An investigation of the key factors and processes that underlie the contemporary display of biological collections in British museums

Hannah Louise Paddon

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Abstract

'An investigation of the key factors and processes that underlie the contemporary display of biological collections in British museums'

Thanks to the Heritage Lottery Fund (HLF), museums are experiencing a long-awaited redisplay renaissance in the early 21st century. The thesis, prompted by the observed renaissance, explores and examines the factors and processes involved in the redevelopment of biological displays in British museums.

Using a qualitative, grounded theory methodology and analytic process, the research focuses on three case study museums; Kelvingrove Art Gallery and Museum in Glasgow, the Great North Museum in Newcastle upon Tyne, and the Royal Albert Memorial Museum in Exeter. Informed by preliminary research, the main study employs the semi-structured interview method to collect primary data from key project team members. To triangulate findings from the interviews, and develop an overarching theory, complementary primary and secondary data was also collected in the form of project reports, meeting minutes, photographs, etc.

The findings demonstrate that 'accepting change' in the museum is key to the redisplay of biological collections. The single most important change in these redevelopments has been the approach to the redisplay process; namely the shift from the curator-driven model to the team approach. This has, single-handedly, transformed the key elements of the process; decision-making and communication, whilst introducing the important element, teamwork. By applying a team approach, powers of decision making are shared across team members and work progresses more rapidly. It also ensures that the final gallery incorporates the educational, design, conservation and curatorial aspects. The driving factors were also uncovered in the course of the research. Categorised as internal and external factors, some were more influential than others; the collections and project team members (internal) and the audience and funders (external) proved particularly influential in early stages of the three projects.

The findings from this research contribute to the limited museological research into contemporary biological redisplays. It debates the shifting paradigms and new display processes in British museums, but future research could develop the grounded theory to investigate and test gallery redisplays worldwide.

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Chapter 1
The Research: Introduction

Over the last century redisplays of museum collections in Britain have been piecemeal, often carried out with little or no research to underpin redisplay decision making. Limited budgets were pledged by regional and local authorities, or perhaps an independent sponsor, for example, British Gas (sponsors from 1990 until 2003) and Shell's (sponsors from 2004 until 2008) sponsorship of the *Wildlife Photographer of the Year Competition* exhibited at the Natural History Museum. Limited budgets had knock-on effects for the types of displays, and thus interpretation, afforded; new technologies were rarely seen in local and regional museums. Dwindling budgets and diminishing interests meant that natural history collections suffered immensely. Curatorial redundancies due to financial and institutional pressures meant that these, sometimes aged, collections were left without proper care and attention for many years. Others were not so lucky; collections were either separated and sent to other institutions, or worse still, disposed of completely (Pettitt 1997). Many museum buildings were also jeopardised as monies to secure their future were lost to other projects or sectors of local and regional government. Exhibitions and displays of biological material, where curators and collections still existed, were heavily influenced by personal agendas, as were collecting policies and collection research programmes. Many displays were produced on low budgets with limited audience research. These galleries soon became outdated.

In these respects, many local and regional museums in Britain had been in a sorry state for many decades. Thankfully the more recent past has seen the establishment of the Heritage Lottery Fund (HLF), a government 'non-departmental public body' (HLF 2009a: 1). The aim of this body is to finance heritage-based projects including the redisplay of museum collections, the sympathetic restoration of museum buildings and the encouragement of new audiences to museums.

This thesis focuses on the boom, or 'redisplay renaissance', sweeping contemporary British museums acknowledging from the start the importance of the HLF in support of these projects. In this context, the study is concerned with

biological collections and their reinterpretation and redisplay in selected local and regional British museums.

1.1 Chapter overview

This introductory chapter takes the opportunity to put the research area under study into context. It begins with a précis of the topic, explaining the cyclical, and sometimes fickle, fervour for biological collections and the recent realisations of the uses for and values of natural history in museums by UK governments. The chapter then continues by setting out the research questions, aim and initial objectives for the investigation followed by a subchapter which briefly explains the terminology and definitions used throughout the thesis. It is acknowledged that other definitions may apply in other contexts but here each term and explanation is defined by the author and specifically relates to the study area in this investigation. The final subchapter in this introductory section explains the structure of the thesis by providing an overview of each chapter to follow.

1.2 Terminology and definitions

This subchapter explains the definitions of terms used throughout this thesis. Some are interchangeable and others are not but this is clarified in the following paragraphs.

1.2.1 'Natural history' vs. 'biology'

Although the terms 'biology' and 'natural history' often go undefined, it is important to make a distinction for clarification purposes at this early juncture. During the Victorian period the term natural history was taken to '[encompass] the fields we now call geology and biology' (Yanni 1999: 2). This term, natural history, is used in both museum names, for instance 'Natural History Museum London', and within museums to denote galleries collectively displaying biological and geological specimens. Natural history, biology and geology can also apply to job titles within the museum, specifying the curators' role, expertise and management responsibilities.

This research has focused specifically on the display and redisplay of biological collections as opposed to natural history collections (Figure 1.1). Within this term, biology, including collections such as zoology and botany, will be examined in display and interpretation contexts.

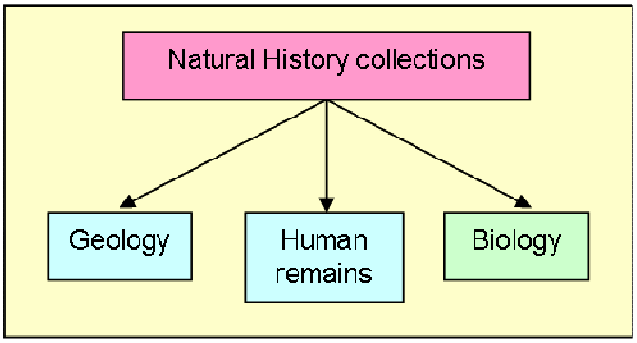

Figure 1.1 Biology as a subsection of natural history collections. Paddon ©

Biological specimens also pose other challenges. Collections inevitably contain highly significant specimens known as 'type' or 'voucher' specimens. The specimens are only used in scientific endeavours and as Carter and Walker (1999: 58) argue, 'should not be put at risk by use in displays'.

Human remains and geology will not be considered within the scope of this study due to their characteristic properties. For example, these two collection types are displayed differently to those of biology; they vary in their preservation techniques and demands whilst on display and can tell different stories to those of biology. In the case of human remains, they face different ethical issues to those of biology, for example, when acquiring and displaying collections. Fossil collections including palaeontology, palaeozoology and palaeobotany are also removed from this research area because, much like human remains and geology, the collections display different characteristics and approaches to their manner of display. They also possess different sensitivities to collections of biology in terms of light levels, humidity, fragility, etc. The selection of biological collections, as opposed to natural history collections, narrows the research area considerably and negates the use of variant cases of geology, palaeozoology, palaeobotany and human remains.

Additionally, biological, and natural history, material can be differentiated from other museum collections due to their organic composition. Challinor and Kerby explain:

> 'They [natural history collections] represent neither the history nor the technology of a nation, but the distillation of man's knowledge of his planet. They exist outside cultural and national barriers for all to observe and learn from' (1984: preface).

Collection care for biological specimens is also distinctively different. Museum display and storage conditions, such as relative humidity, lighting and pest control, are all major considerations for designers and museum project teams. Stansfield *et al*. (1994: 18-19) explain that

> 'natural history material is inherently complex and, unlike collections of human artefacts where there is a common-sense appreciation of the need for specialist care, natural history collections are widely misunderstood by generalist administrators.'

These museum conditions have less of an effect on geological collections due to the nature of their composition (MGC 1992: 52-55, Stanley 2004: 68-73). All of the above observations argue that biological collections in museums can and must be treated with specialist care and management. This specialist knowledge is also extremely important when it comes to displaying collections. When using the term 'natural history' within this thesis, unless otherwise stated, it can be taken to mean biology. However, it is important to note that this interchangeability does not apply in wider museological contexts.

1.2.2 'Exhibition' vs. 'display'

Many texts, articles and papers have been written around the topic of display and exhibition in museums. Yet, little attention has been paid to the terminology of the words 'display' and 'exhibition' and they are often used interchangeably by authors. An attempt has been made to determine the meanings of the two terms using key museological references.

Dean (1996: 161) refers to an exhibition as 'a comprehensive grouping of all the elements (including exhibits and displays) that form a complete public presentation of collections and information for the public use'. He then refers to displays as 'a presentation of objects for public view without significant interpretation added, relying solely upon the intrinsic merit of that which is presented' (Ibid 1996: 160). Lord (2006: 6) disagrees with Dean by suggesting that museum displays offer interpretation and have done since their inception; 'the fact that early museums displayed their collections wordlessly is, curiously, evidence that interpretation had become their very essence'. Lord (2006: 6) continues to say that 'exhibition' is a 'mode of display'.

Hooper-Greenhill (1995: 30) reconfirms that the 'exhibition', and an object's job in an exhibition, is to 'enable communication with the past in the present'. It has become increasingly obvious in the course of this study that natural history and biology collections are unique and bring with them separate issues in museological terms. Rarely are these collections representing the past, rather they are trying to represent the present, or even the future. Again, although displays of extinct animals and plants are used to illustrate the past, they are more often used to communicate messages about the future of conservation and human impacts on the environment.

Lord (2006: 6) explains that 'early museums displayed their collections wordlessly' and that 'the objects on display are "already virtually analysed" by being grouped according to a system of classification or the "order of nature"'. This is emerging once again in museums; now the 'order' is thematic in nature and so objects are grouped, not systematically but more noticeably, thematically.

Therefore, in this study, the term display is used to encompass the ways in which 'objects are related to words, names and concepts: … systems of representation' (Lord 2006: 6) encompassing the 'exhibition' as a mode of display in which 'society and time meet and link in a defined space' (Hooper-Greenhill 1995: 30).

1.2.3 'Display' vs. 'redisplay'

It is also important to define what the words 'display' and 'redisplay' mean in the context of this research. The display of biology, and indeed any collections, can refer to the re-interpretation or redisplay of existing collections or can mean the refreshing of an ongoing theme in a museum or gallery, for instance, where specific specimens are substituted for others. Other displays may be entirely new in terms of a theme or the collections being used. Where undefined or considered extraneous in the context of the research, the words 'display' and 'redisplay' will be used interchangeably.

This short subchapter has argued the case for distinct terminology within this thesis, but has also brought to light the need for well-defined terms across the wider museological sector.

1.3 Overview of the research topic

During its Victorian heyday, natural history, which includes biology, became a 'popular pursuit' (Yanni 1999: 5). The subject ensured the 'exploration of the wonders of the earth and her creatures [reaching] the broadest audience in history' (Ibid 1999: 5).

As with changing fashions, museum collections of biology cyclically fall in and out of favour with both museum staff and museum audiences. Naqui (1997: 249) acknowledges that 'natural science collections have always been undermined and undervalued in comparison to cultural material'. This 'undermined and undervalued' sentiment, or 'the lowest of the low' as Simon Moore states (Moore cited by Heal 2007: 30), also applies to separate collections of biology and geology. Within museums themselves, curators of biology have noticed a trend in the receding size of galleries designated to biological collections (H. Fothergill pers. comm. 28.4.2006) and have witnessed the, sometimes brutal, 'rationalisation' of collections in museum stores (W. Grange pers. comm. 15.6.2005). This has led one museologist to acknowledge that some people find collections of biology 'deeply unsexy' (Secord 1996 cited by McGhie 2006:1). However, the past decade has sought to change this. The Heritage Lottery Fund (HLF), which was set up in 1994 (HLF 2008a), has been the major driving force behind the redevelopment trend of recent years, injecting large sums of money into worthy projects of conservation, redevelopment and audience engagement in museums. This has boosted the profile of biology highlighting it as a subject relevant to all museum audiences, for example, with the advent of reinterpretations of biological collections, and in terms of continued scientific research, for instance, in Britain the recent funding of the Darwin Centre at the Natural History Museum (NHM), London (NHM 2008a).

British governmental departments such as the Department for Culture, Media and Sport (DCMS) have also added to the public's awareness of museums in society (DCMS 2000 and 2004), recognising that collections provide educational opportunities and 'cultural wealth' (DCMS 1999a: 1). Researchers have also argued that biological collections are a resource to teach and instruct the public about fundamental global environmental issues (Linnie 2000: 295, Suarez and Tsutsui 2004; Winker 2004).

Previous research findings indicated that curators felt their roles in display design and interpretation had altered over the past two decades and that natural history was taking a 'back seat', becoming 'something of a Cinderella subject' and also being sidelined for other museum collections (W. Grange pers. comm. 15.6.2005).

1.4 Research questions

This thesis sets out to examine and analyse the factors involved in the contemporary display of biology collections. This will be achieved through the collection of primary data at British museums using particular methodologies and theoretical applications to form assumptions and answer the research aim and objectives.

The research questions for this study are: What factors are initiating and shaping contemporary redisplays of biological collections in British museums? And what specific stages or processes do these redisplays go through to reach the final outcome, the gallery?

1.5 Aim

Developing the research question, it was possible to produce a succinct overarching aim which was than developed further into achievable objectives for the research project (Chapter 6 presents revised, final research objectives).

The main aim of this study is: to explore and examine the factors and processes that underlie the contemporary display of biological collections in British museums.

1.6 Initial objectives

The objectives below are set out to detail how the objective helps to answer the aim, how it applies to the study and which methods of data collection will be employed:

Objective 1: To describe the diversity of museum biology displays globally.

This objective will examine the current trends in biological collections display across the world. It will also contextualise the British museums under study. Anticipated data collection method/s: Museum website searches, museum journal research and museums visits.

Objective 2: To summarise the recent trends in the display of biological collections in British museums from the 1970s onwards.

This objective firmly focuses the research on British museums within a specific timeframe. This particular period of biological collection history was chosen for two main reasons. Firstly, the 1970s saw the advent of Environmental Record Centres which were established to collect information about local and regional biodiversity (Institute of Terrestrial Ecology, Biological Records Centre: 1978; Stansfield 1973; Stewart: 1980). Subsequently, the *Federation for Natural Sciences Collections Research* (FENSCORE) was set up in the 1980s (Pettitt 1999). One of the main outcomes of FENSCORE was a survey which aimed to amalgamate records of biological collections in British museums onto one database. Secondly, this period witnessed a renewed interest in biological collections and nature as the green movement and the general public's interest in natural science increased. The advent of new technologies in recent years has brought nature into the homes of members of the public; internet sites, television programmes and access to foreign destinations have all contributed to an increased interest in nature. This combination of factors has had an influence on collection redisplay and so specific gallery examples will be used to illustrate innovations and display techniques from this 40-year period.

Anticipated data collection method/s: Grey and published literature, archival research, photographic research, informal talks with museum professionals, interviews with selected project team members and museum visits.

Objective 3: To document the contemporary display of biology in British museums.

This objective bolsters the contextualisation of biological collections display from a British perspective and further develops the contexts explored in objectives 1 and 2.

Anticipated data collection method/s: Grey and published literature, archival research, photographic research, informal talks with museum professionals and museum visits.

Objective 4: To identify the stakeholders in biological collections exhibitions.

In order to understand the factors acting upon the display and interpretation of biological collections it was deemed necessary to know who the stakeholders were and what their involvement in the project was. This would help build a

picture of the factors, i.e. organisations, acting upon decision-making for the projects (see Chapter 6 for initial identified factors).
Anticipated data collection method/s: Grey and published literature, web-based searches and interviews with selected project members.

Objective 5: To examine the role of the biological curator in the creation of exhibitions.
By understanding the contemporary role of the curator it will be possible to assess how their role has changed and evaluate the impact this change has on the design and display of biological collection. This will also help to explain past trends in gallery design and highlight any recurring biological themes/topics/stories.
Anticipated data collection method/s: Interviews with selected project team members and grey and published literature.

