes processes of ordering, classification, representation and circulation.[4] All these are processes of mobility, as they involve the physical movement of things and their associated knowledge. Using the case study of nineteenth-century fibre skirts (liku) worn by Indigenous Fijian women and the associated female tattooing (veiqia), this chapter deals with processes of mobility associated with their museum life: processes of accumulation and collecting, processes of classification, processes of museum dispersal and exchange, and processes of re-evaluation, re-engagement and re-mobilisation. While display is another form of circulation, this angle has not been included in this chapter, where the emphasis is mainly on how liku and veiqia moved through different regimes of value in museums.[5] The analysis is based on the liku and veiqia collections of the Peabody Essex Museum, the British Museum, the Museum of Archaeology and Anthropology, University of Cambridge (MAA) and the Smithsonian National Museum of Natural History (NMNH), as these are the largest collections. It will be shown how liku and veiqia as museum objects move

Figure 12.2 Temporary liku made of vono leaves, collected in Fiji in 1860 by Dr Berthold Seemann. Skirt part, width c.74 cm, length 49 cm. Currently in the Economic Botany Collection, Royal Botanic Gardens, Kew, 67735. Courtesy: Board of Trustees of the Royal Botanic Gardens, Kew.

beyond the spatial and temporal limits of the museum through their engagement with an array of people.

The museum is not just a physical site for storage and preservation, but also a space that collects, transmits and circulates objects and knowledge in the form of museum documents, which become part of the museum object. Museum objects are not static. They move

between stores, display areas, study spaces, photography studios and conservation laboratories. They are loaned, exhibited, deaccessioned or exchanged with other institutions – the latter was particularly a practice that thrived in the nineteenth century.[6] Today, some museum objects are reused by descendants of their original makers within a museum context, or repatriated. In this way, as outlined in several of the preceding chapters in this book, museum objects can be the focus of new and renewed relationships, including source communities, museum staff, researchers, artists, curators, collectors and auctioneers.[7] The notion of a 'relational museum' has been proposed to allow the charting of relations that helped to compose a museum before, during and after the point of collection, rather than viewing museum collections as sets of static, decontextualised objects.[8] Byrne and colleagues thus aim to 'unpack' museum collections by considering the involved agents, such as collector(s), institutions to which collectors might be attached, community, curators and source communities, as single nodes in the network.[9] Harrison and colleagues 're-assemble' the museum collection by considering it as an archaeological assemblage, and by analysing the relationships between these heterogeneous things brought together in a collection.[10] These authors move beyond the representational role of museum objects and consider their affective qualities in past and present engagements between various stakeholders. Silverman's notion of the museum as process proceeds from the basis that 'museum work, especially collaborative work with communities, is fundamentally processual in nature'.[11] While Silverman wanted readers to learn from previous experiences by focusing on 'the "messiness" of community-engaged scholarship', Lonetree wants to look beyond the potential frictions, and argues that service to Indigenous communities should be the goal of museums, so that they can become places for understanding and healing from the ill effects of colonisation.[12] She focuses on the re-mobilisation of collections by establishing relationships with those communities whose ancestors made and used the collections. Museum objects do not just move physically; they move people emotionally too.

A wide range of stakeholders are thus behind museum processes of circulation, which in themselves are recorded in museum registers, labels and database entries. Museum staff update museum catalogues realising that 'words matter'.[13] The recent trend to allow for audience comments and participation in digital museum catalogues acknowledges alternative voices, which can also create new forms of knowledge.[14] Museum objects, therefore, are mobile physical objects with documentation that continues to develop; they are things in flow.[15]

Liku and veiqia

In nineteenth-century Fiji, when a girl reached puberty, she was tattooed in a secluded enclosure by a daubati (female specialist). Once tattooed, she was entitled to wear a liku, usually a simple braided skirt (liku dradra). In the east of Fiji, in places such as Rewa and Bau, a woman's veiqia, tattooing, was confined to that part of the body which was covered by the liku. Tattooing was more elaborate in the Viti Levu highlands, and also covered the loins and hips, so that rows of patterns appeared above and underneath the liku. Liku were thus closely associated with a woman's veiqia, and both liku and veiqia reflected a new stage in her life, one of sexual maturity and marital availability. Subsequently, each stage in her life was marked by a different liku. On marrying, women received a liku which entirely surrounded the body. After the birth of her first child, her liku was lengthened. This new chapter in a woman's life was not just visible in her change of dress, but was similarly reflected on her body, as she had circular patches tattooed around the mouth. Here, too, there was regional variety: the circular patches around the corners of the mouth were joined by narrow lines around the lips in interior Viti Levu.[16]

Chiefly girls received veiqia and the associated liku at a later age.[17] Status was not just expressed in the longer absence of liku and veiqia, but also in the materiality of the veiqia ink and liku itself. While the dye of the burnt resin of the dakua (*Agathis vitiensis*) tree was generally used, the soot of the lauci candlenuts (*Aleurites moluccana*) was reserved for high-ranking women. Chiefly women wore multicoloured and multilayered liku (liku se droka), particularly the ones with a long bundle of fibre, which would be worn as a train. Reports indicate that a liku was put in a chiefly woman's tomb, her clothing still present after death.[18] Similarly, tattooing was considered as a passport to the other world. When an untattooed girl died, she was painted with tattoo patterns to avoid being punished by the gods.[19]

However, near the end of the nineteenth century, missionary presence encouraged Indigenous Fijian women to adopt Christian dress, and the practices of wearing liku and applying veiqia were gradually abandoned. Liku of the kind worn by nineteenth-century Indigenous Fijian women now mainly exist in museum collections since they are no longer made and worn – a result of missionary and colonial influence, and of the strategic use of Western dress by the Fijian elite.

Mobile valuables and circuits of accumulation

In addition to being forms of dress in life and death, liku were important exchange items. In the 1840s, Methodist missionary Thomas Williams recorded liku as 'head of tribute', as significant presentation items (iyau, valuables) during solevu, exchanges of varying scale that occurred during important life events.[20] At a solevu, different social groups, usually formed into two 'sides', would present gifts to each other. These were then distributed among all participants. Solevu often had a competitive edge, meaning the best material was often presented and distributed. Solevu gifts were products that were usually specially made and kept pristine for their presentation. In the 1840s, liku were considered of significant value for solevu presentations, similar to other female products, such as bark-cloth, mats and baskets. In this context, liku embodied female relationships that were crucial to large-scale gift presentations and rites of passage.[21]

The nineteenth century was also a period when liku were collected in considerable numbers by non-Fijians. Although there is not much specific information written on the collection of liku, the many hundreds of liku in museums today testify to the multitude of relationships that were formed through them, and the agency of all those implicated in the collecting process needs to be acknowledged. Liku began to be collected regularly from the 1800s onwards by American traders who visited Bua Bay in Vanua Levu to procure the valuable yasi (sandalwood, *Santalum yasi*) and, later, dri (bêche-de-mer, *Holothuria*). Traders were dependent on Fijians to cut the wood or to harvest and dry the bêche-de-mer, and they established relationships with high-ranking Fijian men and women to achieve this. In these arrangements, the exchange of valuables was highly significant.[22] The ship owner Stephen C. Phillips of Salem encouraged his employees to gather artefacts, which found their way to the East India Marine Society.[23] The high number of valuables in these collections, currently in the Peabody Essex Museum, indicates that these were obtained during encounters with people of high status. Among the collection obtained by Captain John Henry Eagleston, who made several trading voyages to Fiji between 1830 and 1840, are two liku se droka (E5372, E5374), reserved for chiefly women. From Eagleston's unpublished writings, we get an idea of some of the objects used for barter, such as muskets, gunpowder, looking glasses, red paint, axes, hatchets, beads, knives, scissors, chisels, and fish hooks and whales' teeth.[24]

The largest collection of liku was assembled during the large-scale scientific US Exploring Expedition. In 1840, four vessels from the original six-ship fleet spent three months in the Fiji Archipelago (6 May–11 August). Under the command of Charles Wilkes, there was an official embargo on trade except for necessities and curiosities, but in reality, trade occurred all the time.[25] The resulting collection of liku (currently at the NMNH) shows a wider variety of liku that were worn during various stages of a woman's life. A number of liku still bear the original label attached by the US Exploring Expedition team identifying who collected it, and these labels demonstrate that liku were not only assembled during formal occasions but also during personal transactions. Liku were collected by sailors, officers and scientific expedition members alike.[26]

The second-largest liku collection was collected by Baron Anatole von Hügel during his time in Fiji between 1875 and 1877. Von Hügel initially had not been concerned with collecting liku, and he felt that Fijian women were pushing him to collect.[27] However, his interest in liku and the associated veiqia grew steadily. He ended up collecting a wide variety of liku that were previously unknown in museum collections due to his extensive travels into interior Viti Levu. Once back in the UK, he became the founding curator of the current MAA, where he catalogued his liku collection.

The majority of liku in museums were classified in their new destinations not long after the point of collection (see below). However, not all collected liku were destined for museums. On 18 October 1847, Methodist missionary Walter Lawry described how an elderly woman asked to exchange her liku for a piece of calico. Her liku was taken to the bazaar at Auckland to raise funding for the mission.[28] Liku circulated in multiple ways throughout the nineteenth century.