Objective 6: To identify underlying themes in contemporary displays of biological material.
This objective, coupled with objective 5, would identify and examine any biological themes for new displays. Are there commonalities and similarities in topics? If so, why? And if not, why not? What processes do these museums go through to redisplay their collections of biology?
Anticipated data collection method/s: Interviews with key selected project members and grey and published literature.

Objective 7: To assess the decision-making process in museum exhibition design
This research study will examine the process of contemporary museum exhibition and assess the decision-making that forms and shapes the final outcomes. As above, the process and decision-making might be very similar from museum to museum but if they are not, why not?
Anticipated data collection method/s: Interviews with selected project members, museum visits and grey and published literature.

These objectives, as stated, were composed at the outset of the research project. They were however developed through the course of the investigation, as investigative threads began to emerge from the collected data (see Chapter

6). The objectives were revised at the conclusion of the initial analysis stage and subsequently informed the final research design and data collection.

1.7 Topic justification

The convergent interests of the government, the HLF and previous personal research by the author lead this study to focus on biological collections and their redisplay. It is timely to be conducting this empirical research within British museums as they have recently gained unprecedented amounts of investment to address, in most cases, outdated displays.

As further justification for this research it is important to point out that very few museological research studies employ the theoretical and analytical stance of grounded theory (see Chapter 4). This innovative theoretical approach to qualitative data collection and analysis, first developed in the 1960s, is particularly suited to studies investigating a process-based inquiry and those wanting to develop theory and testable data models for new subject areas (Glaser and Strauss 1967).

A museological literature review of the research area found no publications that claimed to use grounded theory in investigations into collections redisplay, therefore highlighting a gap in research knowledge.

This research will add to the wealth of museological literature, encouraging debates within the museum sector whilst stressing the importance of continued qualitative investigation. Furthermore, it is anticipated that it will bring to the fore the importance of self-reflection and project evaluation for those working on large-scale redevelopment projects. In addition to this, the research will highlight the importance of proper biological collections management as well as continued support from governments and funding agencies towards all museum collections redisplay and reinterpretation across Britain.

The following subchapter conveys the structure for the thesis.

1.8 Thesis structure

This chapter has set-the-scene for the research with a brief account of the research topic. It also introduced the research question, aim and initial objectives.

The following chapter will place the research within an historical context by considering the collection and display of biology through the ages. The final section of the chapter focuses on the 'modern' period of museum displays using three contemporary case studies.

Chapter 3 builds on display contexts by presenting a brief review of contemporary museological literature. The review examines areas of museum discourse which are acknowledged as my preconceived research position and areas of knowledge. These include interweaving museological theories and policies in areas such as government agendas, museum architecture and audience and museum development.

These three introductory chapters place the research in a clear context by clarifying the aim and objects, placing the research in a historical context and making clear the known contemporary influences on the redisplay of biological collections.

In the first of two methodology chapters, Chapter 4 justifies the selection of a qualitative approach, or more specifically, the use of a grounded theory methodology for data collection and analysis. Methods of collecting are also explored including participant observation, interviews and questionnaires. This introductory chapter links to the proceeding chapter, the *Case study museums*.

Having decided on a case study approach, the fifth chapter of this thesis explicates each of the three case study museums. It provides details of their historic background, overviews of the project, including costs and timescales, the designers for the project and team structures within the organisations. It also explains the HLF bid process, which is identical for each museum application, and provides a synopsis of the Royal Institute of British Architects (RIBA) design stages which, again, apply to all three case studies.

Chapter 6, which acts as the second part of the methodology, takes the reader through each phase of data collection including the methods selected, initial research, results and feedback. The results of the initial research are then used to inform the final research design.

In an extension of the methodological chapters, Chapter 7 provides a brief overview of the analytic process employed in the study. Using basic models to explain the stages of development, the process makes clear the generation of findings.

Chapter 8 is the first of three results chapters. Using the results of analysis to move the initial codes to more focused coding categories, research threads such as architecture, power and the audience are presented as factors in the process of biological collections redisplay.

The second of the results chapters, Chapter 9, presents the theoretical codes that emerged from the proceeding analytic stage. Here, three interlinking constructs, teamwork, decision-making and communication, were found to shape the process of redisplay.

Chapter 10 is the third and final results chapter in this thesis. Representing the final stage in the analytic process, it draws together the emergent factors and constructs in the redisplay of biological collections introduced in Chapters 8 and 9 to provide an overarching theory.

The concluding chapter of the thesis draws together the results of the study in a number of ways. Firstly, the chapter reveals how the results of the preliminary research fed into the main research framework, defining research threads and influencing the interview schedule. Secondly, the main research results are presented in the context of the revised objectives for the study. The results and findings from the research are used to illustrate how each of the objectives of the study has been met. The results are then placed into the wider context of museological research illustrating how this research can contribute to on-going debates. The final section of the concluding chapter summarises the major findings of the study to explain the factors and processes involved in the redisplay of biological collections in British museums.

Chapter 2
Biological Collections: Their Display through the Ages

This chapter places the study within an historical context by briefly examining the display trends and interpretive styles of biological collections through the ages. It also considers contemporary displays of biology in museums around the world. Tracing the elements of these displays and interpretations helps reflect and better understand the collectors and collections, the changing role of the museum, the shifts in ideas about education and entertainment (Asma 2001: 37-8), the role of the public and societal values (Bennett 1995: 41; Yanni 1999: 16).

Recognising over two millennia of museum history, museological literature is used to chart the transformation of the museum from the private, less-organised 'cabinet of curiosity' to the public, systematically- and interactively-displayed institutions of today. This historic narration of biological collecting and biology on display has been constructed using Whitehead's (1970 and 1971) divisions of museum history to underpin and contextualise the contemporary research. Incorporating works such as that of Paula Findlen (1996) and Carla Yanni (1999) the chronological history is further expanded by research into the final 'modern period' of museum display. Gallery examples, from museums around the world, have been amalgamated at the end of this chapter to demonstrate the contemporary design and interpretation of collections of biology. It is hoped that in understanding the past histories of museums with collections of biology, contemporary museums may be better understood.

2.1 Considering biological collections through the ages

Collections of biology have been assembled and displayed in private homes and institutions, and public galleries and museums, for many centuries (Yanni 1999: 5 & 14). Thus modern day collections are often an amalgamation of rare, extinct, common, local and exotic specimens. These specimens record the changes and revolutions in our knowledge of nature and the environment, our outlook on collecting and the prestige attached to the collections themselves. Biological displays within these private homes and public institutions have evolved over time from early collections of the 'absurd, curious and monstrous' (Ibid 1999: 14) to the nineteenth century contextualisation of animals in provocative dioramas, for example, William Bullock's 'The Royal Tiger' (Fig. 2.1), finally culminating in

modern, hands-on, interactive presentations of biology (Davidson *et al*. 1994: 223-238).

Fig. 2.1 The Royal Tiger. 'This is represented expiring in one of those dreadful combats which sometimes take place betwixt this powerful and sanguinary destroyer of the human species, and the immense serpent of India, called the Boar Constrictor, in whose enormous folds its unavailing strength is nearly exhausted, and its bones crushed and broken by the strength and weight of its tremendous adversary, taken from William Bullock's *A Companion to the London Museum and Pantherion*, 1813. Photograph by Ken Howarth for Rossendale Museum, Lancashire ©

Whitehead, in his essays, 'Museums in the history of zoology' (1970 & 1971) neatly divides the history of displaying zoology in 'museums' into six main categories with each category possessing a certain 'characteristic flavour' (Figure 2.2).

Greco-Roman Period	Pre-Renaissance Period	Renaissance Period	Pre-Linnaean Period	Linnaean Period	Modern Period
AD 400	400-1400	1400-1600	1600-1750	1750-1850	1850 onwards

Figure 2.2 Timeline illustrating the division of Museum history. Adapted from Whitehead (1970: 50)

Using these 'categories' of museum display history this chapter will examine the characteristics of biological collections display evocative of each period identified.

2.2 Early biological collecting and display

The earliest known collections of biological material can be traced to the Greco-Roman Period (up to 400AD) when the 'museum' consisted of an 'assemblage of natural or artificial objects, usually for the purpose of study but occasionally for mere prestige' (Whitehead 1970: 51). Within this period, the philosopher Pliny, asserted that nature was created for man and that it should be recorded, analysed and investigated (Schulz 1994: 176). This period has been labelled the 'foundation of collecting'. Pliny also suggested that a collection should be amassed and held in one place 'in order that its constituents could be examined' (Ibid 1994: 176). His attempts to collect and understand nature were made through experiencing that very nature. Combining the collections with experiencing nature was an attempt to understand and interpret the created world (Findlen 1996: 4).

The Pre-Renaissance Period (I.e. pre-1400) expanded this notion of collecting biological specimens for observational studies. In the twelfth and thirteenth centuries various descriptive and illustrative picture books were produced. The picture books, known as Bestiaries, were 'a collection of short descriptions about all sorts of animals, real and imaginary, birds and even rocks, accompanied by a moralising explanation' (Arnott and Beaven 2005: 1). Exceptional bestiaries such as the 'Aberdeen Bestiary' (1200) and the 'Harley Bestiary' (1230-1240) established the observational natural history studies of the era (Whitehead 1970: 51). From these early periods rose the Renaissance, Pre-Linnaean and Linnaean periods. The next sub-chapter will explore further the rationales for the collection of biological material in subsequent eras.

2.3 Biological displays from the Renaissance Period to the Linnaean Period

Granted the Renaissance comprised collections of 'absurd, curious and monstrous' specimens (Yanni 1999: 14) but it is also regarded as the period that launched the 'concept of the scholar' (Schulz 1994: 175), a nuance from the simple observations made during the pre-Renaissance period. Men such as Conrad Gesner of Zurich and Ulyssis Aldrovandi of Bologna epitomised the birth

of Renaissance zoology (Stansfield *et al.* 1994: 7). Both men collected and displayed objects in their own private museums, often referred to as 'cabinets of curiosity' (Whitehead 1970: 51). Collecting, during this period, was performed as a social activity by the elite for the elite; 'through the possession of objects, one physically acquired knowledge, and through their display, one symbolically acquired the honor and reputation that all men of learning cultivated' (Findlen 1996: 3). During this period, the collection of nature was also regarded as a way to '[maintain] some degree of control over the natural world and [take] it's measure' (Findlen 1996: 4). The concept of collections for the 'public good' was yet to be founded.

The Pre-Linnaean Period of 1600-1750 sees the growth of the 'cabinet of curiosity' or 'wunderkammer' (Yanni 1999: 16). Two of the most renowned 'cabinets of curiosity' were those amalgamated by Oleus Worm (1588-1654) and Fredrick Ruysch (1638-1731) (Asma 2001: 68). Although primarily thought to be a disorganised presentation of specimens, it is clear from Worm's Catalogue (Figure 2.3) that some 'cabinets' were indeed organised to separate 'natural and artificial objects… the former subdivided into fossils, plants and animals' (Whitehead 1970: 52). These organisations and divisions were classified through '[measuring] differences by comparing visual structures' (Hooper-Greenhill 1992: 17) and thus the display of collections became more significant.

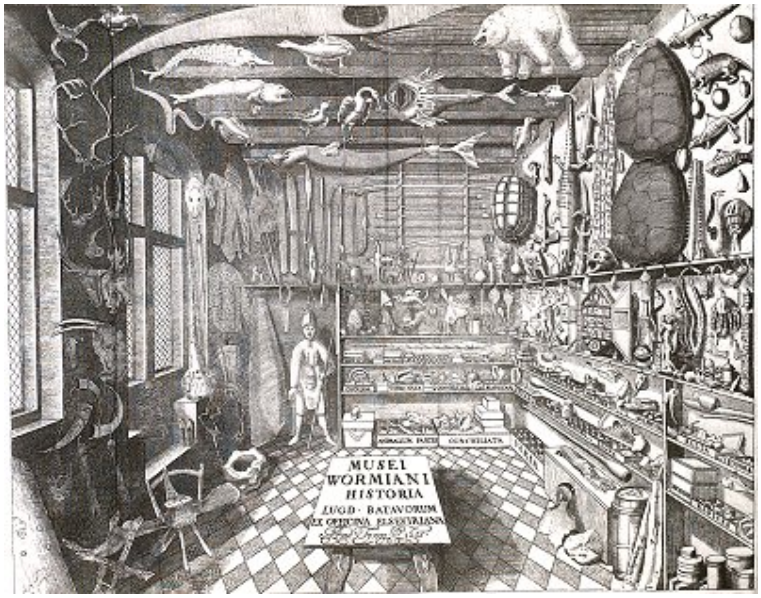

Figure 2.3 The Copenhagen museum of Oleus Worm, from Museum wormianum. Taken from Asma (2001: 71)

The period also sees the growth of 'scientific activity' and detailed observation due to the invention of the microscope and the founding of scientific societies in the search for knowledge (Whitehead 1970: 56).

Collectors, such as Sir Hans Sloane whose collection eventually formed the core of the British Museum (Whitehead 1970: 52) and Elias Ashmole whose collection proceeded to form part of the earliest public museum in England, The Ashmolean, were moving towards the ordering and organising of collections, a far cry from the earlier amateur and professional displays of pure aesthetic arrangements (Asma 2001: 113). The organisation and display of specimens came to underpin the movements of the next age, the Linnaean Period.

The Linnaean Period (1750-1850) was named after the 'father of modern taxonomy', Carl Linnaeus. His work was highly regarded, particularly his encyclopaedic *Systema Naturae* which 'enabled the collector and the museum worker to find a logical place for each new specimen' (Whitehead 1971: 155). Natural history only truly became a discipline at the end of the eighteenth century, when naturalists like Buffon and Linnaeus styled themselves as a new generation of thinkers (Yanni 1999: 2). Linnaeus's work was complimented by naturalists and explorers like Captain Cook and Joseph Banks, who brought back specimens from the New Worlds (Asma 2001: 194).

In England, one of the most formidable biological collections was that of William Hunter, forming the core of the modern Hunterian Museum in Glasgow. His collections were ahead of many other museums of that period because they 'set out to achieve a methodical comparison, not merely of animals but also of every separate organ in different species' (Whitehead 1971: 157). The emphasis was now on understanding the appearances and surface traits of specimens by comprehending why 'things came to look as they do' (Hooper-Greenhill 1992: 17).

Within this period other private museums, with a focus on collecting and displaying biology, were established such as William Bullock's *Museum of Natural Curiosities* in 1795 (Pearce 2008), which Bullock eventually moved to London Piccadilly in 1809 (Figure 2.4).

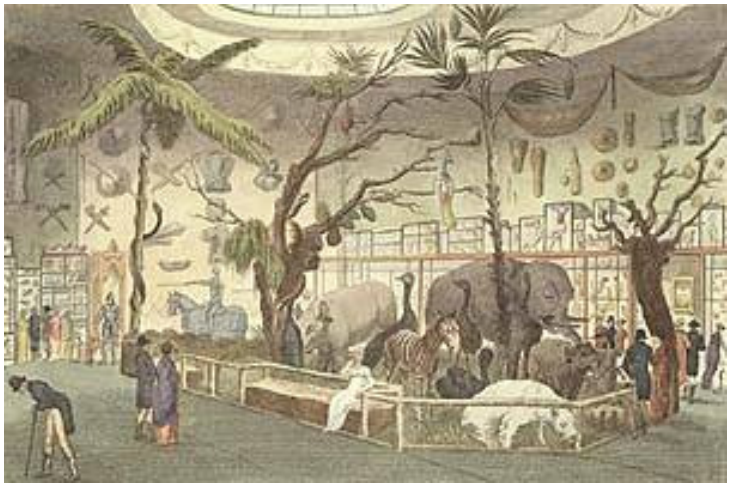

Figure 2.4 William Bullock's London Museum, 22 Piccadilly 1810. Georgian Index ©

Here collections of some 15,000 biological specimens were displayed according to the Linnaean approach as directed in *Systema Naturae* (Bullock 1813: iii). Although Whitehead perceives that 'the museum was purely for entertainment, showing a collection of oddities to its members' (1971: 158-9), Bullock's own catalogue of 1813 presents a different story:

> 'In adapting the Ediface which Mr. Bullock has just completed for the present collection, by displaying it advantageously for the Study of the Naturalist, the Instruction of the Curious, and the Amusement of those who are delighted in viewing the Beauties of Nature…he has endeavoured to render it worthy of the British Metropolis' (Bullock 1813: iv).

It would appear that Whitehead is unfair in reporting that Bullock's museum was purely for entertainment. Susan Pearce (2007: 26) states 'the critical feature of Bullock's natural history and Pantherion exhibitions was the solution he found to the problem of creating a display that united essential popular attraction with genuine scientific endeavour'. Bullock was attempting to make his museum inclusive and appealing to all members of society; from those that were educated in the natural sciences to those who had never experienced exotic wildlife before. In addition to the vast collections of biology on display, Bullock also attempted to break new ground by creating dioramic presentations featuring large zoological creatures. Here a passage details the exhibition of quadrupeds in the museum:

> ‘One department of the Museum (the Pantherion) completed with much labour and great expence (sic), is entirely novel, and presents a scene altogether grand and interesting. Various animals, as the lofty Giraffa, the Lion, the Elephant, the Rhinoceros, &c. are exhibited as ranging in their native wilds and forests, whilst exact Models, both in figure and colour, of the rarest and most luxuriant Plants from every clime, give all the appearance of reality; the whole being assisted with a panoramic effect of distance and appropriate scenery’ (Bullock 1813: preface).

This description, which demonstrates Bullock’s attempt to stage the animals in their ‘native wilds’, is an indication of the first diorama displays in the country.

Considering the abridged presentation of the periods of museum history documented above, three threads emerge to tie the periods together; collecting, display and study. Collecting in Britain, by the end of the Linnaean period, had reached fever pitch. New, exotic specimens from distant lands were collected and displayed in museums for the public and private cabinets of the wealthy. The study of specimens developed intensely from 1600 onwards partly thanks to the invention of the microscope. Detailed investigations of individual specimens could be made and comparisons sought between and across collections but the biggest shift observed throughout these periods was undoubtedly the way in which these collections of biological specimens were displayed. No longer were the collections displayed purely by the elite for the elite, they were amalgamated and thoughtfully displayed for a public-orientated museum. The Linnaean period witnessed the birth of the modern museum, entertaining and educating the layperson with informative labelling and detailed catalogues, for example, William Bullock’s museum.

Over the course of two millennia the museum developed from a collection of objects displayed haphazardly for the individual’s pleasure to an institution centred on collections for scientific development and research. Collectors and early curators wanted to provide opportunities for public interaction with newly-discovered specimens, educating visitors about habitats, behaviours and environments as collections were contextualised.

The next subchapter continues by further separating the period Whitehead describes as 'modern'. It discusses British display techniques and changes to interpretation throughout the 150-year period with examples from contemporaneous publications including *The Museum Journal*.

2.4 The 'Modern Period' of biological collections display and interpretation

Using Whitehead's 'museum history' timeline (Figure 2.2) it is possible to further develop the final period, known as the 'modern period'. Although this period spans only 150 years (1850-present) it can be divided into smaller phases where distinct changes and trends are observed in the display and interpretation of collections of biology (Figure 2.5). This subchapter will investigate and chart the specific changes and trends, the phases, within that period of museum history, using museological texts and journals, and will also highlight specific developments in particular museum elements of display and interpretation e.g. labelling.

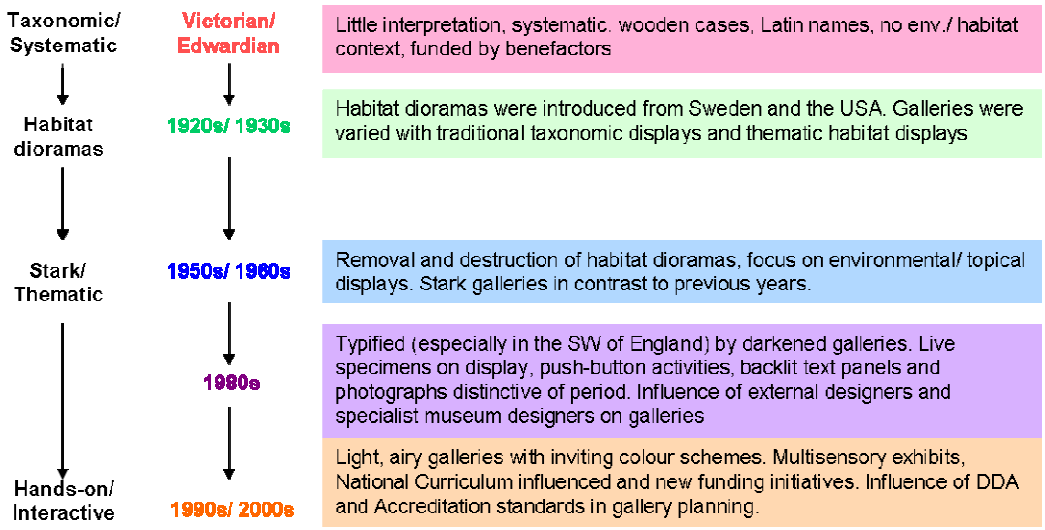

Figure 2.5 Charted phases within the Modern Period of biological collections redisplay and interpretation. it is important to note that these changes relate specifically to museums with natural history displays in the Southwest of Britain. It is not necessarily representative of all British museums nor museums worldwide. Paddon ©

Labelling

A report from the 1891 Cambridge Meeting of the Museums Association recorded the details of 'Labelling in Museums' (Howarth 1891) laying out the most appropriate styles, fonts and coloured papers to use. Since then, numerous authors have provided informative descriptions of label styles for specific design periods. These include authors such as F. R. Rowley. In his

paper, about the Sladen Gallery at the Royal Albert Memorial Museum, he provides precise details of the labelling used in the new cabinets, giving an insight into the fashionable display and interpretational ideas of the period.

> 'There is an introductory label describing the nature and scope of the collection followed by a geological map of the Exeter district. Fine pins, each bearing a small circular numbered label, are used to mark, as nearly as possible, the places from which the specimens were procured' (Rowley 1910: 171).

Michael Belcher discusses the use of museum labels, 'Traditionally the label has been the main medium used in the museum exhibition to communicate information about an object' (1991: 156). This fits with the ideal of the Edwardian label mentioned above by Rowley.

A more contemporary text, *The Museum Experience*, written by Falk and Dierking, dedicates a chapter to the effects of museum labelling. Instead of discussing the practicalities of labelling, they concentrate on the audience perceptions and reading behaviours associated with museum labels. Falk and Dierking (1992: 70) explain that visitors rarely read labels in museum galleries 'because most labels cannot be read in a few seconds' but that 'it is generally assumed that objects and labels have the greatest influence on the visitor's museum experience' (1992: 67). This, almost, contradiction of the importance of museum labels is a continuing issue for all museums but can be particularly perplexing to the curator. Nevertheless, recent works on the use of effective text have raised this debate on how to write engaging text for specific audiences and to good affect (Dean 1996: 103-131; Gascoigne 2007: 50-52).

Alternative forms of display

An article, written by Lomax for the Brighton Meeting of the Museums Association in 1899, spoke of the use of living plants as a form of exhibition in the Brighton Museum. This idea of including plant tables, live bees, reptiles and other organisms in galleries became known as *vivaria* or a *vivarium*. The *Museums Journal* and various other museological journals and texts chart how galleries of biology have cyclically embraced, and subsequently rejected *vivaria*. However, it is now possible to see the re-emergence of *vivaria* in recently displayed galleries of biology, such as the working beehive at Weston Park Museum in Sheffield.

Another important form of display is the diorama. Belcher (1991: 141) describes this as a display 'to provide vision 'in the round' and create the illusion of a realistic view, built either full-scale (as in many animal habitat groups) or to a reduced scale, affording a type of 'peep-show''. Davis (1996: 44), in his text, describes how the 'dioramas sought to bring exotic environments alive for the museum visitor'.

A comprehensive study of historic biological dioramas was conducted by Karen Wonders and published in her text of 1993 entitled *Habitat Dioramas: Illusions of Wilderness in Museums of Natural History*. Wonders (1993: 9) outlined the development of habitat dioramas traced from 1880 to 1950. The research gave a general overview of the origins of habitat dioramas, developed primarily in Sweden and the United States. Although the main focus of the text was on Swedish and American taxidermists and museums, her research also highlighted eminent British taxidermists and naturalists such as William Bullock and Charles Waterton (Wonders 1993: 30-33). Wonders (1993: 229) makes the point that

> 'few natural history museums acknowledge either the artistic or historic value of their exhibitions… Moreover, museums in general tend to ignore their early debt to the collection and display of natural history specimens.'

Her statement is particularly pertinent as this study witnesses the dismantling of dioramas (Zoological Museum, University of Helsinki, Kelvingrove Art Gallery and Museum and the Rowland Ward Gallery at the Natural History Museum, London) and other former gallery exhibitions from previous decades for new interpretations and displays. Wonders makes valid arguments for the study of natural history display focusing her later chapters on the value of education through habitat dioramas. This study will use the educational role of natural history in the general context of display. It will briefly consider habitat dioramas, systematic, thematic, text-based and hands-on, interactive forms of displays from museums across Britain and the rest of the world to aid analysis of the case study museums.

Museum displays are not limited to exhibitions in galleries. Study zones and open storage have become a feature of contemporary museums of biology. Cracknell *et al.* (2006) discuss the ideas behind the Darwin Centre at the NHM,

London. They explain the increasing level of access to the collections and somewhat uniquely, to the researchers and scientists who would normally work behind the scenes (Ibid 2006: 1).

2.4.1 Power struggles: Curators vs. the public

Asma, in his book titled *Stuffed animals and pickled heads: the culture and evolution of natural history museums* (2001), considers natural history displays from the stance of the curators and institutions as well as from the visitors perspective. He briefly examines the demands on curators to produce first-rate displays, highlighting 'collecting and displaying natural history specimens is a more complex and dramatic activity than most museum visitors appreciate' (Asma 2001: 3). He also glimpses into the various techniques of taxidermy and identifies different forms of natural history display,

> 'Britain's museum of natural history employs many game-show-type exhibits, this exhibit strategy kills two birds with one stone because it's both funny and interactive' (Ibid 2001: 261).

Asma (2001: 43) makes the case that curators often overrule decisions on display design as they 'are not without agendas, and displays are not without subcontext'. This text involves in-depth case studies where a variety of display issues are tackled and as such is highly relevant to this study, highlighting some of the trends in natural history display backed by the opinions and display stances of British institutions.

2.4.2 Interactivity

When considering modern forms of display, there is an increasing move towards interactive, hands-on exhibits in natural history galleries. This is examined in Caulton's book *Hands-on exhibitions: Managing Interactive museums and science centres* (1998) where justifications for these new forms of display are made,

> 'Visitors to museums are no longer satisfied simply gazing at worthy displays of exhibits in glass cases. They expect to be actively involved with the exhibits, to learn informally and to be entertained simultaneously (Caulton 1998: 1).

Caulton not only looks at the introduction of these displays but also considers the future for museums. He defines traditional and modern museums as

'content-driven' and 'based on interpreting authentic sites, objects and phenomena' whilst introducing the 'impending third generation of museums [as] incorporating cutting edge technologies' (Ibid 1998: 138).

With these predictions, Caulton (1998: 138) opens up a realm of possibilities for the future of display which can be applied to natural history collections. He also highlights that the 'distinction between museums, libraries, archives, schools, shopping centres, parks, zoos, art galleries and performing art spaces, and even social service centres will blur'. Thus with the advent of new technologies and incorporated services and institutions, almost anything is possible in terms of display and interpretation of natural history in the future.

The final subchapter presents examples of burgeoning, contemporary biological displays. They will be examined, as small-scale case studies, from museums around the world. They represent new approaches to biological collections display, for example, the world-renowned redisplay at the Muséum national d'Histoire naturelle, a museum display that many designers and museum workers alike would like to recreate in their own projects, focuses on collections on open display and the aesthetic of the display and its placement within the museum building.

Comparisons with the museums selected as case studies for this research will be drawn from the museums within the next subchapter.

2.5 Iconic contemporary biological displays around the world

This subchapter takes the opportunity to examine three contemporary displays of biological collections from around the world. They are a combination of groundbreaking design and interpretation from the world's leading designers and innovative, dynamic museum teams that set a new standard in the display of biological collections.

2.5.1 Muséum national d'Histoire naturelle, Paris

The *Muséum national d'Histoire naturelle* sits in the *Jardin des Plantes* on the south bank of the River Seine in the city of Paris. Founded in 1793, the museum's original mission was to 'store specimens representative of the whole animal world, for scientific studies as well as for exhibition' (Lord and Lord 2001: 479). In 1889 the collections were moved to the current museum building which

had been designed by Jules André and had taken twelve years to construct. In 1965 the museum was closed as damage caused during the Second World War deteriorated the building and posed a threat to the collections (MNHN 2004a).

The much–needed and highly anticipated project to redisplay the museum's collection of natural history was unique on many levels. In 1980 two architects, Paul Chemetov and Borja Huidobro, alongside film maker and scenographer René Allio, were commissioned to guide the redevelopment of the museum building (Maigret 1996: 19). Together, and in collaboration with researchers at the museum, they transformed the old galleries to present a spectacular centrepiece which became known as the 'Grande Galerie de l'Evolution'. Officially opened in 1994, the gallery (Asma 2001: 170), which boasts 6,000m^2 of permanent display space, opened to a phenomenal response from both members of the public and members of the profession (Maigret 1996: 20). The 'larger than life, [animal specimens] tell the astonishing story of evolution: presented in three acts in a grandiose stage set' which impressed all visiting audiences (MNHN 2004b) (Figures 2.6 and 2.7).

The 'acts' refer to three clear stories presented in the museum. They are:

> Act 1: the diversity of organisms in the diversity of environments (Figures 2.6 and 2.7)
>
> Act 2: the history of life and the mechanisms of evolution
>
> Act 3: humankind, a factor in evolution' (Maigret 1996: 20).

Several short synopses have been written about the Grande Galerie de l'Evolution discussing its museological history, the evolution of the project and the 'realistic museography' used to redisplay its collections (see Asma 2001; Blandin 2001: 479-482; Galangau-Quérat 2005: 99-107; Maigret 1996; Martin 1997).

On the opening of the natural history museum in Paris, museums around the world with collections of natural history were challenged to rethink their displays. Fabienne Galangau-Quérat (2005: 99) explains that the 'Grande Galerie de l'Evolution' was seeking to do something that no other museum had done before: 'No other museum had yet attempted to show the living world in such a way; so far the living world had been cut up according to the various disciplines'.

Figure 2.6 The African caravan, Level 1. The Grande Galerie de l'Evolution, Paris. Paddon ©

Figure 2.7 Level 0: The skeletons of the southern right whale and the blue whale fill the whole space... Then, it's the shoals of tuna, bonitos and mackerels which attract the attention. All these mounted specimens are grouped by the environments in which they live. Level 0 takes you to the abyssal underwater plains where life flourishes in the obscurity of the depths; over there you'll find coral reefs populated by the creating organisms; further along you'll see the shoreline inhabitants who live in tune with the rhythm of the tides and the variations of light.' (MNHN 2004c: 1) Paddon ©

Also, all museum displays of natural history and biology, at the time, were presented thematically or in dioramic form. Blandin (2001: 480) stated that the principle for the gallery was 'Allusion and not illusion' which avoided 'realistic museography'.