Classifying: translation and changing perspectives

Once in museums, liku had to be classified. Museum documentation systems are not merely a collection of neutral object records – they materialise engagements with a potentially infinite number of people. Museum records are therefore in a state of 'becoming'.[29] Museum records of liku show layers of classification that express transforming views. The 1821 catalogue of the East India Marine Society in Salem, which later developed into the Peabody Essex Museum, listed 'A Girdle, or Sash, the entire dress of females at the Fegee Islands'.[30] This initial classification was continued and copied on to Peabody Essex Museum catalogue cards.

Take, for example, a liku se droka (E5,137), an elaborate liku reserved for important occasions, which was collected by Captain Vanderford in the 1820s and is made of a double waistband in between which vau (*Hibiscus tiliaceus*) and kuta (*Eleocharis dulcis*) fibre strips have been tied and cut in varying lengths in order to create a layered effect. Initially this was catalogued as 'girdle', but at some time in its museum history, a museum staff member had crossed out this classification and renamed it 'waist band'. An additional pencil note written by Fergus Clunie in the 1980s identified it as a woman's liku. These layers of classification testify to a varying sense of dress. What was considered a full garment by Fijians in the nineteenth century was interpreted as a form of belt in nineteenth-century Salem, only to be reclassified later, restoring its Indigenous name. Another liku at the Peabody Essex Museum (E30,507) consists of a hibiscus fibre braided waist cord and brief fringe, which covered only the lower abdomen, leaving the hips and buttocks bare. Perhaps it was the small size that led to its registration as 'necklace'. This initial classification on the catalogue card was crossed out and replaced by 'apron-skirt', with a note written by Fergus Clunie in 1982: 'NOT A NECKLACE but a *liku-ni-gone* apron-skirt for a young untattooed girl'. A liku ni gone was a liku worn by young girls (between 7 and 11 years old) before they received their veiqia (tattoo) and their first proper liku. These subdivisions, designating the specific type of liku used, are rare in museum databases. If the term liku is used, it is employed generically. Finding the most appropriate translation of the Fijian term 'liku' was not straightforward either, judging from the variety between museums and the variations over time.

From 1842 onwards, the US Exploring Expedition collections were catalogued by some of the expedition's scientific members. This resulted in a handwritten catalogue, now known as the Peale catalogue, which lists a total of 2,516 ethnological and archaeological specimens.[31] Even though the term liku was known by expedition members, it was not included in the catalogue, and over a hundred liku were listed as 'cinctures'.[32] While translation was deemed to be required for a non-specialist audience, the choice of terminology seems to correspond to the way liku were perceived by expedition members. Lieutenant William Reynolds wrote in a letter to his family: 'The women . . . wore a girdle of grass woven into a belt about three inches in width, from which fell a fringe of the same. This was of various Colours, very neatly made, and the only covering in vogue among the dames of Fegee.'[33] Captain Wilkes described liku as 'slight and scanty dress'.[34] When the ethnographic collections were transferred to the Smithsonian in 1857, the liku received specially designed Smithsonian US Exploring Expedition labels on which they

are invariably identified as either 'girdle worn by Fejee women', 'female cincture' or 'female girdle'. Over time, more labels with translations were added: one US Exploring Expedition liku in the collection (E4624) bears a recent label identifying it as a 'grass skirt'. The labels attached to the objects illustrate changing perspectives of liku. Initially described in negative terms in written records, liku began to be used from the 1880s as a standard prop in photography studios in Fiji, worn by young anonymous women who were positioned in classical poses to appear as the stereotypical island girls – a representation that was being promoted at the time. Today, the majority of the liku are catalogued under their Fijian name, followed by 'woman's skirt' (in the object name entry) in the online catalogue, but previous classifications and label information can be found in the description field.[35]

At the MAA, liku were initially catalogued as '(fringe) dress'. Over time, the liku with accession number Z 2813 changed from 'dress' into 'skirt'. The explanation given was: 'Fringed is a necessary adjective to qualify all these skirts, dresses connote a covering for body and limbs which skirt does not.'[36] Some specific liku types were identified on catalogue cards based on information that was collected by von Hügel. However, even when Indigenous classifications were used, translations were a cause of worry, and historical attempts at political correctness were not always accurate. The catalogue card for a 'liku dradra', a liku that was given to a girl when she reached puberty, has an additional pencil note that states that dradra (menses) is 'better left unsaid for good and sufficient reasons'.[37]

The aim of showing these examples is not to point out the inaccuracy of museum administrators. To the contrary, it demonstrates the difficulty of finding a suitable translation to fit neatly in museum boxes of classification. It mostly shows the mobility of ideas and interpretations, once things become museum objects.

Circulating: duplicates and specimens

> As a commonplace transaction between museums in the nineteenth century, exchanges were essential for the supply of adequate reference material for classification. Since the basic work of the institution was classification, cataloguing and display of collections along taxonomic lines, the exchange of 'duplicate' material was essential.[38]

As Jude Philp points out, the nineteenth century was a period when the 'exchange industry' in the museum world thrived due to the professionalisation of the museum and its focus on science and public education. Liku entered museums soon after being collected, but some moved out of the museum setting not long after. In 1858, when the US Exploring Expedition collection was catalogued at the NMNH, a series of liku were categorised as duplicates. This was becoming standard practice, as during the second half of the nineteenth century the NMNH progressively received natural history and anthropological collections that came out of government-sponsored scientific expeditions.[39] For the NMNH, duplicate exchanges and distributions were a means of advancing scientific knowledge more broadly (as discussed by Catherine Nichols in Chapter 5). Anthropological objects from the duplicate series were sent as gifts, in the form of starter kits, to domestic museums, universities and other educational institutions that applied to receive them and that would use them as educational tools. Besides North American material, most starter kits contained material from the Pacific, with the majority originating from Fiji. Liku were part of the standard packs of duplicates. The original official collection listed 120 liku, of which 35 were exchanged with 28 museums – a fact that led to liku being described as currency.[40]

Similarly, Baron von Hügel at the MAA identified a range of liku at Cambridge as 'duplicate', of which a selection was sent to the Australia Museum in Sydney, which had lost most of its ethnographic collections in a fire on 22 September 1882. Today, some of the liku in the Sydney collections still bear a label with the word 'duplicate' in von Hügel's handwriting – their exchange potential became part of the liku's museum life. Liku were also exchanged by von Hügel with the British Museum. Augustus Franks, as curator at the British Museum, and von Hügel, representing the MAA, sent sketches of duplicates back and forth until both parties were happy with the exchange.[41] Liku had become museum objects as a result of relationships, now they strengthened further relationships between institutions.

It is interesting to note that the two largest liku collections (NMNH and MAA), which were both assembled for scientific purposes, are the ones in which liku were identified as duplicates. While this was the NMNH's institutional policy, for von Hügel, it began during his collecting process in Fiji. He established a consistent method when collecting ornithology and labelling birds, which he followed through with objects: attaching small handwritten labels to the objects which recorded the Fijian object name, a brief description of its form, use and function, followed by place and date of collection.[42] This methodology encouraged him to collect as

many 'types' of liku as possible,[43] which he did not always succeed in. He described how in Sigatoka a group of women and girls:

> implored me to take off their hands their particular stock of dresses. I tried to explain that more than a dozen of the same kind would be perfectly useless to me, and that even if this were not the case I had no trade to give for them; but all was in vain, they had made up their minds to get rid of the *liku*, and so a packet of needles, a reel of cotton and a thimbleful of beads (all I now possessed) were divided amongst the women and the dresses became my property.[44]

Von Hügel compiled a five-page list that distinguishes 12 different types of liku, ranging from the 'married women's state dress' to 'the usual dress in Wainibuka, Ra'.[45] The establishment of these types encouraged him to collect a representative of each type, rather than an array of what he considered to be similar liku. By embracing the concept of 'duplicate', it is implied that there are many examples of the same type. The status might be based on the use of the same materials, or the same form, ultimately typological and classificatory principles, which are a consequence of rendering valuables into museum objects. However, to categorise an object as a 'duplicate' reduces its level to that of a mere copy, spare and additional to an implied more suitable original. The duplicate is an alternative, but its status implies it is of lesser value than the similar example that will be kept in the museum collection, which can be labelled the original. A surplus for one museum, these objects filled gaps in other collections.

Although there are clear 'categories' of liku in Fiji, an overview of liku museum collections demonstrates that the individual variety in each category is considerable, using distinct weaving and plaiting techniques, patterns and colours. A great deal of energy and ingenuity was dedicated to the making of these intricate garments, indicating that, while bound by obligations to choose styles in accordance with collective aesthetics and uses, the makers were able to add individual characteristics.