Here, Blandin was referring to the move away from presenting animals in their environmental habitats with painted backdrops and modelled vegetation to a new way of arranging them in a 'completely symbolic way' (Ibid 2001: 480). At the time, it was argued that the new 'museographical choices…represent[ed] a decisive advance in the thinking upon museum space' (Galangau-Quérat 2005: 95).

The movement away from 'traditional' forms of display meant that for some observers, Blandin (2001: 480-481) included, the symbolic arrangement confused educational associations and removed scientific values. But this did not seem to bother the visitors to the gallery. Blandin reports that visitor surveys showed '95 per cent of the visitors [were] satisfied' and 90% had 'learned at least a little' (2001: 481). Therefore, displaying the collections as a spectacle of 'scenographic design' neither caused learning difficulties for audiences or left them dissatisfied (Galangau-Quérat 2005: 101). Visitors described their experiences of the gallery as 'magic' but Blandin (2001: 481), again, brings up the issue of education and science teaching opportunities: 'does this magic not present an obstacle to scientific communication?' In fact, the brief, for the designers and architects of the redevelopment, was extremely focused yet complex. They were charged with 'dealing with the relationships between the inner space, the collections and the underlying scientific discourse', a brief which is now echoed across the world as museums redisplay their collections of biology (Galangau-Quérat: 2005: 99).

An important concept, which Blandin fails to develop, is a possible shift in museological ideology in natural history museums, which was cultivated by the redisplay at the Muséum national d'Histoire naturelle. Blandin states that there has been something of an ideological revolution in that museums of natural history are not simply 'specimen and object museums: they are becoming idea museums' (Blandin 2001: 482). This concept will be built on and further developed during the course of the thesis. Further to this, he notes that in-depth evaluation of innovative redisplays needs to be made in order to 'lead to process

improvements' for future projects (Ibid 2001: 482). These are the processes at the heart of this investigation.

The combination of the philosophical narrative approach, the innovative use of the museum building, the biological collections on open display and its emotive, sensory intensity was unparalleled by any prior museum displays throughout the world. Hence the Parisian gallery set a new precedent for museum interpretation and the display of biological collections during the 1990s.

2.5.2 Nationaal Natuurhistorisch Museum 'Naturalis', Leiden

Figure 2.8 *Naturalis*, National Natuurhistorisch Museum, Leiden. Naturalis ©

The original Museum of Natural History for the Netherlands was founded in Leiden in 1820. These collections, however, were not made accessible to the public (Martin 1999: 27); instead they were used for research, some of which focused on the museum's 'type' specimens. In the late 1980s development for a new public museum 'Naturalis' began (Figure 2.8). Dirk Houtgraaf (2008), in his recent publication 'Mastering a museum plan', uses his experience of working on the Naturalis project to explain the development of concepts and processes shaping displays in museums. He elucidates

> 'the content and its underlying logical structure were confirmed at an international workshop on the subject, held in Leiden in 1990. The

creation of a new museum building, structured around the [core] concept, started in 1994' (Houtgraaf 2008: 24).

The overarching core idea, which was to connect all of the displays of biology and geology within the museum, was based on the Gaia model and thus aimed 'to demonstrate that "humankind is a part of that system"' (Houtgraaf 2008: 23). The development of this core idea involved dividing the 'galleries into two parts: exhibits on diversity and exhibits on natural processes' (Ibid 2008: 23). Visitors would begin their visit with the diversity galleries and end by learning about the processes of nature (Figure 2.9). Fundamentally visitors would be led 'from the concrete to the abstract – from the observation of displayed objects to an understanding of the natural processes responsible for their existence' (Martin 1999: 26).

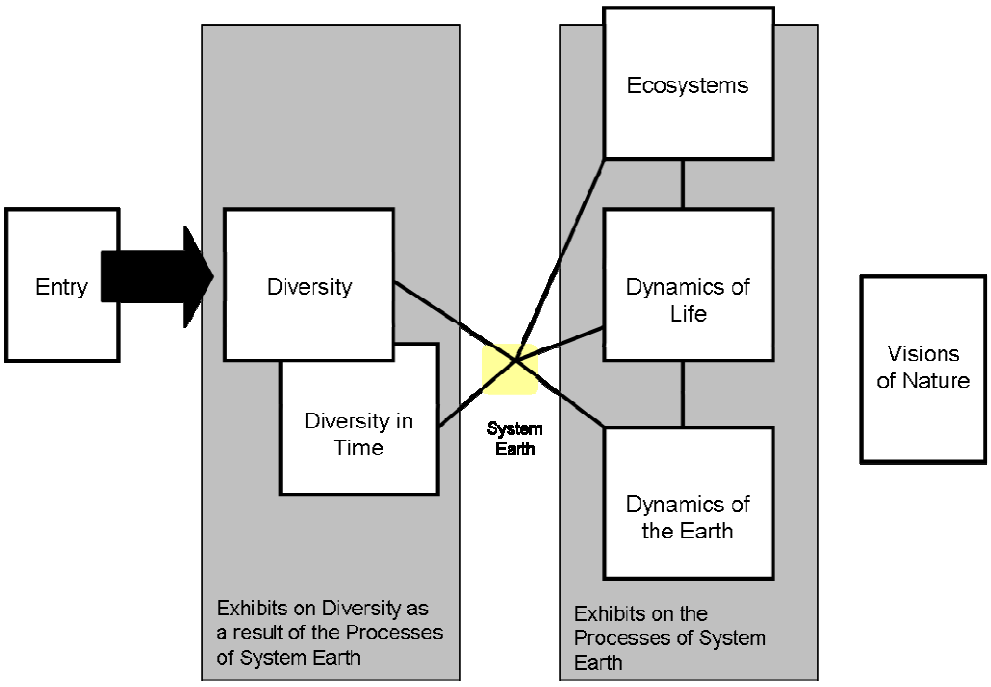

Figure 2.9 Thematic structure of Naturalis. Taken from Houtgraaf 2008: 24

The premise of the museum was predicated on the concept developed by talks in the late 1980s and the early 1990s. Once funding had been secured a design development team was established. Martin (1999: 28) explains that the existing museum staff, at the time of the redevelopment, had little or no experience of collections redisplay. With this in mind, the design development team was amalgamated with the appointment of new staff, who brought with them project experience, and existing staff with knowledge of the extensive collections.

The main objectives for the museum and its galleries were set out from the development's inception. They were to:

- Explain the biological and geological processes which result in the objects and phenomena of the natural world
- Develop displays with sound scientific and educational content which would also stimulate and excite visitors (and reflect the core function of museums to display objects)
- Produce an experience which could compete successfully with other leisure attractions and activities (Martin 1999: 28).

These objectives were achieved through presentations of collections in five main galleries (Figures 2.10 and 2.11).

Figure 2.10 'Natuurtheater'. Naturalis ©

Figure 2.11 'Dynamics of Life gallery'. Naturalis ©

Martin concludes that the architecture is somewhat at odds with the interconnected concept of 'System Earth'. Visitors lose concept connectivity as they walk through the building but he admits that the displays are 'visually stimulating and have a directness of communication' (Martin 1999: 33). He continues to reveal that initial surveys conducted after the museum opened in 1998 showed that visitors spent, on average, three-and-a-half hours exploring the museum displays.

2.5.3 American Museum of Natural History, New York

The American Museum of Natural History in New York City is famed for its fabulous halls of natural history dioramas (or group habitats), amongst which is the Carl Akeley Hall of African Mammals completed in 1936. But in 1998 the museum opened the doors on a new exhibition hall. The Hall of Biodiversity, which spans 11,000 square feet, is the 'first 'issues' hall' that 'defines and examines the key issues involved in understanding and preserving the diversity of life for the health of the planet' (RAA 2009).

Niles Eldredge, a member of the scientific staff at the museum since 1969, notes that there were initially problems deciding upon a theme. The project team were charged with the responsibility of developing a theme that hadn't been presented in the museum previously and that wasn't represented in any of the current dioramas. So,

> 'the scientists responsible for planning the contents of the Hall of Biodiversity realised that there was both an opportunity and even an obligation to depict the natural world, not in its largely gone pristine state, but as it now is: severely changed by the hand of humanity as population pressures and the exploitation of natural resources put relentless pressure on all environments' (Eldredge 2002: 515).

It was this contemporary concept, coupled with the exhibition design work of Ralph Appelbaum Associates, which conveyed the underlying message of extinction. The designers employed a mixture of multi-media, including lighting- and sound-scapes, with the specimens to '[communicate] the richness of biodiversity and [tell] the story of extinction' (Dernie 2006: 94). Within the hall, the stories are told through two main display elements; 'the Rainforest, a replica Central African Republic environment in the centre of the hall, and, to one side, the Spectrum of Life, an extraordinary glass wall of light (100 feet long) that shows plants and animal species' (Dernie 2006: 94) (Figure 2.12).

The space also includes an 'electronic bio-bulletin board that views up-to-date news of the planet, such as weather reports' ensuring the exhibition remains dynamic, not static (Rosenblatt 1999: 17).

Figure 2.12 A section of the 100-foot long 'Spectrum of Life' case in the 'Hall of Biodiversity' at the AMNH. AMNH and Peter Mauss ©

The final subchapter has charted three innovative and indeed trend-setting contemporary displays of biology from Europe and North America. Although it is acknowledged that many new galleries of biology have emerged in museums across the world in the last twenty years, these three cases illustrate the differences of concepts, ideologies and themes to achieve diverse displays and narratives using biological collections.

2.6 Chapter summary

This historical chapter has chronicled the changes in museum displays of biology from the earliest known age, the Greco-Roman period, to the cabinets of curiosity in the Renaissance. Moving forwards into the Linnaean period where specimens of natural history were classified taxonomically and displays became systematised, through to the varied and rapidly developing modern period of museum history. A period of 150 years illustrates the changes in biological collections display and so the chapter culminates with a discussion of three exemplary cases of biological collections redisplay from across the world.

This background chapter was compiled using information gathered from archival and published sources including museological journals, literature, websites, and original catalogues. It takes the role of scene-setting by placing the research area in a historical context. It also demonstrates the need to understand the modern redisplay process, particularly in British museums.

The next chapter will explore, through museological literature, the supposed factors that shape these contemporary displays of biology in museums. Again, these will be explored to contextualise the study and underpin the research with nominal museological concepts.

Chapter 3
Factors Shaping Contemporary Museum Displays of Biology

This chapter presents a literature review conducted during the initial stages of the research period. Each subchapter takes the opportunity to comprehensively describe and explain a key factor, or driver, each of which was initially identified through literary resources. Drawing on sources such as museological texts, journal articles, government Acts and profession reports, the factors are explored in relation to the redisplay of biological collections in British museums.

Factors, such as funding bodies, education and audience development, are considered in turn but it is important to highlight that this list of factors is neither exclusive to British museums, nor indeed exhaustive. It is in fact the overarching aim of this research to compile a complete list of factors in the redevelopment of biological collections redisplay. It is also important to note that the factors, in some instances, overlap, for example audience development and education in museums, but for explanatory purposes the factors are treated separately.

It is acknowledged that the methodological approach being used for this piece of research (see Chapter 4) assumes an objective researcher with no *a priori* knowledge, but in reality this is not often possible due mainly to the researcher's existing immersion in the subject under study (Bluff 2005: 150). However the justification for a brief literature review at this juncture is supported by the importance of acknowledging prior awareness of the subject area (Ibid 2005: 150) as well as to create research transparency for the reader and to bring to the fore gaps in current museological research and knowledge.

3.1 Museum architecture

Much research has been carried out into the impact of museum architecture by investigating how it affects both the visitor and the collections. There are numerous texts, articles and theses that reflect such research (see Eckersley 2007; Giebelhausen 2003 & 2005; Lehmbruck 1974; MacLeod 2005; Zeiger 2005). Here an overview is offered, highlighting key points, to illustrate the importance of museum architecture in the redisplay of biological collections.

Modern museum architecture is a highly competitive art in which architects vie to create striking new designs, for example, The Guggenheim in Bilbao and the National Museum of Australia in Canberra. Striking architectural designs were also coveted for new museum buildings across the world in the nineteenth and twentieth centuries including the British Museum 1847, the National Museum, Stockholm 1866 and the Museum of Modern Art, New York 1929 (Giebelhausen 2005: 48, 53). Early museum architects, such as Etienne-Louis Boullée, felt that museum architecture should invoke strong reactions from visitors, as Michaela Giebelhausen (2005: 43-44) explains, '[the designs] were daring and unfettered architectural visions: their sheer vastness was truly sublime; it inspired awe and dwarfed the human presence'.

Possibly two of the most famed natural history museums are the Natural History Museum (NHM) in London and the Oxford Museum of Natural History (Figures 3.1 and 3.2). The collections of the NHM were originally held at the British Museum until Sir Richard Owen 'persuaded the Government that a new museum was needed' (NHM 2009a) within which to present the ever-expanding collections of natural history. The original design for the new building was drawn up by architect, Captain Francis Fowke but upon his sudden death the design was passed over to Alfred Waterhouse in 1865 (Ibid 2009a). Influenced by the German-Romanesque style, Waterhouse's design incorporated large, grandiose halls where the vast collections of natural history were displayed (Yanni 1999: 49), and high ceilings to give 'a sense of space to the galleries' (Whitehead and Keates 1981: 12). The museum was further decorated with 'terracotta motifs [which] encouraged the eye to wander from time to time so that the visitor could reflect on the exhibits' (Ibid 1981: 12) (Figure 3.3). The design for the Oxford Museum of Natural History was decided in 1853 as the result of an open competition (Oxford University Museum of Natural History 2009). The winning design, by Benjamin Woodward, was heavily influenced by the work of John Ruskin and was in the neo-Gothic style (Oxford University Museum of Natural History 2009). The building bears a striking resemblance to the grandiose NHM in London, using iron and glass to construct intricate roofing and provide grand spaces for natural history displays. These museums not only represent the style of architecture at the height of the Victorian period but the want to display as much of their collections as possible to an enquiring public.

Figure 3.1 Central hall of the Natural History Museum, London. NHM ©

Figure 3.2 Central hall of the Oxford University Museum of Natural History. Flickr ©

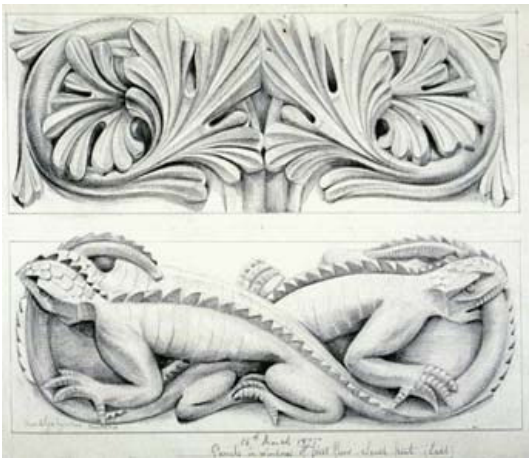

Figure 3.3 Terracotta animals and plants drawn by Richard Owen for Waterhouse's museum of natural history. NHM ©

In the nineteenth century museum architecture focused in on the audience and the Victorian ideal to educate the working classes of society. Interiors became multi-levelled, galleried spaces which allowed for crowd control and directed viewing (Gieblehausen 2005: 49):

> 'Firmly established as a government tool, the museum no longer just confirmed the fledgling bourgeois assumption of citizenry – mostly modelled on some notion of the antique – but also became the space for self-improvement and societal self-regulation.'

Although many local and regional British museums are housed in Victorian and Edwardian legacies, the modern day museum building does not always reflect the collections or the visitors' wants. Architects may create buildings that in fact work against collections; the building and the collections competing for attention. Mihail Moldoveanu (2000: 55) says 'museum architecture and museum collections are not always compatible and new buildings may overshadow the works they were designed to enhance'. Further to this Suzanne MacLeod (2005: 10) comments that the want of the architect may win out over the needs of the museum, 'personal agendas and goals mix with the institutional ambitions and visions, economic development plans, the expectations of funding bodies and the broader social ideals and expectations for the museum's role in society.' She continues to explain that this in turn can cause problems with 'levels of accessibility, usability and relevance for both visitors and staff' (Ibid 2005: 10).

3.1.1 The Victorian and Edwardian legacy

The first thing any visitor notes about a museum is its architecture. For the accustomed museum-goer, the façades are a familiar, welcoming sight but for those who rarely visit, or have never visited a museum, they can have the opposite effect (Lang *et al.* 2006: 35). A museum's architecture may discourage or even prevent people from entering. Elaine Heumann Gurian (2006: 115-126) describes the very-real fear of entering such spaces as 'threshold fear'. This fear, she argues, is both physical and psychological with multiple factors acting upon the visitors' ability to enter into the museum space,

> 'the thresholds in question may be actual physical barriers… and other more subtle elements such as architectural style and its meaning to the potential visitor, wayfinding language, and complicated and unfamiliar entrance sequences' (Ibid 2006: 115) .

Once inside the museum, the threshold fear may continue, evolving and transforming into intimidation as the grandeur and elaborate designs of the Victorian and Edwardian period take over. Sweeping staircases, high ceilings, colonnaded passages and oversized light fittings may all further the uninitiated visitor's feelings of overwhelming and unfamiliarity. In addition these architectural features may hinder the museum visitor from a physical perspective (Lang *et al.* 2006: 35). British museums today have to adhere to strict government policies such as the Disability Discrimination Act (see section 3.3), which challenge museums to provide access for all museum users, something their Victorian and Edwardian counterparts did not have to concern themselves with.

The importance of these period buildings is exemplified by their listed building status, which seeks to preserve buildings of architectural or historical significance. These designations can cause difficulties in the redevelopment of museum spaces and façades. Externally, very little may be altered, depending on the listed designation, with many museums opting to build extensions onto the existing museum buildings, i.e. the Natural History Museum, London. It is important to note that in the context of this research modern architecture is considered but only in regard to extensions built onto existing nineteenth and twentieth century museum buildings.

The grandiose interior features of Victorian museum buildings have been seen by many subsequent generations as incumbent on gallery design. Since their construction in the 1800s, museum personnel have taken steps to alter, hide and/or remove Victorian features. As Giebelhausen (2005: 59) states features would 'disappear [behind] white-washed partition walls and false ceilings'. As well as changing the features of the galleries, museum personnel have also changed their use, often into museum cafes and shops, offices and new storage facilities.

Undeniably museum architecture and the period features of the museum have an impact on the process of collections redisplay. Giebelhausen (2005: 59) asserts 'given the close relationship between the architecture of the museum and its symbolic meanings and display paradigms, change is always fraught with difficulty'. Therefore museum architecture will be explored both in terms of it

being an initial factor feeding into the redisplay of biological collections and also as part of a complex design and interpretation process.

3.2 Funding bodies

In the past, museum redisplays were often funded by local and regional government monies and this led to the haphazard, piecemeal redisplay of galleries, as costs for the redevelopment of the museum in its totality were prohibitive.

One such non-governmental source of funding for gallery redisplay was the Wolfson Foundation. Although originally focused on funding innovation in the sciences, the late 1970s saw the Wolfson Foundation contribute to projects in the arts and humanities (The Wolfson Foundation 2005: 18). In 1977, the British Museum received the first major capital investment to 'house the Townley Collection of classical inscriptions and sculpture' (Ibid 2005: 18). By the 1990s, the Foundation set up a formal programme, with the government, which would award monies to over 250 projects in museums across Britain. The Wolfson funds were heralded a 'catalyst, encouraging additional funding from elsewhere' (The Wolfson Foundation 2005: 18).

The Wolfson Foundation's co-operation in a joint government programme coincided with the advent of a parallel programme: the Heritage Lottery Fund (HLF). Established in 1994 (HLF 2008a), with the belief that 'access and learning are central to [their] work' (HLF 2008a: 3), the organisation has injected large sums of money into worthy projects of conservation, redevelopment and audience engagement in museums (Lang *et al.* 2006: 20). This has given rise to a number of museums redeveloping their gallery spaces, helping provide better visitor services and improved learning spaces (HLF 2002: 1).

The work of the organisation supports museum projects of all sizes (HLF 2008a: 3), although the projects chosen for this research are all large capital projects over £50,000, in fact well over £50,000. In order to gain their monies, museum teams must propose a solid project and complete an extensive application form (HLF ND). Within this bid the team must provide information about who the project will benefit (HLF ND: 3), the project aims and priorities (HLF ND: 11-15) and express how they intend to evaluate the success of their project (HLF ND:

25). Applications are also considered, by a board of fourteen trustees, on a number of further criteria. They should:

1. demonstrate the importance of your heritage item, and how you will protect its significance. Also, you should be able to show that your project will increased involvement in heritage by attracting new visitors'
2. your project should aim to overcome obstacles of access and learning about heritage.
3. we want to see that you have the support of other organisations and that your project offers value for money (HLF 2008b: 1).

The Heritage Lottery Fund can be considered an essential part of museum redevelopment and collections redisplay. As the 2005 report *Museums and galleries: 10 years of Heritage Lottery funding* published by the HLF shows, 'over £1 billion' has been given over to museum and gallery projects (HLF 2005a: 2). Further research has shown that the HLF has contributed to major biological collection redisplays over the past two decades (Table 3.1).

Museum name	Last redisplay	Major/ Minor	Museum ownership
Broughty Castle Museum (Dundee)	2003	Major	Local authority
Dorman Museum (Middlesbrough)	2003	Major	Local authority
Haslemere Museum (Surrey)	2002	Major	Independent
Herbert Art Gallery and Museum (Coventry)	2003	Major	Local authority
Horsham Museum (West Sussex)	2003	Major	Local authority
Maidstone Museum and Bentliff Art Gallery (Kent)	2004	Major	Local authority
Manchester Museum	2000	Major	University
Plymouth City Museum and Art Gallery	2004	Major	Local authority
Reading Museum	1999	Major	Local authority
Royal Cornwall Museum (Truro)	1997	Major	Local authority
Torquay Museum	2001	Minor	Independent
Wakefield Museum	1990s	Major	Local authority
Warrington Museum	1990s	Major	Local authority

Table 3.1 Biological and natural history redisplays funded by the HLF since the 1990s. Paddon ©

This brief overview of the work of the HLF demonstrates the importance of the organisation in moving museum displays into the twenty-first century. But what effect do they have on decision-making? Are they channelling museums into developing specific types of gallery?

The impact, if any, of this funding on the display of biological collections will be discussed later in the research findings.

3.3 New Agendas: Government policies and museum-related initiatives

Government agendas form political and social frameworks for their nation, the impact of which do not escape museums on many different levels. This subchapter discusses the various government policies and museum initiatives from the 1930s onwards.

The Standing Commission on Museums and Galleries was established in 1931 to advise the government on museum affairs throughout the UK (Museums and Galleries Commission 1994a: 303). In 1981, it became known as the Museums and Galleries Commission (MGC), with its main roles developed to advise institutions, encourage the adoption of museum standards, and continue to raise those standards through the administration of grant-giving schemes (Museums and Galleries Commission 1994a: 303).

In 1988, the MGC devised a regulatory scheme which would set out guidelines for a high standard throughout museums: the Registration Scheme. Only five years after its inception, over 1,500 museums throughout the UK were recognised as having fulfilled the Registration Scheme requirements including strict documentation standards, revision of museum constitutions and awareness of collection management issues (Museums and Galleries Commission 1994b: 311). The four main benefits of the Registration Scheme were:

- 'the opportunity for a museum to publicise itself as an organisation which provides a basic range of services for the benefit of its visitors and other users
- the fostering of confidence among potential providers of material for a museum's collection that a registered museum is, in principle, a suitable repository.

- Eligibility for MGC and Area Museum Council (AMC) grant-aid and subsidized services.
- The fostering of confidence among other funding agencies that a registered museum is, in principle, worthy of support' (Ibid 1994: 312).

A drive towards 'social inclusivity', a key catchphrase for the newly appointed Labour Government in 1997 (Sandell 1998: 401), has driven the revolution in gallery redisplays and the thinking behind audience participation (Black 2005; Hein 1998; Hooper-Greenhill 1999a). Interestingly, in his paper 'Museums as Agents for Social Inclusion', Sandell draws parallels from modern museum ideals of social inclusion and the nineteenth century 'notions of the museum as an instrument for positive social change' (Sandell 1998: 408), stating that 'culture might possess the potential to bring about social cohesion or to narrow social inequalities' (Sandell 1998: 409). It has been recognised that, indeed, museums may possess the opportunities for social inclusion and in 1999 and 2000, the DCMS produced two reports based broadly around this topic. The first, *Museums for the many* sought to guide museums and galleries in developing their access policies (DCMS 1999b). Access in museums is regarded as a form of social inclusion and therefore the work of the DCMS in 1999 highlighted the need for museums to develop new audiences through innovative access plans.

In 2004, the Museums, Libraries and Archives Council (MLA) revamped their 'Museum Registration Scheme' naming it the 'Museum Accreditation Scheme' (MLA 2004a). This Scheme called for 'nationally agreed standards' (MLA 2004a: preface) with which museums have to comply. As part of this, the Accreditation Scheme required that museums and galleries provide, for example, 'access to professional advice' (MLA 2004a: 13) and that 'collections and associated information be made available to users' (MLA 2004a: 21). The Accreditation Scheme document also provides a useful toolkit for all museums to critically evaluate their access (MLA 2004b). The impact of these schemes and legislations put in place by the government, and government agencies such as the MLA, have been identified as factors in the redisplay of biological collections. They indeed affect all aspects of contemporary museum management and curation but also impress upon all museum collections, not just those of biology or natural history. The second DCMS publication of 2000 was entitled *Centres for Social Change: Museums, Galleries and Archives for All*. This document set

out the role of museums, galleries and archives in 'generating social change' (DCMS 2000: 8). Recommendations were made to eradicate social exclusion from museums by '[making] full use of ICT' (DCMS 2000: 14) and concentrating on audience development proposing 'outreach activities…as an integral part of the role of museums, galleries and archives' (DCMS 2000: 15).

Designation

The Designation Scheme was launched in 1997 to identify 'the pre-eminent collections of national and international importance held in England's non-national museums, libraries and archives, based on their quality and significance' (MLA 2008a: 1). Using resources available from the MLA it has been possible to compile a list of museums and trusts which hold 'Designated' collections of natural science, natural history, and biology. They are listed below:

- Booth Museum of Natural History (entire natural history collection)
- Leeds Museums and Galleries (entire natural science collections)
- Norwich Castle Museum and Art Gallery (Bird and Butterfly collections)
- Tyne and Wear Museums (entire natural sciences collections)
- University of Cambridge Museum of Zoology (entirety)
- University of Manchester, Manchester Museum (entire natural science collections)
- University of Oxford Museum of Natural History (entirety) and
- York Museums Trust (entire natural science collections) (Ibid 2008a: 1).

Only one of the case study museums chosen has a collection of biology with Designated status. This is the collection held by Tyne and Wear Museums at the Great North Museum. However, the collections of biology at Kelvingrove Art Gallery and Museum, under the Glasgow Museums remit, attained 'Recognised Collection of National Significance' status in 2008; the Scottish equivalent of the Designation Scheme (Glasgow Museums 2010).

Designation brings with it the opportunity for museums and trusts to vie for extra money only available to designated collections (MLA 2008b). It also benefits the collections by '[guarding] against neglect or disposal' and provides museums and trusts with opportunities for 'profile-raising at national level' (MLA 2008b).

In addition, there are general government Acts that are obligatory for museums. The recent amendments to the *Disability Discrimination Act* (2005) have been amalgamated into museum access plans and certainly have an impact on the redevelopment of museum galleries and displays. It has also led to the introduction of dedicated access staff in larger British museums (Lang *et al.* 2006: 21)

3.4 Educating audiences and interpreting collections

This section will illustrate how museological theory and practice has been developed with regards to educating museum visitors and interpreting the vast collections held in museums. There is a particular focus on the interpretation of collections of biology and changing role of museums in educating the public.

It has become apparent in recent years that museum policies, such as *Inspiring Learning for All* (MLA 2004c) and *The Accreditation Scheme for Museums in the UK* (MLA 2004a), coupled with the increased number of job opportunities for educational practitioners in museums, have allowed many authors to focus on education as the main use for museum collections. However, authors such as George Hein, whose book *Learning in the Museum* (1998) focuses on the use of collections in informal and formal learning contexts, argue that 'education as a crucial museum function has been recognised as long as there have been public museums' (Hein 1998: 3). Hein also makes reference to Hudson (1975 cited in Hein 1998) saying that the emergence of encyclopaedias coincided with the advent of public museums which then

> 'produced an enthusiasm for equality of opportunity of learning… the theory behind these movements was a simple one, that collections which had hitherto been reserved for the pleasure and instruction of a few people should be made accessible for everybody.'

Hooper-Greenhill (1991) goes further to explain the cyclical nature surrounding museum education and the reasons for the changes. In her book, *Museum and Gallery Education*, she states that 'during the nineteenth century, education had been the prime function of the museum'. The ideal museum was understood to be 'the advanced school of self-instruction', and the place where teachers should 'naturally go for assistance' (Hooper-Greenhill 1991: 25). This is further backed by Hein (1998: 4) who points out that 'in the later half of the nineteenth

century… museums were viewed as one type of institution among several that could provide education for the masses'. Museums today are moving towards information sharing on a large scale. This is seen in the form of 'virtual museums' and in outreach programs directed by museum education and curatorial departments. This new form of information sharing is promoting the use of collections to a wider audience. However, this is not a new concept. Huxley (1896) wrote an article titled 'Suggestions for a proposed Natural History Museum in Manchester', in which he highlights the importance of accessibility, conservation and education to collections of natural history. This remarkable article published in 1896 but believed to have been compiled in 1868, illustrates the forward thinking of some custodians and institutions of natural history at an extremely early period. Kevin Sumption (2001: 3) also reports on the Australian Museum in Sydney developing an outreach programme in 1891 where a series of taxonomic displays were 'dispatched…to the remote and inhospitable plains of North Western New South Wales'. Today many innovative and successful outreach programmes have been initiated by museums across England. Outreach programmes involve museum objects, and associated ephemera, being taken into the public arena, be it a school or a nursing home, etc. and members of the public are informed about objects and given the opportunity to question the presenters. They can also involve using the 'virtual museum' to 'visit' the collections electronically: 'the internet allows museum educators to enter the homes and schools of students without ever needing to visit the museum' (Sumption 2001: 1). Although it is argued that the virtual objects cannot replace the 'real McCoy' they make for good substitutes when it is difficult to visit the museum.

Many of the educational methods employed in museums today

> 'were first introduced by pioneering staff members a century ago; didactic labels of varying length and complexity, lectures and other events for the public, special courses and programs for school groups' (Hein 1998: 4).

The boom in museum education over the last twenty years has seen many publications emerge to talk about the influence of museums collections in both the informal and formal educational sense. Texts such as Hein's *Learning in the Museum* (1998) and Hooper-Greenhill's *The Educational Role of the Museum* (1999), broadly inspect the influence of museums collections on society, for

example, Hein considers the practices put in place by museum staff at the turn of the 20th century,

> 'All the approaches to education still used today, as well as many of the controversies surrounding them, were first introduced by pioneering staff members a century ago; didactic labels of varying length and complexity, lectures and other events for the public, special courses and programs for school groups, deliberately didactic exhibitions, and in-house and outreach programs for general and specific audiences' (Hein 1998: 4).