The concept of duplicate did not exist locally. Liku were individual objects that embodied their maker/giver, which was obvious in their circulation. For example, Malakai Navatu, who was Buli of Naboubuco, interior Viti Levu, remembered how an Uamani, or eldest son, would get married at the end of the nineteenth century.[46] He recounts how a young bride was presented to her husband's family on a mat. She was anointed with turmeric by her relatives and covered with layers of masi (bark-cloth) and a tabua (presentation whale's tooth). The following day, she

was washed, and her husband's relatives applied a new layer of oil and turmeric and liku:

> Then she went back to the house and sat down to have the liku tied on, the liku of vau (woman's dress made from the fibre of a species of hibiscus). For this purpose she knelt down with her face towards the upper or private part of the house, with her hands clasped above her head so that her friends could tie the likus on. If her friends were numerous they would reach from her waist to her throat.[47]

This exchange expressed the conclusion of old relationships and the commencement of new ones. The bride's body was being used as a vehicle to conduct exchanges between intermarrying clans. Her body was wrapped with layers of liku – the various layers represented the various women who contributed liku.

While liku circulated between museums in the nineteenth century, veiqia mostly stayed in the archives. Unlike physical objects, the tattooed body is hard to collect. The most systematic collecting of veiqia was done by von Hügel in the form of drawings. Unlike the collection of objects, which are translated into museum catalogues once they enter the museum, the collection of veiqia implied a translation into a different medium, which could involve artistic licence, in the field. On 6 February 1876, in Nairukuruku, he wrote in his journal how he 'saw a girl with a well tattooed hand and began to draw it, and seeing me thus employed a lot of other girls came round and insisted on having theirs drawn too'.[48] In other instances, Fijian women drew weniqia (tattoo patterns) for him. Later that month, a woman in Nadraunivau saw him draw weniqia and asked him for paper and pencil:

> After a little while I went into the house to which the paper had been taken and there I found her hard at work, with some dozen girls round her looking over and criticising her work. She had drawn eight different patterns of the female tattoos, they were very good and well drawn.[49]

As curator at the MAA, von Hügel collated all his information on tattooing in the folder 'Fiji Tattooing: Original Drawings & MS' (dated 30 September 1921), currently in the MAA archives. The folder contains original drawings of tattoo patterns with associated information collected in the field, and an overview in ink that von Hügel made based on the original drawings. Von Hügel continued his scientific approach to

collecting when it came to recording weniqia. In his overview, he clearly treats weniqia as specimens. Discussing a Digilo (Kalokalo) star motif, he wrote: 'Not uncommon single or strung together in rows. My specimen was drawn in Rakiraki.' Other 'specimens' were taken in Navuavua and Nakorotubu (Ra, Viti Levu). While Fijian women appeared to have allowed a record of their markings to be made, their names were no longer important once their marks entered the museum. Rendering liku into duplicates and weniqia into specimens implied a clear separation from the bodies that made, gifted and wore these garments.

Reopening and re-embodying

The research project entitled 'Fijian Art: Political Power, Sacred Value, Social Transformation and Collecting Since the 18th Century' was a collaboration between colleagues at the Sainsbury Research Unit, University of East Anglia, and the Museum of Archaeology and Anthropology, University of Cambridge, and a wide range of project partners in Europe, the USA and Fiji. Project staff and associates aimed to revalue Fijian collections, mainly in the UK and Fiji, through collaboration, by looking for Indigenous agency in the collections, the impact of colonial relations on collecting processes, the distribution of collections and other research strands. Among the outputs were publications and a range of exhibitions in the UK and Fiji.[50] With regard to the liku and veiqia collections, some of the aims were to open up and share these under-studied collections, and to reconnect liku to the tattooed female body and body modifications.

Each time liku in museums were examined and photographed, materials and production techniques were noted and measured. When possible, liku were laid out flat in order to measure the length of the waistband, the length of the ties and the length of the skirt (waistband to hem). This straightforward measuring method allowed an understanding of how liku were worn. One type of liku (liku dradra) was made by tying fibre strips of equal length to a simple waistband. These strips were left plain or dyed, but there was no variation in colour. The length of the waistband of this type was constant (c.74 cm), indicating that these skirts were not worn around the hips but around the waist of younger women (even allowing for different body shapes). The length from waistband to hem was equally invariable (c.12 cm). An example at the MAA (Z 4002, Figure 12.3) bears a label which provenances it to Narokorokoyawa, 1875. This information corresponds to von Hügel's

Figure 12.3 Liku dradra, made of vau (*Hibiscus tiliaceus*). Collected by Baron Anatole von Hügel in Narokorokoyawa, Viti Levu, in 1875. Skirt part, width 73 cm, length 15 cm. Currently in the Museum of Archaeology and Anthropology, University of Cambridge, Z 4002. © Museum of Archaeology and Anthropology, University of Cambridge.

visit to that village in interior Viti Levu on 2 July 1875, when he wrote in his journal: 'Girls wear a peculiar liku, sometimes of a bright red colour, which is stiffer and much shorter than that of the married women.'[51] Most liku in collections were what von Hügel referred to as liku se droka. The length of the waistband of these liku varied between 84 cm and 96 cm, which means that they could be worn lower. Significantly, these types of liku correspond to their function of indicating a particular stage in girls' and women's lives. This close examination of liku in museums has been crucial in unravelling the significant role that liku played in constituting female gender identity.

When it came to veiqia, the aim was to meet the women who were drawn by linking the 'specimen' drawings with von Hügel's diaries, and it has indeed been possible to identify a few women. The most complete drawn markings belong to Laniana (Figure 12.4), with whom he travelled during his journey to Nadroga between 1 November 1875 and 30 March 1876. Von Hügel developed a joking relationship with Laniana, nicknaming her 'Na Barracouta' after the way she pronounced 'very good'; he enjoyed her laugh and learned how to play the nose flute from her.[52] It was harder to identify the women who made drawings of weniqia. One set contains a list of names, their titles referring to their high status: Adi Rubo, Salau, Inai, Adi Emana, Ranadi, Rasonini. Only the name Salau is mentioned in von Hügel's journal. He met her when he stayed in Namarai for two days in February 1876, and he wrote that he drew 'several interesting tattoo marks, one particularly funny one from a cheek, but they would not draw me any of the patterns from round their waists'.[53] These snippets of information, however brief they may be, do provide us with a glimpse of how relationships were formed that led to

Figure 12.4 Laniana and her tattoo patterns. Drawing by Baron von Hügel, 1875–6. © Museum of Archaeology and Anthropology, University of Cambridge (MAA Archives, VH1/5/6).

the drawings, and they move the focus from von Hügel as the collector to the historically obscured individuals who provided him with the drawings.

However, in the 1980s, some Fijian women requested to remain anonymous while their tattoo markings were recorded. When re-mobilising museum collections, distinct and often changing perceptions need to be taken into account. The work done on liku and the associated veiqia during the Fijian Art research project prompted Fergus Clunie, Museum Director of the Fiji Museum between 1969 and 1987, to fulfil a long-standing plan to share information that he had collected in August 1981. During a Fiji Museum fieldtrip to Vanua Levu, he and his female

colleague, Walesi Ligairi, interviewed five women who still had veiqia. At the time all in their eighties, these women had been tattooed between 1908 and 1911, by Rabali, known as the 'last daubati' or tattooing specialist. Although written records state that veiqia had disappeared by 1910, these women had consciously chosen to receive veiqia.[54] These women wanted their veiqia to be recorded, and Fergus Clunie was therefore allowed to photograph their markings on the condition that none of the women concerned would be identified by name in any publication and that only drawings of their markings based on the photographs could be used.

Hence we know that 'Woman A' of Wailevu village received her veiqia in 1911, when she was 16 years old. Over three days, Rabali marked her across her lower abdomen and thighs using a tool with six lemon thorns and a stick for tapping this tool. Because the pain was too much, her marks are incomplete.[55] After reading her testimony, it felt strange labelling her as 'Woman A', particularly given the long Western tradition of recording Pacific tattooing in the form of anonymous body parts – the wearers' names were never recorded.[56] Here, however, the collecting circumstances were different. Woman A's name had been recorded, but she wanted to remain anonymous, testifying to the negative perceptions of veiqia at the time. The women were very proud of their markings, but they did not want to be named out of respect for their children and grandchildren, who might be scolded by the (church) minister.[57]

Woman A and four other women considered veiqia culturally significant, even in a time when cultural customs concerning transitions to adulthood had changed. Acquiring veiqia was no longer done by all young women, and it did not seem as culturally required as it once was. Not completing the veiqia process seemed acceptable as well. This was thus a time when veiqia became a personal choice, rather than a marker of a new status.[58] For decades after it was proclaimed abandoned, veiqia continued to exist under the imported clothes that had replaced the liku. Yet the stories and knowledge associated with veiqia were unevenly conveyed to subsequent generations.

After Fergus Clunie decided to share the photographs on the basis that drawings would be made, the choice as to what kind of drawings these would be needed to respect the women's wishes. The original photographs only captured the area covered with veiqia, while the women were holding cloth to cover non-marked areas. What was striking was how the photographs and interview notes, compared to other representations, show the human aspect of veiqia – the pain involved, the ordeal, the pride and dignity. With the passing of time visible on their

bodies, the photographs testify to the women's courage and bravery at a time when traditional cultural norms and values were being undermined and replaced by Western ones. This could not be reflected in the drawings, as the reason why these photographs were made was to record weniqia, tattoo patterns, only. The resulting drawings (Figure 12.5) therefore show the patterns on a generalised body. The emphasis is on the patterns, which have been made clearer than they are on the photographs. They were *recovered*, and this term is employed intentionally in reference to some of the scholarly work done on drawing. Art critic John Berger considered drawing as an act of 'making'. For Berger, a drawing 'contains the time of its own making', independent of the time of its subject matter, and this is in contrast with photography, where 'the only time contained in a photograph is the isolated instant of what it shows'. Through drawing, observation is reconnected with participation. Whereas

Figure 12.5 Generalised drawing of weniqia by Isabel Wilken-Smith based on photographs taken by Fergus Clunie in 1981. Courtesy: Fergus Clunie.

photography for Berger was conceived as an act of 'taking', drawing was an act of 'making'.[59] The notion of drawing as a constitutive act tied in well with the idea behind the tattoo patterns. Weniqia constituted the body – they made it complete and indicated gender and status. The very act of applying them to the body brought protection to the wearer. When they were drawn on paper, the patterns also became a part of record-making. The patterns were turned into mobile knowledge.

Re-mobilising: the Veiqia Project

Founded in 2015, the Veiqia Project currently consists of five artists and one curator of Fijian heritage living across Aotearoa New Zealand, Australia and Hawai'i who are interested in, and inspired by, the practice of veiqia: Margaret Aull (Lautoka), Donita Hulme (Nadroga), Joana Monolagi (Serua), Dulcie Stewart (Bua), Luisa Tora (Kadavu), Tarisi Vunidilo (Kadavu). The Veiqia Project members looked at, and beyond, archival and museum collections of liku and veiqia. Including personal stories and family connections, they have generated a decolonised, Indigenous archive emphasising that there are alternative epistemologies to those currently recorded in museums and archives. Central to their work are processes of recovering, sharing and creating – processes of re-mobilisation.

Their research resulted in a range of new artworks, which have been shown in various exhibitions. During their first exhibition, 'The Veiqia Project', in March 2016 in the St Paul St Gallery, Auckland, Aotearoa New Zealand, the Veiqia Project artists showed work based on their museum and archival research that not only lamented the loss of women's knowledge, but also expressed a need to take ownership of this knowledge by urging fellow Fijians to ask their families about veiqia, to remind them that there are other archives than the ones that hold tangible objects or paper trails. The following year, project members brought their acquired knowledge back to Fiji, where they created new work in collaboration with local artists. Veiqia Project artist Luisa Tora collaborated with Mereula Buliruarua and dancers from the contemporary dance company VOU to create 'Na Veiqia Vou' (2017). For this performance piece that activated the exhibition during opening night, Mereula and the VOU dancers, Mere Rosi Navuda, Elizabeth Tanya Sidal, Bernadette Kaulotu Suiqa, Koleta Dravuni Tobeyaweni and Ta'arei Weeks, wore painted weniqia and yellow liku made of plastic

raffia, referring to turmeric-dyed liku dradra. Luisa Tora sensed a lack of humanity when considering the veiqia markings that were found in archives, which she wanted to overcome in her artistic work: 'Seeing markings on the body is very different from seeing the patterns on photocopies.'[60] Through the other works, and the connections made with artists, relatives and the audience, veiqia was reconnected to the body.

Veiqia also came alive when several members of the Veiqia Project were marked by tattoo artist Julia Mage'au Gray. 'Weniqia are appearing again on Fijian women's skin, and the words are returning to our mouths' – words uttered by the Veiqia Project artists Dulcie Stewart and Donita Hulme that are recorded on the text panel of the exhibition Names Held in Our Mouths, curated by Ioana Gordon-Smith at Te Uru Waitākere Contemporary Gallery, Auckland (8 June–18 August 2019). The Veiqia Project contribution to the exhibition centred around Rai Lesu (loosely translated as 'to look back'), an artistic model of a bure kalou, a spirit house (Figure 12.6). The work created by project artists Joana Monolagi and Luisa Tora expressed their

Figure 12.6 The Veiqia Project work in the exhibition Names Held in Our Mouths, curated by Ioana Gordon-Smith at Te Uru Waitākere Contemporary Gallery, 2019. On the left, weniqia based on Joana Monolagi's markings; in the centre is Rai Lesu by Joana Monolagi and Luisa Tora. Photograph: Sam Hartnett, courtesy of Te Uru, Auckland.

master–apprentice relationship as a Fijian mode of knowledge transmission with a long history (gallery wall text). On the surrounding walls were nineteenth-century landscape photographs and oversized weniqia patterns worn and chosen by Veiqia Project members. These weniqia thus became a source of knowledge for visitors, while expressing changing times. Joana Monolagi's weniqia on the wall reflects her heritage and her life journey. Lines referencing her husband and her two daughters enclose a cross symbol referring to the strong role her Christian faith plays in her life. Her patterns represent Joana's beliefs and values, which are relevant today, while acknowledging her female relatives in the past.[61]

Between 17 August and 13 October 2019 at Campbelltown Arts Centre, Australia, the Veiqia Project led the exhibition Marama Dina, an exhibition born out of research and intergenerational engagement that aimed to reconnect Indigenous Fijian diaspora women with traditional cultural practices.[62] The exhibition featured work beyond the Veiqia Project by 10 artists from Australia and Aotearoa New Zealand, among whom was Yasbelle Kerkow. For her work 'Our Heritance', the Australian-born Fijian (vasu Batiki, Lomaiviti) interdisciplinary artist created a series of mats with weniqia. The weniqia patterns personify the mat as another product made by women. As Yasbelle writes:

> My mother taught me that if you pick a plant, treat it, dry it out and weave it into a mat it is still a living, breathing thing and it needs to be cared for. Mats need to be used, to be swept, sunned out if it's damp. Pasifika art is much broader and well beyond the colonial measures that try to create 'traditional' versus 'contemporary' standards. Pasifika art is living art. Curating a Pasifik space means taking care of living, breathing objects.[63]

The Veiqia Project and associated artists are re-mobilising veiqia by enlivening and activating weniqia on bodies, walls and other media. While most emphasis has been on veiqia, liku have been made and used in the works by Margaret Aull, Joana Monolagi and Luisa Tora. Yasbelle Kerkow is in the process of making a liku se droka based on images of liku at the NMNH. The Veiqia Project artists demonstrate that the Western conceptual dichotomy between persons and things is not relevant, but it is one that is often emphasised by museological classification processes. In museums, liku and veiqia might have lost their connection with the human body, but they provide a potential link with their original makers and users.

Conclusion

When compiling information on the MAA Fijian collections during the Fijian Art research project, research associate Lucie Carreau encountered a box of labels in the archives (Figure 12.7). Apart from compiling a typology of 12 liku, von Hügel had attached identifying labels to the various liku types. However, these have been retained in the museum archives, detached from the physical objects. This loss made it hard to reconnect liku to the list, and it took several months of research on liku in the MAA and consultations with Fijian botanist Suliana Siwatibau to reconnect physical liku to von Hügel's textual typology, and to add additional information and scientific names for materials. This is museum work; it involves various practices of mobility and circulation that should be understood as both constructive and destructive processes. Something is always lost in circulation, but something new is invariably created.

Understanding the museum collection as a process rather than a product allows us to point out the complex intertwined relations between objects and the people who created, used and collected them, as well as the institutions, places and time periods to which they relate. This dynamic and social perspective demonstrates that museum objects have ongoing trajectories, which often take them outside of the museum. The boundaries of a museum collection are therefore not fixed but in flux. Museum collections are far from static, but mobile in various ways: by moving, circulating and by being mobilised. Mobilising museum collections implies looking for Indigenous agency in their collecting

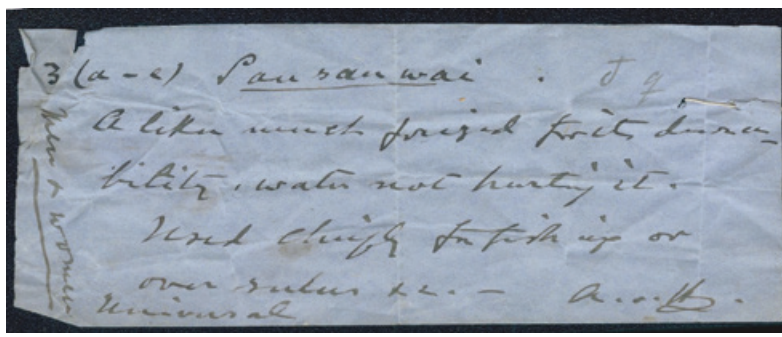

Figure 12.7 Labels with information on liku at the Museum of Archaeology and Anthropology, University of Cambridge, probably written by Baron Anatole von Hügel. © Museum of Archaeology and Anthropology, University of Cambridge (MAA Archives, VH1/5/1).

process, analysing what was lost and what was gained through the museumification process, studying their physical movement within, outside and between museums, acknowledging the agency of things and re-engaging them with their source communities. Overall, these modes of mobility should be considered as social processes that bring knowledge into a common space in which meanings are negotiated and articulated, and, as such, acknowledging the agency of the process of mobility itself.