These texts also consider the educational opportunities in today's museums,

> 'Where, formerly, museum education was limited to providing specific provision for limited groups such as schoolchildren or adult tour-groups, the educational role of museums is now understood much more widely, to include exhibitions, displays, events and workshops' (Hooper-Greenhill 1999a: 3).

Collections interpretation encompasses much more today than it ever did. It has moved away from the didactic labels of the Victorian period to an approach which involves the visitor, ensuring they interact, think, learn and have fun. Nowadays, the museum is much more than a simple educational institution; it has become a vessel for the multitudinous interpretations of the wondrous collections it holds.

Education and interpretation are considered to be key factors in the redisplay process. Government initiatives for informal learning, accompanied by new ideas about interpreting collections for different audiences, seem to merge with many other education and interpretation concepts and feed into the predetermined process principle for collections redisplay in museums determined by external players

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The factors identified in this subchapter are inextricably linked to the following subchapter; audiences and museum development.

3.5 Audiences and museum development

Audience development, learning and government agendas go hand-in-hand in the museum sector. Many of the texts discussed in this section overlap with

those noted in section 3.4 of this literature review. However, presented here are government and museum agendas for audience development, along with some specific texts, journals and conference papers about audiences and the ways in which visitors learn.

In 2000, the government called on the DCMS to '[develop] a national framework for learning in museums' (MLA 2004d: 1), the outcome of which was the 'Inspiring Learning for All' framework. 'Inspiring Learning for All' acts as a checklist for museums. The MLA developed a comprehensive methodology with which to assess visitor learning. In the field this involved using both quantitative and qualitative audience survey methods from their 'tool bank' (MLA 2004e: 1).

Many of these government-inspired initiatives take as their foundation key works of the 1990s, such as those by Falk and Dierking (American museologists). In their 1992 book, *The Museum Experience*, they make a substantial contribution to ideas about how people learn in museums. They introduce and apply three contextual frameworks to aid comprehension of the museum visit from the audience's perspective. These contexts, defined as the personal, social and physical contexts, are different for every visitor and so each individual is unique in their 'constructed reality' (Falk and Dierking 1992: 4). The authors draw on case study examples of this 'museum experience', highlighting why people choose to visit museums and what they do when they are there. This text is regarded as a seminal work in museology and will inform the analysis and the interpretation of findings from this research.

Building on Falk and Dierking, Graham Black (a consultant heritage interpreter from the UK) published, *The Engaging Museum: Developing museums for visitor involvement* in 2005. The book includes sections on audiences, learning and interpretation but particularly highlights the holistic approach needed to design a successful audience-engaging display. Black sets the parameters for good display design in the modern museum by suggesting key points to consider when developing new display ideas (a structured team, an understanding of target audiences, communications strategy, gallery themes, structured educational use, use of the space and the design brief). These, Black (2005: 242) decrees, all contribute to the 'creative aspect of the process'. He often refers to case study examples, for instance, 'A design brief for a small gallery at New Walk Museum, Leicester UK' to illustrate these key points (Black 2005:

258-265). He also advocates 'targeted audience development' (Ibid 2005: 51), specifying that under-represented museum visitors should be identified through visitor surveys and that suitable research projects should be carried out (Black 2005: 53-73). Black's work is also considered highly influential in museological terms and provides a good basis from which to approach the 'audience' aspect of this research.

In his paper, *Museums for visitors: Audience development* presented as part of the INTERCOM Conference in Taiwan in 2006, Christian Waltl examines audience development in the context of museum management strategies. He defines audience development as 'a powerful process of improving services to existing visitors and reaching out to new audiences' proposing a model (Figure 3.4) for audience development in which amalgamated factors, research, collections, programme, interpretation and marketing, are the drivers for audience development (Waltl 2006: 3). This is a useful paper in terms of understanding the process of audience development and identifying the key factors feeding into audience development as a topic in museums.

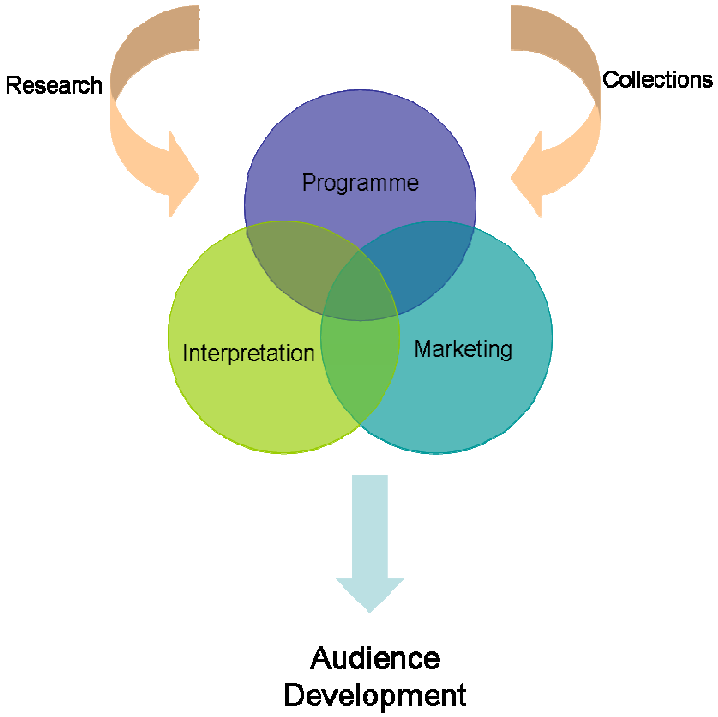

Figure 3.4 Audience development model. Taken from Waltl 2006 ©

Within this subchapter museum audiences and their development have been introduced and considered as a factor affecting the redisplay process of biological collections.

3.6 Exhibition design: Trends and team members

The design of museum galleries has changed significantly since the 1960s with the advent of the museum designer. The days of the curator single-handedly, or very nearly single-handedly, completing the whole transformation of a biology gallery are no more (see Chambers 2001). Robin Wade, one of the first specialist museum designers in Britain, established his company in 1968 with a philosophy that to create a successful exhibition the museum designer must work in conjunction with museum project staff (Wade 2009). Similarly, Giles Velarde (2001: preface) has designed exhibitions for the past four decades, working as the head of design for a national museum and then becoming a design consultant. Nowadays, museums have many museum design companies to choose from when embarking on the redisplay or new display of their collections; Simon Moore Associates, Ralph Appelbaum Associates, Redman Design, Casson Mann, Event Communications, David McCabe Design, etc.

This section of the literature review seeks out those texts reflecting on the curatorial role in the design of displays but goes further to investigate some of the factors, taken from the literature, affecting the contemporary display of biological collections in British museums.

Michael Belcher's book *Exhibitions in Museums* introduces the preparation of exhibitions by identifying the various factors which go into developing exhibitions. Belcher defines and illustrates different types and styles of display, ranging from the didactic to the aesthetic and from the emotive to the interactive. He states that the importance of museum displays is to '[provide] a controlled contact with the real, authentic object' and that it 'facilitates an encounter between visitor and three-dimensional object' (Belcher 1991: 38). Belcher (1991: 38-39) also describes the exhibition atmosphere, 'to looking and moving can be added touching, hearing, smelling and even tasting to complete the multisensory experience' and the importance of reaching many audiences, 'by providing a multi-faceted approach… the exhibition can appeal to the wider visitor group made up of different ages, levels of knowledge and intellects.'

Belcher's ideas are important within this research as they pose questions of access and highlight the importance of a well-designed display. He also introduces the idea of limitations and weaknesses of some of the earlier forms of museum exhibition (Belcher 1991: 156).

In a recent study carried out by Emma Chambers, *The Troublesome Matter of the Changing Role of the Curator* (2001), the meaning of the title 'curator' is researched through an investigation employing the use of questionnaires and archival data. The results of her research showed the differentiation between curatorial roles in smaller museums and those of national standing. The curator of the smaller museum 'takes on most or all of the tasks associated with the categories of curatorial work' (Chambers 2001: 18), one of which she identifies as 'exhibition development' which includes 'research, design and fabrication' of exhibitions (Chambers 2001: 9); the role of the more formal curator, in a larger institution, she deduces, is more subject-specific in their role spending most of their time carrying out collection research but she notes they still have a hand in exhibition design. This interesting research not only highlighted the blurred margins of the curatorial role in museums but also confirmed the curator's role in exhibition and display design as similar from museum to museum.

This is further corroborated by the chapter offered by John Nicks in Lord and Lord's seminal text *The Manual of Museum Exhibition* (2001). Nicks (2001: 345) discusses the fact that 'in the exhibition development process all of the curator's other considerations are directed towards facilitating the presentation and interpretation of the collections that are to be shown in the exhibition….This focus on interpretation explains why Curatorship is always at the heart of any museum exhibition project'. Both Nicks and Chambers acknowledge that the curator is key in the exhibition and display design process, being involved from the early stages of idea formulation through to the final evaluative stages. Nicks (2001: 345-6) particularly points out that during the design process,

> 'curatorial roles generally include the following: formulating the exhibition concept, curatorial research, collection evaluation selection and development, documentation, conservation and preparation of the exhibition brief.'

He continues by elaborating on the roles of curator in the design process as identified above and proves to be invaluable in contextualising the curators role as an underlying factor in the contemporary display of biological collections.

Nicks' chapter is specific to the role of the curator but Lord and Lord (2001) provide both a practical and theoretical book which would guide any museologist through the process of exhibition design from idea conception to evaluation strategies. They also use case study examples of museum projects to support their arguments. This book provides a useful overview of the whole museum process and as such will be used to substantiate or contradict the analysis of the findings from this research.

Another author who provides insights into the exhibition design process is David Dean in his text *Museum Exhibition: Theory and Practice* (1996). Dean himself has been involved in the design and production of many museum exhibitions and displays and is Adjunct Professor in the Museum Science Program at the Museum of Texas Tech University. Dean's text preceded the work of Lord and Lord (2001) and developed a comprehensive synopsis of the museum exhibition and display process. Dean (1996: 32) also goes into great detail about the 'art and science of arranging the visual, spatial, and material elements of an environment into a composition that visitors move through'. This practice of display design is now more attuned to the role of the external exhibition designer than the internal museum project team highlighting the changes in design practice since the early 1990s, a relatively short period of time.

Although all of the above mentioned texts in this section pertain to general museum display, the methods involved in the process can easily be applied to the more specific design of biological displays.

Collections of biology face specific challenges in their display, exhibition and interpretation. Leander Wolstenholme, Curator of Botany at the Manchester Museum, presented a paper at the 2006 AGM for NatSCA (Wolstenholme 2006). In his paper, he discusses the way 'not all collections lend themselves to public display' (Wolstenholme 2006: 1). This is true for numerous divisions of biology and is most certainly true for botanical collections in the museum context. He also points out that it is sensible to remember that these collections were not always created 'with display in mind' (Wolstenholme 2006: 1) and so it leaves an extremely difficult task for curators to deal with.

Various articles in *Museum Management and Curatorship* are relevant to the study of natural history display. Schouten and Houtgraf (1995) introduce 'The Management of Communication: a Systematic Approach to the Design of Museum Displays' in the context of the 'Naturalis', the Natural History Museum in Leiden, The Netherlands. They discuss the objectives of the displays and the design stages undertaken in order to achieve the goals. The paper is an interesting evaluation of one design process for natural history galleries in the 1990s, lending itself to further understanding of the processes involved in international design ideas and processes (see Chapter 2).

Margaret Lindauer (2005: 41) considers a different approach to display design discussing the 'challenge among exhibit development team members' arguing that there is a need for an integrated approach. With illustrative case studies, Lindauer uses 'curriculum theories', defined as:

> '[advocating] a particular approach to presenting information, [characterising] an ideal relationship between teacher and learner (museum and visitor), and [offering] a distinct account of educational success' (Ibid 2005: 41) coupled with qualitative research methods to '[articulate] a shared game plan' between the display development team (Lindauer 2005: 44).

Another article of particular significance is that of James Bradburne (1999). He introduces, in his article 'Changing Designership: The Role of the Designer in the Informal Learning Environment', the general history of gallery display and goes on to focus on the 'science museum community' (Bradburne 1999: 159). Within this article Bradburne talks of the introduction of informal learning to museums, whereby the designers and educators task is 'to support the action (or better, interaction) rather than broadcast facts' and 'to see visitors as users' (Ibid 1999: 166). He concludes by saying institutions should provide support for all users as there are 'an infinite number of unknown and unknowable future users' (Bradburne 1999: 171). However, this project's research indicates that most galleries are designed with specific audiences in mind with objectives for informal learning and quantifiable evaluation processes.

Frazer Swift wrote a significant article on museum education in 1999. Entitled 'Museums and Education', it concentrates on learning in museums and the role of educators in display development. Swift introduces two recent government

initiatives, namely 'Campaign for Learning' and 'Lifelong Learning'. He also comments on the role of the National Curriculum in displays (Swift 1999: 47). One of the most important sections within the article is that on the role of educators in display development. Almost all museums have access to an education officer, if not having an education department within their institution, and he highlights the importance of involving educators in the design process (Swift 1999: 52). The new practice of involving educators, observed by Swift, contributes towards one of the main objectives of the study: to identify the stakeholders in biological collections exhibition.

Swinton (1939: 383) remarks that the modern museum's value as a tool for visual education is extremely important and that there is a need for interpretation of the collections otherwise the visitor will not understand the nature of the display:

> 'However grand the museum, however satisfying the exhibits may be to the eye, it is no more than the perfectly constructed organ which, though beautiful, is mute, mute till the interpreter awakes the silent chords to life to charm and satisfy those of us who perhaps cannot produce them for ourselves.'

The *Museum Practice* journal gives over a large amount of its publication to the finer details of design, for example, using 'case studies' or 'specials' to highlight particular topics (Angliss 2007; Ritchie Calder 2007). These are usually more concerned with the practical and technical elements of display design, i.e. lighting, alarms and glass (Bouwmeester 1996: 44-48; Martin 1996: 40-43), and these provide details of the specifics of practical museum display, while giving an insight into the role of the designer in today's modern museum.

As well as more specific guidance, the articles within journals such as *Museum Practice*, offer insights into the use of multimedia in museum galleries, as in Maria Economou's article 'The Evaluation of Museum Multimedia Applications: Lessons from Research'. For this study Economou used a case study museum and qualitative methods to conduct research into an archaeological multimedia programme (Economou 1998: 174). The findings of the research informed recommendations and opportunities for similar projects. Other papers, including that of Sparacino *et al*. (1999), introduce new technologies for museums through interactive exhibit design. These articles are used here to help to elucidate the

development of museum exhibitions and displays by highlighting external influences on their design and interpretation.

This subchapter has used a variety of literary resources, namely museum studies journals, to show the range of factors involved in the development of any display. These factors, such as lighting, labels and multi-media, play a large role in shaping the look and style of contemporary museum displays. They will be woven into the results of this research in order to triangulate results.

3.7 Scientific research using biological collections

The scientific quality and benefits of biological material are often underestimated, not just by members of the public, but also by museum professionals. Here biological collections are discussed with reference to their scientific qualities with the sub-section concluding by drawing out the difficulties of balancing these scientific qualities with displayability.

Museum collections of biological material are used as scientific data sources, i.e. for ecological, environmental (biodiversity), genetic and pharmaceutical purposes amongst others. Alberch (1993: 373) writes about 'Museums, Collections and Biodiversity Inventories', expressing that both biological collections and their curators are essential to biodiversity research. Alberch believes that there is an urgent need for the 'haphazard' collections to become organised to allow the creation of 'international networks and standard practices among museums' (Ibid 1993: 372). This is a huge task. Many museums in Britain hold vast collections of biological material, which is still not catalogued. To ask that all museums around the world adhere to the same collection management programmes and record the same data is clearly demanding. Pettitt initiated a similar scheme for recording and documenting biological collections in 1981 (Pettitt and Hancock 1981).