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Notes

1. Fijian words have consciously not been italicised here in order to treat them as equal to English terminology. It is important to point out that whenever the term 'Fijian(s)' is used, this should be understood as the Indigenous people of Fiji – while also acknowledging the term iTaukei, literally 'owner' or 'guardian', which is now preferred by some Indigenous Fijians.
2. Seemann, *Viti*.
3. Entwistle, 'Fashion and the fleshy body'.
4. Elsner and Cardinal, *Cultures of Collecting*; Pearce, *Interpreting Objects and Collections*; Bennett et al., *Collecting, Ordering, Governing*.
5. Previous research on liku considers the materiality of liku and their intimate relationship to female bodies, as well as the collecting and representation of liku over time. This chapter partly draws on this research, particularly on the classification of liku and veiqia. See Jacobs, *This is Not a Grass Skirt*.
6. Cornish and Driver, '"Specimens Distributed"'. See also Nichols and Cornish, Driver and Nesbitt, this volume.
7. See also Basu, this volume.
8. Gosden and Larson, *Knowing Things*.
9. Byrne et al., *Unpacking the Collection*.
10. Harrison et al., *Reassembling the Collection*.
11. Silverman, 'Introduction: Museum as process', 2.
12. Silverman, 'Introduction: Museum as process', 2; Lonetree, *Decolonizing Museums*.
13. Modest and Lelijveld, *Words Matter*.
14. Geismar and Mohns, 'Social relationships'; Parry, *Recoding the Museum*; Turner, 'Critical histories'.
15. Rather than 'objects', the term 'things' has been advocated by scholars in order to overcome the dichotomy between subject and object. See Henare et al., *Thinking Through Things*.
16. Brewster, *Hill Tribes of Fiji*, 187; Kleinschmidt, 'Theodor Kleinschmidt's notes'; Thomson, *Fijians*, 217–18; Williams, *Fiji and the Fijians*, 171.

17. Wilkes, *Narrative*, 355–6.
18. Clunie, 'Mary Ann Lyth's Feejee sketches'.
19. Wilkes, *Narrative*, 355.
20. Williams, *Fiji and the Fijians*, 40–1.
21. Solevu still take place today, but liku no longer form part of them, although numerous bolts of Western cloth are exchanged from which clothing is made.
22. Dodge, *New England and the South Seas*, 92; Clunie, 'Fijian artefacts'.
23. From 1825 onwards, the society showed its collection in the East India Marine Hall, which later developed into the current Peabody Essex Museum.
24. Eagleston, John H. *Ship Emerald: Voyage from Salem to New Zealand and the Fiji Islands* [manuscript on microfilm]. Salem, MA: Peabody Essex Museum, Phillips Library, 1833–6.
25. Reynolds, *Voyage to the Southern Ocean*, 164.
26. Isaac and Isaac, 'Uncovering the demographics'.
27. Roth and Hooper, *Fiji Journals*, 59, 211.
28. Lawry, *Friendly and Feejee Islands*, 70.
29. Krmpotich and Somerville, 'Affective presence', 178.
30. Lindgren, '"That every mariner"', 198.
31. The catalogue entitled *Collections of the United States South Sea Surveying and Exploring Expedition, 1838, 9, 40, 41, & 42*, did not travel with the collections to the Smithsonian Institute, where the collections are currently housed. It was only in 1877 that ornithologist Titian Peale presented his copy of the catalogue to the United States National Museum. Now known as the 'Peale Catalogue', it continues to be a useful resource for museum staff (Walsh, 'From the ends of the Earth').
32. Wilkes, *Narrative*, 357.
33. Reynolds, *Voyage to the Southern Ocean*, 163.
34. Wilkes, *Narrative*, 355–6.
35. See http://collections.nmnh.si.edu/search/anth/, accessed September 2019.
36. Catalogue card Z 2813, Museum of Archaeology and Anthropology, University of Cambridge (hereafter, MAA).
37. Catalogue card Z 3991, MAA.
38. Philp, 'Hedley takes a holiday', 270–1.
39. Nichols, 'Century of circulation', 145.
40. Walsh, 'Collections as currency', 205.
41. Letter Franks to von Hügel, 26 December 1884, MAA.
42. Herle and Carreau, *Chiefs and Governors*.
43. There were more types of liku being used than were collected. There appear to be no vudi (banana, *Musa* spp.) or masawe/ti (*Cordyline* sp.) leaf liku in museum collections, despite descriptions of their frequent use (see Kleinschmidt, 'Theodor Kleinschmidt's notes', 154 and Bays, *Narrative of the Wreck*, 66). Perhaps these were not considered collectable enough or, more likely, these were not offered as gifts, as they would have been worn immediately after manufacture and discarded after use.
44. Roth and Hooper, *Fiji Journals*, 211.
45. Von Hügel, Anatole, n.d. *Fringe Dresses – Liku*. [Manuscript] VH1/10/1, MAA.
46. Brewster, *Hill Tribes of Fiji*, 195–7.
47. Brewster, *Hill Tribes of Fiji*, 196.
48. Roth and Hooper, *Fiji Journals*, 278.
49. Roth and Hooper, *Fiji Journals*, 280.
50. Publications such as Herle and Carreau, *Chiefs and Governors*; Hooper, *Fiji*; Jacobs, *This is Not a Grass Skirt*. Exhibitions such as 'Chiefs and Governors: Art and power in Fiji' (2013–14, Cambridge), 'Art and the Body: Exploring the role of clothing in Fiji' (2014, Fiji Museum), 'Fiji: Art and life in the Pacific' (2016–17, Norwich; 2019–20, Los Angeles; 2020, Salem) and a range of exhibition packages (see: http://www.fijianart.sru.uea.ac.uk/exhibitions.php), accessed September 2019.
51. Roth and Hooper, *Fiji Journals*, 54.
52. Roth and Hooper, *Fiji Journals*, 196, 202, 224, 228.
53. Roth and Hooper, *Fiji Journals*, 273.
54. Brewster, *Hill Tribes of Fiji*, 185.
55. Clunie, Fergus and Walesi Ligairi. *Tattoo* [manuscript], 1981. Private collection.
56. Thomas, 'Marked men'.

57. Personal communication, Fergus Clunie, 7 November 2016.
58. See Barker and Tietjen, 'Women's facial tattooing', 226–8.
59. Berger and Mohr, *Another Way of Telling*. See also Ingold, *Redrawing Anthropology*.
60. Luisa Tora, interview 10 March 2017.
61. Joana Monolagi, interview 8 March 2017.
62. See http://c-a-c.com.au/marama-dina/, accessed September 2019.
63. Kerkow, 'Art + healing', 15.

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Afterword: what goes around, comes around – mobility's modernity

Martha Fleming

The contributors to this volume address knowledge forms and materials emerging and exchanged across praxes and peoples as they move across latitudes and longitudes, as well as between different temporalities and even understandings of time. They attend to both value and valuing processes of both peoples and things, the complexes through which knowledge is produced, and the ways in which that knowledge can just as easily be lost or must be challenged. But as we have learned, things, and the ideas directly related to them, do not always stay bound together when they are put in motion. Harnessing the multiple orbits of collections' materiality, meanings, value, knowledge structures and potentials is something that can only be done in an interdisciplinary manner, and this takes time and effort to build constructively.

The interplay of subjects and methods, and between research praxis in museums and in academia, can be productive far beyond our own work and this book. There is huge societal value in the interdisciplinarity of these conjunctures and their intellectual afterglow. The potential to understand and begin to deploy each other's methodologies while tempering our own known methods has critical mass and can generate its own momentum. Present and accounted for in this volume are, among others, anthropology, ethnography, botany, museology, palaeontology, geology, biology, archaeology, human geography, practice-based research, collections-based research, pedagogy, curation, collections management and archival practice.

In what follows, I take a look at what might have fallen through the cracks, and a look ahead to identify some intersections and possible research questions, as well as avenues for honing our methodologies and operationalising consensus. Others will no doubt find further rich seams

here, and I write (as we all do) from the point of view of my own current preoccupations. Yet from the work of the Mobile Museum project which inspired this book, and the communities of thought and practice that it has galvanised, it is clear that all collections are not only internationally distributed infrastructures in the past, but also – and importantly for the urgent present – infrastructures for humanities, scientific and cultural research, for social justice and, particularly with biocultural collections, potentially infrastructures for creating environmental sustainability.

What circulates? People, things and knowledge as indexed matters of fact, ideas or concepts. And also, of course, methods and practices (not only of collections) and representations (that can be recontextualised). Furthermore, and importantly, if we are to truly understand the natural historical nexus as a knot of histories, epistemes and materialities, we also need to ask the opposite: *what is it that always returns, and what are the things that never go away*?

Ultimately, what are the effects of all these mobilisations and stabilisations, and how do we ascertain which of these effects are ones we know to be valuable to us socially, culturally and environmentally in ways that are ethical and sustainable? How can our research about these practices contribute to resolving some of the serious crises that beset us all now, in the Anthropocene?