Meredith Lane, in her paper 'Roles of Natural History' (1996), further backs the use of biological collections in scientific research. Lane (1996: 536) points out that these collections '[contain] a wealth of data' and that 'the information that natural history collections can provide…will lead in turn to appreciation of the collections from which those data were taken'. She concludes that biological collections are essential in the advancement of scientific research, something that is often overlooked by museum professionals and members of the public

alike: '[biological] analyses are invaluable for land-use planning, pharmacognosy, conservation biology, range management, forestry, agriculture, and a whole host of other applications, including scientific studies of the ecology and systematics of the species being studied' (Ibid 1996: 536).

Bruce Patterson of the Field Museum in Chicago, wrote a paper, 'On the continuing need for scientific collecting of mammals' in 2002. As the title suggests Patterson (2002: 253) justifies the need for continued collection and research on mammals: 'Modern collections are directly responsible for many of the major discoveries now being made on this remarkable fauna…Biological collecting is an essential feature of data acquisition and validation. It must continue if biodiversity science is to inform global conservation efforts'. Payne and Sorenson (2003) continue the debate for the use of biology collections in scientific research in their paper 'Museum Collections as Sources of Genetic Data'. They (2003: 97) state that 'museum specimens are particularly valuable when the collection of new material is difficult or impossible'.

Edwards (1985: 3) in 'Research: A museum cornerstone' states that 'The curator, not the exhibition designer (and certainly not the director) is… at the heart of the museum, improving the collection, protecting it, studying it to discover what information the objects hold.' The article continues to discuss the importance of biological collections for society and also highlights the fact that 'future research will need them' (Ibid 1985: 7).

It is important to note that scientific research reflects heavily on the use of biological collections and can be seen as an alternative use to the display of biology. Here it was important to acknowledge the importance of biological collections in museums for the development and advancement of scientific knowledge. This also impacts on display, however, because there are large swathes of biological collections that have been preserved for scientific use only, render themselves 'undisplayable' in such cases as herbarium sheets (Wolstenholme 2006). This will be explored further within the study.

3.8 Chapter summary

Although there is a wealth of general museological literature, this brief review has sought to highlight the key factors, including theories and practices, identified in the preliminary section of the study.

In this chapter, a number of key factors have been identified and explained. Informed by literature from wider-ranging sources, biological collections redisplay has been explored in relation to access issues, learning theory, the HLF and government initiatives amongst many others.

The next chapter concerns the methodology used for this research study. Backed by the literature review, and an understanding of the research area under investigation, the chapter provides a comprehensive review of the methods used and the methodological stance employed.

Chapter 4
Research Methodology: Theory and Rationale

This chapter introduces the research methodology used to explore the question: what factors and processes underlie the contemporary redisplays of biological collections in British museums?

For the purpose of clarity, the research methodology is explained across two chapters, Chapter 4 and Chapter 6, the reasons for which become apparent as the methodology, concepts and methods are introduced.

This chapter provides an overview of the research methodology; setting out the methodological and theoretical approaches to the study, the methods employed in qualitative research, general researcher awareness including bias in research and the decisions made at the start of the research process.

The second of the two chapters gives an account of the actual process of data collection, from the initial research stages including basic data analysis to the final research design and data collected.

4.1 The two research paradigms

The research paradigm usually takes one of two forms, quantitative or qualitative. The first paradigm, quantitative research, is the more established form, and concerns the 'disciplined application of established rules for statistics, experiment and survey design' (Holliday 2002: 6). However, the relatively nouveau paradigm (Shkedi 2005: 2), the qualitative paradigm, is not so easy to define. Lincoln and Guba (1985: 8) declare 'it is precisely because the matter is so involved that it is not possible to provide a simple definition'. According to Auerbach and Silverstein (2003: 3) qualitative research 'involves analyzing and interpreting texts and interviews in order to discover meaningful patterns descriptive of a particular phenomenon'. The concept is also known as the 'constructivist…naturalist, hermeneutic, phenomenological or interpretive paradigm' (Blaxter *et al*. 2001: 65; Shkedi 2005: 2).

Stake (1995: 37) asserts that there are three major differences between the paradigms. These are:

1. the distinction between explanation and understating as the purpose of inquiry
2. the distinction between a personal and impersonal role for the researcher and
3. a distinction between knowledge discovered and knowledge constructed.

Perhaps the clearest distinction between the two paradigms can be drawn from the types of data they deal with. When considering quantitative studies, researchers deal with numbers or 'counts', whereas qualitative studies employ textual information (Creswell 1998: 1).

Further differentiation can be drawn between the two paradigms on account of the different approaches to research that they take. For instance, quantitative research is concerned with 'hypothesis-testing', using previous theory to test a set of data, whereas qualitative research looks to generate one or many hypotheses (Auerbach and Silverstein 2003: 4-7; Blaxter *et al*. 2001: 65).

In Table 4.1, Blaxter *et al.* (2001) neatly summarise the key differences between the two paradigms or research strategies.

Qualitative paradigms	Quantitative paradigms
Concerned with understanding behaviour from actors own frames of references	Seek the facts/ causes of social phenomena
Naturalistic and uncontrolled observation	Obtrusive and controlled measurement
Subjective	Objective
Close to the data: the 'insider' perspective	Removed from the data: the 'outsider' perspective
Grounded, discovery-oriented, exploratory, expansionist, descriptive, inductive	Ungrounded, verification oriented, reductionist, hypothetico-deductive
Process-oriented	Outcome-oriented
Valid: real, rich, deep data	Reliable: hard and replicable data
Ungeneralizable: single case studies	Generalizable: multiple case studies
Holistic	Particularistic
Assume a dynamic reality	Assume a stable reality

Table 4.1 Differences between qualitative and quantitative research.
Taken from Blaxter *et al*. 2001: 65

Marshall and Rossman (1999) document the process for qualitative research stating that:

> 'through systematic and sometimes collaborative strategies, the researcher gathers information about actions and interactions, reflects on their meaning, arrives at and evaluates conclusions, and eventually puts forward an interpretation, most frequently in written form' (Marshall and Rossman 1999: 21).

This approach to research typifies the qualitative paradigm applied, most frequently, to researching the social sciences (Creswell 1998: 15). The following subchapter illustrates how the qualitative paradigm is most relevant to this research

4.2 How does the qualitative paradigm apply to this research?

Creswell (1998: 17) explains that a 'qualitative study….often starts with a *how* or *what* so that initial forays into the topic describe what is going on'. As established in Chapter 1, the research question posed for this study was: what factors and processes underlie the contemporary display of biological collections in British museums? Following Creswell's explanation, there is immediate justification for the use of the qualitative paradigm in this research.

In addition, it was clear that the factors involved in the development of the display of biological collections would need to be explored. This exploration of the topic was Creswell's second reason for choosing a qualitative approach 'variables cannot be easily identified, theories are not available to explain behaviour of participants as their population of study, and theories need to be developed' (Creswell 1998: 17). It was also clear that these factors were not quantitative in nature; they could not be measured in numerical terms (Holliday 2002: 6; Ten Have 2004: 4) and therefore they must constitute a qualitative research methodology.

Further justification for a qualitative research stance was derived from the writings of Adrian Holliday (2002). In his book 'Doing and writing qualitative research', Holliday highlights the processes of research formation from both qualitative and quantitative stances. Table 4.2, taken from the book, illustrates the differences in the two research styles.

Quantitative research	Qualitative research
Activities	
1. Counts occurrences across a large population	Looks deep into the quality of social life
2. Uses statistics and replicability to validate generalisation from survey samples and experiments	Locates the study within particular settings which provide opportunities for exploring all possible social variables and set manageable boundaries
3. Attempts to reduce contaminating social variables	Initial foray into the social setting leads to further, more informed exploration as themes and focuses emerge

Table 4.2. Paradigm differences between quantitative and qualitative research. Taken from Holliday (2002: 6)

Clearly, this study will deal with the research question by employing a qualitative methodological approach. The selection of a qualitative framework has been justified by this subchapter and the preceding chapter where details of the two research paradigms have been demonstrated as most appropriate.

The remainder of this part of the methodology chapter will introduce the theoretical stance being taken and the choice of methods for use in the study.

4.3 Grounded Theory: An overview

Grounded Theory (GT) was developed in the 1960s, by Barney Glaser and Anselm Strauss, as a new form of qualitative research methodology (Strauss and Corbin 1998: 9). GT offered social scientists a methodology by which to develop theories from data collected using 'a general method of comparative analysis' (Glaser and Strauss 1967: 1). That is to say, data that are collected should be constantly compared to former and future data through an iterative analytical process known as 'coding' (see Chapter 6). Together the two sociologists developed this method of qualitative research theory, but whilst Strauss was working in the field in the 1970s he began to reflect on the characteristics of Grounded Theory and started to redefine his approach. Working with Corbin to produce his final publication, 'Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory', a new definition was produced for grounded theory. In this the theory is defined as a

'theory that was derived from data, systematically gathered and analyzed through the research process' (Strauss and Corbin 1998: 12).

Although two separate 'schools' of Grounded Theorists emerged in the years following the foundation of the research methodology, Grounded Theory has always set out to produce process theories. Glaser and Strauss (1967: 114) explain:

> 'Although this method can also be used to generate static theories, it especially facilitates the generation of theories of process, sequence, and change pertaining to organizations, positions, and social interaction.'

This unique ability of grounded theory to theorise processes acting in social situations strengthened the justification for the use of the research methodology in this research study.

Grounded theory also has the potential to discover an underlying issue or theme without prior theorising of a research area (Glaser and Strauss 1967: 114). The lack of previous research on the topic of museum redisplay, as demonstrated by the initial literature review, meant that hypothesising about collections redisplay before data collection took place was unfeasible. Therefore Grounded Theory should be employed to generate hypotheses rather than to test hypotheses (Strauss and Corbin 1998: 13). Hypotheses are generated from the analysis of various, wide-ranging data sets. Grounded theory employs a constant comparative method of analysis which develops a 'core category' in the research, or the overarching theory of the data. This method of comparative analysis 'includes that every part of data, i.e. emerging codes, categories, properties, and dimensions as well as different parts of the data, are constantly compared with all other parts of the data to explore variations, similarities and differences in data', a feature unique to grounded theory (Hallberg 2006: 142).

Furthermore, Grounded Theory allows the researcher to utilise multiple qualitative methods and consequently, permits the analysis of multiple data types. Descombe (2003: 126) points out that 'the approach is fairly adaptable, lending itself to use with a variety of qualitative data collection methods (e.g. interviews, observation, documents) and forms of data (interview transcripts, fieldwork, texts)'. A possible negative of the grounded theory approach, as

Descombe explains, is that there may be instances where the research cannot be related out to a broader reality, 'by focusing the research on specific instances of behaviour in particular settings, there is a tendency to divorce the explanation of the situation being studied from broader contextual factors' (Ibid 2003: 127). The core category, or overarching theory, can be tested however, in other situations where the phenomenon is occurring. To hypothesise and theorise means that future research and other researchers can use this study to develop and challenge findings.

Grounded theory was selected as the underpinning conceptual and methodological approach for this study. There were a number of reasons for this decision, as mentioned above. The theory offered as its 'central feature' the theorising of processes where little or no prior research has been conducted in a specific research area. It also allowed for in-depth case study research and multi-method approaches to data collection, which would allow for the validity of the research findings (through comparison and triangulation of data) (Goulding 2002: 45). And finally, the approach would generate a new theory about biological collections redisplay in British museums with further testable models of process.

The following subchapters describe the types of qualitative methods used in grounded theory studies.

4.4 Methods in qualitative research

As indicated in the introductory section, this chapter has been split into two parts. The first can be viewed as descriptive of the overarching methodological approach; introducing the qualitative paradigm and Grounded Theory. It is also the part in which the methods of qualitative research – particularly those used in grounded theory studies – are described to the reader. However, at this juncture, the selected methods are not expanded upon as justifications for their selection are presented in part two.

4.4.1 Interviews

Interviews are the most common method employed in qualitative research studies (DiCicco-Bloom and Crabtree 2006: 314; Donalek 2005: 124) giving rise to profuse amounts of textual data (Crabtree and Miller 1999: 14; Creswell 1998:

17). The interview method can also generate a depth of information that other qualitative research methods cannot (Gillham 2005: 3).

Interviews can be categorised as structured, semi-structured and unstructured in their format (Crabtree and Miller 1999: 19) each involving a participant, the interviewee, and an interviewer.

The structured interview is more attuned to a questionnaire approach (Denscombe 2003: 166, and McNiff *et al*. 2003: 124) where the participants are led through a 'rigidly structured interview schedule' with an outcome of pre-determined, categorised responses (Crabtree and Miller 1999: 19) such as those of 'quantitative data' collection methods (DiCicco-Bloom and Crabtree 2006: 314). More often, semi-structured and unstructured interview formats are used in qualitative research methodologies (Oliver 2003: 45).

The researcher will generally engage in unstructured interviews or 'guided everyday conversation' to inform a participant observation study (Crabtree and Miller 1999: 19) or to gain preliminary, exploratory data when little is known about a research area (Polit and Beck 2003: 340). Charmaz (2003: 311-312) explains 'researchers cannot know exactly what the most significant social and social psychological processes are in particular settings, so they start with areas of interest to them and form preliminary interviewing questions to open up those areas'. The unstructured interview format allows the researcher complete freedom of wording, questions and question order and the interview schedule (list of questions) is used merely as a prompt when conversation lapses (Kumar 2005: 123). Unstructured interviews are a particularly important format of interviewing when the researcher has little or no prior knowledge of the details of the case studies under study, therefore the technique lends itself to any grounded theory study. As the grounded theory research progresses, interview questions become more focused as the theory develops (Polit and Beck 341). A narrative approach to unstructured interviewing may also be employed. Here the interviewer begins with a general question, for example, 'can you tell me about your redevelopment project' and the interviewee is encouraged, using minimal interruption from the interviewer, to give a personal account of the experiences and the situation (Kumar 2005: 124-125).

Semi-structured interviews, the most frequently used style of interviewing, lie between the rigid structured interviews and the more casual conversational unstructured interviews. Although this style of interviewing is set around a group of 'predetermined open-ended questions' (DiCicco-Bloom and Crabtree 2006: 315; Donalek 2005: 124), it can use follow-up questions, which are born out of the participant's responses, to gain further insights into a process or phenomenon under study. A semi-structured interview also enables 'the interviewee [to] develop ideas and speak more widely on the issues raised by the researcher' (Denscombe 2003: 167), a more interactive-style interview approach.

As with all methods of qualitative data collection, there are advantages and disadvantages to the use of the interview in research. Table 4.3 is adapted from *Qualitative research methodology* in which Kumar (2005: 130-132) discusses the methods of qualitative research in-depth and informs the reader of potential pitfalls in method selection.

Advantages	Disadvantages
The interview is more appropriate for complex situations	Interviewing is time-consuming and expensive
It is useful for collecting in-depth information	The quality of data depends upon the quality of the interaction
Information can be supplemented	The quality of data depends upon the quality of the interviewer
Questions can be explained	The quality of data may vary when many interviewers are used
Interviewing has a wider application (types of people interviewed)	The researcher may introduce his/her bias

Table 4.3 Advantages and disadvantages of the interview method in qualitative research studies. Adapted from Kumar 2005: 130-132

Tagliamonte (2006: 264) defines the interview schedule as a 'series of questions, ordered hierarchically by topic, used for conducting a sociolinguist interview'. However, they can act simply as prompts in the unstructured and semi-structured interviews, or read chronologically as ordered by the researcher prior to the interview taking place. Schedules are important in any form of interview as they keep key questions at the forefront of the researcher's mind (Polit and Beck 2003: 349).