Luciana Martins makes the point in her chapter that historical biocultural collections are often misrepresented or neglected, and their applications to the resolution of contemporary problems overlooked, in part because of their awkward 'neither-nor' nature and their origins in colonialism and imperial expansion. We ignore this history, and what it means about knowledge, quite literally at our peril in the Anthropocene. The papers assembled here represent the sum of many years of research in quite varied but interrelated contexts, making major contributions to unforgetting this past and delineating the shape of the thought that this past has produced through collection practices.

Biocultural collections in particular are a crucial reminder of the origins of all museum practice in globalisation. The deeply intertwined nature of culture-and-nature in biocultural collections is a consequence of a long history of adventuring, in which ships were packed with objects which were believed to have been discovered merely by dint of being observed. Biocultural collections are, of course, also, if only latently, assemblages originating from a time before their observation, representing entire ecosystems and multi-species ways of being in the world which are likely to have highly significant lessons for the future,

as well as from the past. Our research can and should help to reconfigure these collections in more productive constellations.

The Economic Botany Collection at Kew, the focus of the Mobile Museum project, was formed in the long nineteenth century, as were most of the collections addressed by this volume. But the complex technologies which enabled their assembly into fused composites of natural history and ethnography are, in fact, much older. By technologies here I mean the translocating seaways, the navigational tools and skills, the warfaring, the extractive economies, the slavery, and the crushingly efficient bureaucracies of colonialism and its exponentially expanding capitalisations, all dovetailed with statecraft. These technologies may have achieved a visible apotheosis of efficiency in the nineteenth century, but they were trialled and honed in the sixteenth and seventeenth centuries, and their logic is still with us, operating at all scales and centres of science, commerce and consumption. Hooker's useful botany collection of 'vegetable products' and Franks's 'vegetable materials' of the nineteenth century are an extension of Sloane's much earlier 'vegetable substances' – in what way, and to what ends?

We cannot understand these biocultural collections today until we have looked more closely at the origins of the nineteenth-century practices upon which they were built, operationalised and consolidated from much earlier colonial activities. We need to effect *epistemologies* of collecting – how and why it began as a practice, and what it has produced, not only as knowledge, but also as repeatable model methods, in relation to the emergence of self-perpetuating and self-regulating machines of the institutionalisation of both nature and culture. The long nineteenth century was a time during which slavery was abolished by law, but not fully eradicated in practice; a time during which, in the UK at least, the Slave Compensation Act of 1837 flooded money and collections into museums and enterprise; a time during which photography was invented and taken up across the humanities and the sciences; a time of the accelerated industrialisation of agriculture; a time that was already a product of coloniality. Such unplumbed historical and conceptual issues are significant to the intellectual – and, indeed, the social and cultural or even environmental – purpose and value of the work that we may feel we share.

Having worked for nearly a decade on the collections of Sir Hans Sloane, his collecting practices and networks, his catalogues and information management, his use of the collections themselves, and his managerial and publishing practices, I can see that the early slipstreams of colonial adventuring upon which his collections were

built became hardened, naturalised and streamlined in the nineteenth century, as the chapters in this book so clearly articulate. Sloane was first inspired to collect with purpose on a voyage to the epicentre of modernity in all its terrifying relentless destruction: a journey to Jamaica in the 1680s, at the height of the diabolical intersection between the killing fields of mass slavery and the ecological disaster of the sugar plantation's model of industrialisation in agriculture. The Caribbean was the first experiment in the Anglo-Saxon world involving the concurrent circulation of global capital, workforces and goods, and the intensification of the total repurposing of land tracts from natural habitats into monocultures.

Wayne Modest has proposed that because the Caribbean was the site of this experimental model on such an epic scale at a pivotal moment in the very first wave of globalised economies, it is itself impossible to 'collect'. Modest cites Mintz's description of the Caribbean as 'modern in some way even before Europe itself'.[1] It is a *site* of total modernity, yet, as a culture, it is deemed neither ancient enough nor modern enough to merit collection itself. And yet the Caribbean has been foundational of natural history itself, from the rum used as a preservative on voyages from margin to metropole to the use Linnaeus made of Sloane's herbarium in the formulation of binomial nomenclature. This agency comes at a continued cost, in the geo-logics described by Kathryn Yusoff: 'The movement of energy between enslaved bodies in plantations, plants, long-dead fossilized plants, and industrialized labor is a geochemical equation of extraction in the conversion of surplus.'[2]

Although correlation is not causation, the uncanny similarities between the concurrent emergence of the scientific method and the modes of exploitation that mark modernity must be addressed. We need to think about what it means that so much of natural historical practice as we know it today, such as taxonomic biology and speciation, actually originates in sites such as the Jamaica of the slave trade, or the Indonesian colonies of the seventeenth-century Dutch East India Company, and how these two intersect across temporalities, as they do in Joshua Bell's case study of twentieth-century corporate and international partnerships in agricultural genomics. In 1928, Dutch and American botanical geneticists mounted an expedition to New Guinea, the original genetic source of *Saccharum officinarum*, to hunt down a pure sugar cane strain that had not been eroded by the diseases that had been produced in industrialised agriculture. They found their ideal species in what appears to have been plantation dump-heap ditches along a chain-gang road in Port Moresby, Papua New Guinea. This recursion to earlier sites of colonial resource

extraction is an epiphenomenon of seventeenth-century practice: it is among the 'things that always return'.

Working through this recursivity in order to deconstruct it will require collaboration with botanists and other biologists, with historians of globalisation and of business, and with philosophers of science. In collection contexts, the governance of both the *things* themselves and the *thinkings* that enlace them have very particular parameters and processes that, chillingly, seem so natural now. This is the ongoing coloniality of science – one of those 'things that have never gone away'. In fact, not only has it never gone away, but it appears to be deeply and near-invisibly embedded.

Significant bodies of knowledge about biocultural and other natural historical collections from the 1530s onward are derived from asymmetrical extraction, not only of natural resources, but also of local knowledge of Indigenous people and the enslaved. This is historically bound knowledge that, through coercion and de- and re-contextualisation, has simultaneously become transformed into 'universal knowledge' and had its origins obscured and diminished.[3] We also need to think about these collections and their histories in collaboration with the descendants of the co-collectors of this material, communities whose knowledge is both represented in, and distanced by, the historically bound acts of collecting and classifying.

Luciana Martins points out that while biocultural collections are vulnerable to fire, pests, attrition, neglect, misunderstanding, loss and much more, the communities of origin who worked to contribute to collecting much of this material are themselves under threat. Yet Claudia Augustat equally valuably reminds us that not all descendant communities do want to remember, or to remember everything, or to have thrust upon them the objects connected to practices to which they themselves no longer feel connected: societies develop their own cultures of remembering. Her point immediately reminds those of us brought up in the 'developed world' that the culture of remembering that is the legacy of the Enlightenment is somehow inextricably entangled with, and activated through, grief. Have we placed all this vast mass of organic material in danger simply in order to trigger the loss and grief that will force us, culturally, to remember?[4] What else might we be forgetting that has miraculously resisted this engine? How much of our forgetting – even as historians – inadvertently upholds colonial 'agnotologies' that did not (and do not) count or account for Indigenous knowledge?[5]

A groundswell of requests to decolonise natural history collections comes from communities of origin, but also from activist groups such as

Decolonize This Place, and professional bodies such as the UK Museums Association.[6] Crescendoing in the polemical Sarr–Savoy Report of 2018, there has been a 30-year call for collection restitution (particularly in relation to human remains), which often and problematically seems to mean nation-state repatriation, and a notion of material return that does not seem capable of fully undoing damage. I do not believe that the answer is a question of where things are, or where things belong or ought to go, but rather *what things do*. What do these things do now? What kinds of things can we do collectively with these things? What kinds of things can these things do that they have never done before?

In a number of cases, and on a case-by-case basis, there might be value in restitution of materials, but with natural history collections and knowledge, it may be that the most valuable restitution across the inequality divide and the gulf of colonial history must be a full restitution not of, say, herbarium sheets, but rather of environmental *habitat and habitus*. Climate justice, biodiversity justice, health justice, agricultural justice: this work cannot be effected simply through the return of materials. Such an environmental revolution requires collaboration and a vast methodological shift in how science is done. If we are to decolonise natural history collections, is it not also time to de-ontologise taxonomy itself? It will be important for us to think through the epistemic violence that has produced the biology we know today: it may be among the only ways to conceptualise more sustainable ways of being in the world. I will return to this in coda.

A second absence I note from our analytical apparatus as researchers is also related to tracing epistemes: it is something that Caroline Cornish identified in a discussion of a preliminary version of her chapter with Felix Driver and Mark Nesbitt at the 2019 'Collections in circulation' conference that gave rise to this book.[7] When asked about the movement by road of delicate materials between various London museums during the nineteenth century, she characterised this as 'the precursor of just-in-time delivery'. Cornish is surely right: the airmile trajectories of Kenyan fine beans jetted into Europe that are ripping apart the ozone layer have been centuries in the making. By definition, circulation requires logistical planning: what are the histories of the infrastructures that are shared or borrowed between these highly varied case studies of global exchanges of collection materials?

The history of logistics and planning, its twin roots in colonial practice and in warfare and statecraft, are also important avenues for us to connect directly to our concerns about the mobility of natural history and/as exploitable resources. 'While it is rarely acknowledged

or interrogated, the old military art of logistics played a critical role in the making of the global social factory – not simply the globalisation of production, but the invention of the contemporary supply chain and the reorganisation of national economies into transnational systems,' we read in Deborah Cowen's *The Deadly Life of Logistics: Mapping violence in global trade*.[8] She continues: 'Indeed, the supply line or chain is the geography of transnational flow but also of imperial force.'[9] Logistics does not simply deliver goods, it also delivers capital, meanwhile reorganising entire landscapes and nation-state relations, as well as socio-economic structures, including those which are by their very nature already asymmetrical. And, in an echo of many of the accounts of ropey collecting expeditions in this volume, 'Commodity chains that have all the trappings of logistical giants in one place actually hinge on logistical work in utterly deregulated and frontier-like zones elsewhere.'[10] This asymmetrical conjuncture is also evidence of intractable coloniality.

Historians of science, as well as critical geographers, are increasingly looking at this issue: at Berlin's Museum für Naturkunde, the Humanities of Nature Department recently held a productive workshop on the unruly logistics of the movement of animals, living and dead, and Dagmar Schäfer's department at the Max Planck Institute for the History of Science has led workshops concerning colonial planning.[11] In short, scholars interested in the nineteenth century need to look both ways before crossing the street – back to the early modern origins of the practices they are attending to, and ahead to the transformations of these practices in a history of the present.

A third issue that I feel we need help with is, if you will forgive me, distinguishing the wood from the trees. At Kew, as in similar combined sites of cultivation and collection discussed in this volume, such as the New York Botanical Garden and others, there is a deep imbrication of the generative practices of horticulture and agriculture, including experimentation and hybridisation, with the more conservative, or preservative and taxonomic, activities of the accumulation and arrangement of dried specimens in herbaria. In this context, there is a need for a deeper history of early modern agriculture and, indeed, of general histories of globalised cultivation, such as that hinted at by Joshua Bell's case study, looking at the origins of industrialised agricultures in these colonial contexts and fledgling intercontinental logistics. Nathaniel Wallich growing Chinese tea in India, the repeating island template of the sugar plantation in both the Pacific and the Caribbean – in short, the 'hothouse'. How does the horticultural hothouse relate to the herbarium's storehouse of the world, to the charnel house of slavery, and, as taxonomy

develops alongside nomenclature, how does this further relate to the prison house of language?

Fourth, in this kind of research endeavour, and in the humanities in general, we need a more meticulous analysis and historiography of the evolution and deployment of museum practices – technical, logistical, bureaucratic, informational, preservational, research – so that we understand the *chaine opératoire* through which value is created, and through which knowledge is produced, in specific periods, localities and kinds of collections. We can find this demonstrated in the chapter by Alice Stevenson, whose meticulous tracking of specimens and Egyptian antiquities through nineteenth- and early twentieth-century collection worlds, and across evolving legal, political, economic and intellectual regimes, also shows museums to be heavily governed as well as governing. As she helpfully reminds us, the sometimes short-lived networks of circulation that are of interest to us are also significantly 'suggestive of wider social transformations in attitudes toward things' (page 262). Stevenson has also offered us the helpful term 'object habits' to aid us in attending to the long-term knowledge-effects of the apparently inconsequential and deceptively natural processes of handling things in collecting contexts far and wide.[12]

Museum practices also include the minutiae of preservation, some of which can be devastatingly ineffective or permanently destructive, as well as miraculous and long-lasting. Daniel Simpson's account of the war on smell that pits a caustic liquid against all the entropy of the world is a good exemplar of the former type. And this approach does have a history on which we can build – for example, in early modern contexts, Valentina Pugliano has investigated botanical preservation in the Venetian apothecary shops of the 1500s.[13] If we want to 'look both ways' – both past and present – we could turn to Hans Joerg Rheinberger on the transformation of organic materials into model specimens in the twentieth century: the process of 'preparation' in which a specimen ('Präparat') is crafted into a representation of itself.[14] Herbarium sheets are an important example, allowing species not only to circulate all over the world, but also to be re/shuffled within the taxonomic order – itself a conceptual model. Rheinberger's work in this area has direct relevance for understanding the 'imperfect specimens' and native preparations of birds of paradise which Jude Philp brings to our attention in her chapter in this volume.

Staying in this field of museum practice, we have also Catherine Nichols's discussion of the complex constituted by both casts and duplicates, as well as the conceptual–economic

sleight-of-intellectual-hand that presents different groups of sherds from the same archaeological find (or, equally, different biological specimens of the same species) as somehow actually *identical* rather than merely similar. Sales of duplicates, from dealer to museum, and from museum to museum, were a common practice in nineteenth-century natural history collecting, and, in this context, I would include 'exchanges', wherein specimens were assigned financial value in order to be weighed against each other, and therefore partook of a form of barter monetisation.[15] Thus loaves and fishes are multiplied – doubling value and increasing exchange while reconfiguring the research base to reinforce certain intellectual deductions and not others.

The duplicate trade was the making of expeditionary researchers of modest means such as Alfred Russel Wallace, as well as of the social reputation of Johan Cesar VI Godeffroy, otherwise known only as a merchant trader.[16] Exchanges between museums were often co-constitutive of institutional stature and a basis for negotiating relationships, and, in that, the circulatory practices of the Museum of Economic Botany Collection at Kew Gardens are a classic exemplar. Among our questions must be: how does this multiplicatory monetisation produce knowledge, methods and 'matters of fact'?

In natural history, including botany, this notion of the infinitely replicable 'duplicate' forms a kind of economically invested hologram of the elaborate procedural and linguistic scaffolding of taxonomic nomenclature. Species names are built upon descriptors of 'type specimens' – unique specimens upon which the determination of the entire species will have been agreed, and on to which is conceptually grafted its new name. This single name is then shared with countless other collection specimens and living examples of the same species, wherever they may be found. How do the linguistic forms of nomenclatural consensus originate in the barter forms of the duplicate?

In twentieth- and twenty-first-century natural history museum practice, these forms of collection circulation consolidate into the 'scientific loan', an event that looks like an exchange or barter, but which has a narrower function, nonetheless originating in the modes of circulation that are described in several of the chapters in this book. The object of a scientific loan in botany is often a herbarium sheet with attendant metadata and including capsules of plant matter such as seeds. It is not given or sold, but rather sent on request and for a limited amount of time, particularly to enable close analysis, micro-measurement and often destructive sampling of parts of the specimen for molecular analysis. There are now very complex bureaucratic and legislative frameworks

overarching such loans internationally, with MTAs (Material Transfer Agreements) between biological research institutions, as well as Access and Benefit Sharing protocols intending to limit rampant bioprospecting in economically and politically asymmetrical contexts. These protocols and loans are also worth looking at as *epistemic outcomes* of the exchange and circulation cultures of the nineteenth and early twentieth centuries that are discussed throughout this book, and which have their roots in colonial resource exploitation.[17]

New kinds of protocols and loan forms are required by new kinds of circulations or, perhaps more precisely, re/circulations. Ethnographic museums have been at the forefront of experimentation with re-mobilisation of historical collections in collaborations with communities of origin, from Laura Peers's Blackfoot Shirts project to two further studies in this volume: Karen Jacobs's fibre skirt collaborations and Paul Basu's extensive engagement with ethnographies of West Africa.[18] Many of the collections materials in these projects are certainly biocultural, if perhaps less on the 'bio' end of the spectrum and more towards the cultural end. This also means that their re/circulation is generally understood to be relevant to the peoples who are descendants of the communities of origin more immediately than are natural historical collections. What can natural history museums learn from these research collaborations, where delicate relations – both individual and institutional – between curators and communities of origin are remembered, initiated, deployed and scaffolded flexibly between re/circulated biocultural collection materials, photographs, sound recordings and digital files?[19] The 'relational museum' seems yet to come to natural history with any degree of sustained coherence: this volume is among the first steps that lead to the holistic historiographies of biomaterials and their various communities in the field, in the collection and in the present.[20]

In coda and in closing, I would like to look at the science-complex context in which Kew's Museum of Economic Botany (now the Economic Botany Collection) is embedded. This context has developed out of all recognition to its nineteenth-century collection components, to the point where the latter appear anomalous and antiquated, even under threat. The Economic Botany Collection specimens may no longer circulate quite so much, but the rapid whirring of the centrifuges at the heart of the labs that surround them make it possible to access the DNA sequences of those same species from anywhere in the world.

The invention of the PCR Gene Sequencer in 1985 brought the rapid adoption of molecular taxonomy into the research methods of

biologists.[21] It would also be epistemologically valuable to consider the implications of the various natural history-related case studies in this book for the eventual molecularisation of biology: in what way is this last an effect of the circulation practices of the long nineteenth century? For example, it is now a commonplace to state that natural history collections themselves are a significant 'discovery frontier' for new species.[22] This is another form of recursion, in which specimens translocated from ecosystems into natural history collections and completely recontextualised are themselves further mined for data.

Computable DNA data derived from material collections are aggregated into large-scale databases such as the Global Biodiversity Information Facility (GBIF) and Barcode of Life Data System (BOLD) – twenty-first-century infrastructures that contain worldwide (although not yet fully comprehensive) overviews.[23] These databases are internationally managed, retaining only very specific and standardised kinds of genetic, taxonomic and population distribution information. The rhetorics of these hybrid bio/data collections, including the use of such loaded phrases as 'harvesting' of data and 'extraction' of DNA, as well as the investment model implicit in the practices of 'biobanking' and 'seed banking', all echo other epistemes we have already identified. An atomisation of materials seems to produce a homogenisation of information, perhaps a reincarnation of the hubris of museal encyclopedism. Digital mediation – whether images of herbarium sheets in JSTOR Plants or gene sequence barcodes in BOLD – brings with it further schisms that also have longer histories than usually acknowledged,[24] for example, the inherent Cartesian dualism identified by Katherine Hayles between information and materiality.[25] This ingrained dualism also supports an unhelpful cleft between collections and collection objects, on the one hand, and collections documentation and databases, on the other.

The very logic of the database and the correlative information structures that underpin it may no longer help us now. The problem is not only the crudely truncated semaphores of knowledge that are stuffed into the database's narrow fields, and the historical paucity of what has counted as information. There remains the simple fact that these architectures, and the relations they arbitrate between orders of thing and bodies of knowledge, may in themselves no longer be fit for the purpose of answering the most pressing biological questions or resolving the problems of coloniality, the injustice of the North–South divide, the harrowing prospect of biodiversity collapse and climate change. Given the dependence of researchers – both from the life sciences and from the humanities – on collection databases and

information architectures, how can our investigations correct not only historical error within information regimes, but also their structural inadequacy?

Thinking further about the ultimate purpose of the research that is demonstrated in this volume, once we have charted the epistemes of collections and collecting; once we have understood how deeply entwined the science is with colonial enterprise; once we have charted the epigenetic violence that is still visited in the present on the disenfranchised in an ongoing coloniality, what shall we do with the biomaterials amassed over centuries? Must we hold the collections and the information inside the same frozen framework that emerged through colonisation?

What might it mean to go beyond sorting and filtering database fields, and to reorganise the actual storage of natural history collections, which are now arrayed strictly according to species? What might we learn anew about habitats and habitus if these collections were reorganised according to the original field collection locations, or topological occurrences, or scales of biota, or according to environmental synergies in the new climate reality? Could we imagine a reconfiguring of taxonomic speciation that might encompass alternative forms of environmental understandings, forms of microclimate representations, or of biodiversity definitions? Frameworks in which the relationship between species and between orders of thing in what has come to be known as 'economic botany' might be revealed to have entirely new productive meanings to the ones we understand today?

Could natural history museums work as research equals with communities of origin and other interested parties on the very structure of the meaning made from these world heritage materials, and hence on the redesigning of the knowledge paths, methods and processes in which these materials are deployed and the meanings that they can produce? This would mean redesigning not only the way in which specimens are arrayed and deployed, but also the data models in which the related metadata information held about them is contained.

Reconfiguring the actual relational structures of biological materials and information would inherently realign the forms of interdisciplinarity that might answer the much more complex research questions that overshadow our deliberations in the Anthropocene – a geological period which itself will probably be dated as coeval with colonisation.[26] We must co-create a kind of stewardship of natural historical collections that is not one of extractions and of physical relocations across great swathes of space, and find ways to flexibly rearray this shared wealth to encompass and legitimate a multiplicity of knowledge.

If there is one collection where such vital experiments could take place, it is the Economic Botany Collection at Kew Gardens. And if there is one thing that we can do most effectively as researchers in these fields, it is to return the agency of this material to itself, and to reconnect these objects with their multiple contexts: their historical resonances, their cultures, their environmental significance, their sociality. The work has clearly already begun.

Notes

1. Modest, 'We have always been modern', 85. Modest quotes Mintz, 'Enduring substance, trying theories'.
2. Yusoff, *A Billion Black Anthropocenes or None*, 16.
3. As Luciana Martins points out, this problem is still operative even today: the managers of biocultural collections, she argues, have been slow 'to develop specific tools for integrating historical, environmental and Indigenous knowledge' (page 22).
4. This is a vast and specialist subject of philosophy and ethics. The work of Hegel and Freud, as well as Derrida and Butler, are starting points. Current work relating these questions directly to the natural world and environmental concerns includes Cunsolo and Landman, *Mourning Nature*.
5. Proctor and Schiebinger, *Agnotology*.
6. Decolonize This Place: https://decolonizethisplace.org/ (accessed 13 April 2020). The UK Museums Association Ethics Committee launched a working group to produce practical guidance on museums and decolonisation in November 2019, and they have made 'a proactive approach to the democratisation and decolonisation of museums' one of the pillars of their 'Empowering Collections' policy statement of 2019 (Museums Association, *Empowering Collections*, 10).
7. See conference website at https://royalholloway.ac.uk/research-and-teaching/departments-and-schools/geography/research/explore-our-research/the-mobile-museum-economic-botany-in-circulation/conference/ (accessed 13 April 2020).
8. Cowen, *Deadly Life of Logistics*, 5–6.
9. Cowen, *Deadly Life of Logistics*, 9.
10. Schouten et al., 'States of circulation', 782. The authors are paraphrasing Tsing, *Mushroom at the End of the World*.
11. Museum für Naturkunde, 'Animals as objects': https://www.museumfuernaturkunde.berlin/en/science/animals-objects (accessed 13 April 2020) and Max Planck Institute for the History of Science, 'Colonial and postcolonial planning and counter-planning': https://www.mpiwg-berlin.mpg.de/research/projects/colonial-and-post-colonial-planning-and-counter-planning (accessed 13 April 2020). The question of logistics is also addressed in Coote et al., 'When commerce, science, and leisure collaborated'.
12. Stevenson et al., 'The object habit'.
13. Pugliano, 'Botanical Artisans'.
14. Rheinberger, 'Präparate – "Bilder" ihrer selbst'.
15. The complex of duplicate specimens and exchanges are addressed in Cornish and Driver, '"Specimens Distributed"', and in Coote, 'When commerce, science and leisure collaborated'. Duplicates are also the subject of a current research project at the Humanities of Nature Department of the Museum für Naturkunde, Berlin.
16. The author is currently undertaking research on the duplicate sales practices of the Museum Godeffroy of Hamburg (1861–84).
17. The author has analysed the difficulties presented by attempts to align historical collections documentation information with the precepts of the Nagoya Protocol on Access and Benefit-sharing of the Convention on Biological Diversity: see Fleming and Hünniger, 'Putting metadata to work'.
18. See also Peers and Brown, *Visiting with the Ancestors*.

19. The guidance on curation, engagement, use and implications of biocultural collections to be found in Salick et al., *Curating Biocultural Collections* is to date unparalleled and merits greater uptake. I am proposing that these kinds of precepts would bear exponentially greater fruit if applied beyond biocultural collections per se and were to be followed by curators of natural history collections of all kinds.
20. Gosden and Larsen, *Knowing Things*.
21. Rabinow, *Making PCR*.
22. Bebber et al., 'Herbaria are a major frontier for species discovery'; Meineke et al., 'Biological collections for understanding biodiversity in the Anthropocene'.
23. GBIF: https://www.gbif.org/ (accessed 13 April 2020) and BOLD: http://v4.boldsystems.org/ (accessed 13 April 2020). Concerning BOLD, see also Ratnasingham and Hebert, 'BOLD'.
24. JSTOR Plants: https://plants.jstor.org/ (accessed 13 April 2020).
25. Hayles, *How We Became Posthuman*.
26. Yusoff, *A Billion Black Anthropocenes or None*.

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Index

'This book advances a paradigm shift in studies of museums and collections. A distinguished group of contributors reveal that collections are not dead assemblages. The nineteenth and twentieth centuries were marked by vigorous international traffic in ethnography and natural history specimens that tell us much about colonialism, travel and the history of knowledge – and have implications for the remobilisation of museums in the future.'
– **Nicholas Thomas**, *University of Cambridge*

'The first major work to examine the implications and consequences of the migration of materials from one scientific or cultural milieu to another, it highlights the need for a more nuanced understanding of collections and offers insights into their potential for future re-mobilisation.'
– **Arthur MacGregor**

Mobile Museums presents an argument for the importance of circulation in the study of museum collections, past and present. It brings together an impressive array of international scholars and curators from a wide variety of disciplines to consider the mobility of collections. The book combines historical perspectives on the circulation of museum objects in the past with contemporary accounts of their re-mobilisation, notably in the context of Indigenous community engagement. Contributors seek to explore processes of circulation historically in order to re-examine common assumptions about the way museum collections have evolved over time and through space.

By foregrounding questions of circulation, the chapters in *Mobile Museums* collectively represent a fundamental shift in the understanding of the history and future uses of museum collections. The book addresses a variety of different types of collection, including the botanical, the ethnographic, the economic and the archaeological. Its perspective is truly global, with case studies drawn from South America, West Africa, Oceania, Australia, the United States, Europe and the UK. *Mobile Museums* helps us to understand why the mobility of museum collections was a fundamental aspect of their history and why it continues to matter today.

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