4.4.2 Archival research

Archival research encompasses the collection and analysis of different types of data; written material, statistical material and compiled information (Jackson 2008: 85). It may also include verbal data, such as sound archives, and can take the form of both published and unpublished information (Furnham and Greenberg 1990: 104). This method of data collection is unobtrusive, or non-reactive (Furnham and Greenberg 1990: 104; Marschan-Piekkari and Welch 2004: 6), and can be defined to include 'measures that concentrate on the traces of human action, on the evidence of human activity left in the environment' (Jupp 2006: 309).

Furnham and Greenberg (1990: 104) outline the three main problems associated with archival data collection and analysis:

1. there may be gaps in the archives, of which the researcher may never be aware
2. data reliability comes in to question – data may be guesstimated or biased, and
3. differences in recorded data from set to set

In recognition of possible bias in any archival data it is worth noting that datasets and documents may be biased by the creator, for instance, 'some of the data may have been purged at some time and the researcher will not know this, nor will the researcher know why data were purged or how the decision was made to purge some data and leave other data' (Jackson 2008: 86). Neergaard and Ulhøi (2007: 350) concur 'when investigating archival records, researchers have to keep in mind that a selection has been made in the past about which records were considered important enough for archiving.'

However, one of the main advantages for the use of archival data is that it can alleviate certain biases, for example researcher bias which inevitably occurs in other methods of qualitative data collection.

The use of archival material is not without its disadvantages but in the triangulation of data, and in the effort to limit researcher bias, this method can add another dimension to the qualitative research study.

4.4.3 Questionnaires

Questionnaires can take many forms and utilise many forms of questioning including multiple-choice, rank ordering and open-ended questions (Cohen *et al*. 2007: 317). They may also be administered by a researcher, asking for respondents answers face-to-face, or they can be used to collect information from respondents through the internet, telephone or postal system (Frazer and Lawley 2000: 3). The advantages and disadvantages of the use of questionnaires as a method in qualitative research are summed up from an amalgamation of sources and presented in the table below (Table 4.4).

Advantages	Disadvantages
Inexpensive	Application limited to populations that can read and write (if self-administered)
Offers greater anonymity for participants	Response rate is low
Ability to reach geographically dispersed participants	Self-selecting – different attributes, attitudes and motivations
	Opportunity to clarify issues is lacking
	Spontaneous responses are not allowed for
	The response to a question may be influenced by the response to other questions
	It is possible to consult with others
	A response cannot be supplemented with other information

Table 4.4 Advantages and disadvantages of the questionnaire method. Adapted from Kumar 2005: 130-131 and Frazer and Lawley 2000: 3.

4.4.4 Participant observation

Participant observation is defined as a method where 'the researcher engages in the same activities as the people being observed in order to observe and record their behaviour' (Gravatter 2008: 357). This method of qualitative data collection is not always possible to use in research studies; researchers need to make sure that minimum conditions are present to collect data successfully. Jorgensen elaborates on the conditions needed:

- the research problem is concerned with human meetings and interactions viewed from the insiders' perspective
- the phenomenon of investigation is observable within an everyday life situation or setting

- the researcher is able to gain access to an appropriate setting
- the phenomenon is sufficiently limited in size and location to be studied as a case
- study questions are appropriate for case study and
- the research problem can be addressed by qualitative data gathered by direct observation and other means pertinent to the field setting (Jorgensen 1989: 13).

There are, however, biases when using this data collection method. Firstly, the process of participant observation can be very time-consuming. Secondly, there may be times when the researcher is not present to record the participants under observation – missing key parts of the process, behaviour and philosophies. Thirdly, participants may feel the need to act in a certain way around the researcher or that they do not want to disclose specific information, 'often the information people are most reluctant to reveal is precisely what the investigator most needs to understand the phenomena being studied' (Jackson 1999: 197). Finally, the researcher may bias the actions of the participants. It would be difficult to alleviate or eliminate such bias other than in a 'complete observer' situation.

4.4.5 Ethical issues in research

In both qualitative and quantitative research studies, the researcher needs to be aware of the possible ethical issues that can be encountered when collecting primary data. It is, therefore, essential that ethical issues are dealt with in an appropriate manner. Seeking informed consent (Marshall and Rossman 1999: 90; Oliver 2003: 45) in any research study is paramount before proceeding to collect any data. Participants should also be informed of the provisions the researcher is taking to ensure that all data is stored and used in line with data protection measures. Participants should be made aware of their right to withdraw from the study at any time (Oliver 2003: 6 and 31).

When collecting interview data further ethical issues need to be addressed such as the recording, use and storage of interview data. An explanatory statement should alert the participant to the ways in which the information collected will be used and contact details of the researcher/s in case of any queries.

Documents produced for participants such as the explanatory statement need to be produced in advance of data collection as they often have to go to research committees at the researcher's university (Creswell 2002: 64).

4.4.6 Researcher bias

At this point, it is appropriate to point out that the researcher always carries with him or her, underlying 'values, assumptions and expectations' (Rudestam and Newton 2001: 44) which can skew or bias the data. This is a characteristic of qualitative research where there is no 'control' study as there would be in any quantitative research piece. Yin (2003: 54) recognises that there will always be some bias within a research study but that this could be further limited by the 'single-investigator approach'. He also suggests that 'the role of protocols and formal preparation may be less important if a single investigator is doing an entire case study' (Ibid 2003: 54).

Within the methods, there will inevitably be a 'greater potential for interviewer bias' when conducting an open-ended interview (Swetnam 1997: 53). However, the single-investigator approach, as suggested by Yin (2003) lessens the amount of bias in data collection and analysis.

To overcome these overarching research biases, the method of triangulation will be employed. Data triangulation is 'the use of different research approaches, methods and techniques in the same study' to possibly 'overcome the potential bias and sterility of a single-method approach' (Collis and Hussey 2003: 78). Triangulation will seek to corroborate evidence and illuminate any emerging themes (Rudestam and Newton 2001: 100) during data analysis.

4.4.7 Social Desirability Bias (SDB)

As well as researcher bias, it is important to acknowledge that participants in any study, qualitative or quantitative, and when using any research method, may bias results. Such bias is known as Social Desirability Bias (SDB) where respondents want to 'appear to be other than they are' (Brace 2004: 181). Participants often want to paint themselves in the best light, for example, they say they drink less alcohol than they actually do, or that they read more newspapers than they do (Druckman 2005: 137). Respondents are 'motivated to be "good people"' above all 'when the questions deal with either socially desirable or socially undesirable behaviour or attitudes' (Bradburn *et al*. 2004:

11). They may also be 'reluctant to admit to a lack of knowledge'; this may make them feel uncomfortable or that they need to give any answer regardless of accuracy (Oppenheim 2001: 139). However, there are ways to limit this bias, particularly when interviewing or conducting face-to-face surveys. Firstly, by assuring respondents that there is no right or wrong answer. And secondly, by '[impressing] repeatedly on the respondents that accuracy is the prime requirement and that a negative response is just as good as a positive response' (Oppenheim 2001: 139).

Biases are unavoidable in qualitative research. They may be introduced by the researcher and/or the participant, but steps will be taken within this research study to limit bias, as far as possible, through the measures suggested in this subchapter.

This subchapter has introduced the variety and scope of methods available to the qualitative researcher. A selection of the methods were used and will be fully described in the second part of this chapter, along with the methods that were rejected and the reasons for their rejection. The final section in the first part of this chapter introduces the concept of case study research, how it complements the grounded theory approach and sets-the-scene for the proceeding chapter: the case study museums.

4.5 The case study approach

One of the main methods of qualitative research is the use of case studies. Here multiple methods of data collection such as interviews, participant observation, archival data, etc., can be used to gather information about the case under study (Gillham 2000: 13; Stake 2005: 443). Case studies provide research with descriptive data and allow the researcher to focus in on specific 'cases' of a phenomenon, something lacking in surveys and experiments (Green 2004: 37).

This philosophy is continued by Robert Yin, who in his book entitled *Applications of case study research* (2003), talks about the importance of case studies in qualitative research. Examining this particular methodology, he deduces that case study research is

> 'appropriate when investigators either desire or are forced by circumstances (a) to define research topics broadly and not narrowly, (b) to cover contextual or complex multivariate conditions

> and not just isolated variables, and (c) to rely on multiple and not single sources of evidence' (Yin 2003: xi).

Although the case study is broad, considers multivariate conditions and multiple sources of evidence, it is also a 'bounded system' (Creswell 1998: 61). The case study, or bounded system, is restricted by two factors: time and place. Creswell also agrees with Stake's (1995 cited Creswell 1998: 61) argument that a bounded system is a 'focus being the case or an issue that is illustrated by the case (or cases)'. So, the case study can be defined as 'an in-depth study of [a] "system", based on a diverse array of data collection material, and the researcher situat[ing] this system within its larger "context" or setting' (Creswell 1998: 249).

As Yin points out, multiple sources of evidence are used to gather information about each case. Gillham (2001: 1) concurs with this stating, 'no one kind or source of evidence is likely to be sufficient (or sufficiently valid) on its own.' Therefore, multiple methods will also be appropriate in sourcing the diverse information.

Woods (1999: 2) believes that one of the main foci of qualitative research is 'an emphasis on process'. This is further supported by Yin (2003: xi) who agrees that 'case studies have generally been used to document and analyze implementation processes. Case studies, therefore, have been associated with process evaluations.'

The case study method and grounded theory therefore complement each other as both seek to understand and interpret processes; case studies from a descriptive perspective and grounded theory from a theoretical stance.

The research question for this thesis focuses on the museum display process, one for which case study research is particularly appropriate. A number of museums have been selected in the context of this study providing a broad research base. There are also multivariate conditions associated with each case.

The next subchapter details the selection of the case study museums for this research providing justifications for their selection.

4.6 Case study selection

The selection of museums was an important factor when deciding upon a case study approach. Here the rationale for the selection of 'exemplary cases' is provided. Each museum is justified in its selection as a 'strong, positive [example] of the phenomenon of interest' (Yin 2003: 13). The research is broadened by the fact that there is more than one museum under study. Randall *et al.* (2007: 66) advocate the use of multiple case studies in grounded theory research as 'comparison… can be done without worrying too much, if at all, about what underlying similarities or differences exist (to begin with) from group to group. All that matters is that the data pertain to a similar category or property' and triangulation can then occur.

The first step of the project was to select case study museums relevant to the research phenomenon. These prospective museums, selected in early 2007, had to fulfil a list of required criteria in order to be considered for the study. They had to:

1. have recently completed or be in the process of completing a redisplay of biological material
2. be at differing stages of the redisplay process
3. be regional or local British museums, not national or university museums
4. be funded by monies (more than £50,000) by the HLF
5. be accessible in terms of:
    a. location to travel for research
    b. access to archival data/grey literature
    c. availability of key project team members

Any museum that could potentially become the focus of this study needed to be undertaking or have recently completed a redisplay of its biological collections. This was imperative if the final research theory was to focus on contemporary redisplays of biological collections. It also minimised my dependence on retrospective experiences from staff members; they could report their thoughts and feelings at that particular point of the project. The museums also, ideally, should be at different stages of the redisplay process so that comparisons could be made and knowledge gained. Additionally, all of the museums chosen to partake in the research should be regional or local British museums with collections of biology. This would provide a focused group of museums within

one defined area of the world. Therefore, none of the museums chosen would have 'National Museum' status but it was recognised that their biological collections could be of national or international importance. Of course, this prohibited the use of the Natural History Museum in London. This non-national criterion was added for two reasons; firstly it would pose difficulties in its comparison with other institutions within Britain. Secondly, if national museums of biology were to be compared across the world access would be difficult to maintain and, if within Europe, translation may be necessary, costly and time-consuming. Thirdly, the NHM was not undergoing a redisplay of biology at the time of case study selection, although the collections were intended to be housed in the Darwin Centre which was under construction (NHM 2008b). However, the NHM will be used to illustrate an observed 'theme' of contemporary museums in the analytical part of this study. In addition to discounting national museums in this research study, university museums were also rejected. There were no large redisplay projects, being funded by HLF monies, at the time of selecting the case study museums.

Furthermore, museums would only be considered for inclusion in the study if they were funded substantially by the HLF. Previous research (Paddon 2007) had shown that the HLF was playing an increasingly important role in the support of redisplays of biology (see Table 3.1) and so this was a significant factor in the contemporary redisplays of museum collections. Finally, each case study museum had to be accessible in terms of: its location, all museums had to be easily reached in terms of travelling from Bournemouth University to allow for return visits and in-depth data collection, access to archives and relevant documentation as this would triangulate data and provide background to the projects and access to project team members; they needed to be willing to participate in the study.

Five museums were shortlisted according to the rigorous criteria. They were:

- Leeds City Museum and Art Gallery
- Weston Park Museum, Sheffield
- Kelvingrove Art Gallery and Museum, Glasgow
- The Hancock Museum, Newcastle upon Tyne
- Royal Albert Memorial Museum, Exeter

To ensure that the project, and data collected, was manageable, the five museums were reduced to three. In an effort to limit bias when selecting the museums, rigorous decision-making was undertaken. Both Weston Park Museum and Kelvingrove Art Gallery and Museum had completed their redisplays of biology and were open to members of the public. In addition, the two museums had been shortlisted in 2007 for the Gulbenkian Prize; a highly contested and prestigious museum award (Calouste Gulbenkian Foundation 2007: 1). Ultimately Kelvingrove was selected from the two museums because of the new approach taken to interpret its collections (see Chapter 5). The Leeds City Museum and Art Gallery and the Hancock Museum were in the middle stages of the redisplay process at the time of choosing museums for inclusion. Interestingly, only eight biological collections in British museums carry the 'designation' status and both the Leeds Museum and The Hancock collections are designated (see Chapter 3). Therefore designation was disregarded in the selection process. The Hancock Museum was eventually chosen because of its particularly complex management issues which made for an interesting case study in terms of decision-making (see Chapter 5).

The Royal Albert Memorial Museum was the final case study identified in early 2007. This museum was in the early stages of the redisplay process and would not be open to the public until after the completion of this research project.

Although the three museums chosen were all at varying stages of the redisplay process, adhering to the criteria set out at the start of the research, they were also bounded by two consistent factors, time: the duration of the project, and place: the museum in which the project occurs (Ragin 1992: 2), 'making the results of [the] study temporally and spatially contingent' (Snow and Trom 2002: 147). These two factors, which are important in case study research, remain constant for all three museums selected across the research period.

4.7 Chapter summary

This part of the research methodology chapter has set-the-scene in terms of providing information about grounded theory and the methods available in qualitative research.

The grounded theory approach does not allow for any other theory to be applied in the early stages of research. However, it uses multiple theories to interpret and develop the final overarching theory from the data. It was, therefore, crucial to introduce the grounded theory approach at the beginning of this chapter. It will be considered again in chapter 6 and elaborated on in the context of the methodological approach and conceptual framework. In addition, each method has been presented here revealing positive and negative attributes. This suggests how they can be used in a qualitative study in conjunction with other methods, and an appropriate methodology, to answer the research question.

The chapter has also introduced the case study approach as the main method of data collection. The museums, which will act as case studies for this research, have been justified in their selection. The proceeding chapter concentrates on the three museum redevelopment projects identified as case studies and introduces the role of the HLF in the projects.

Chapter 5
Case Study Museums

Each of the case study museums was chosen as a result of having successfully bid for HLF heritage grants. Accordingly, this chapter begins by introducing the HLF application stages for projects over £50,000, for which all of the case study museums in this research applied. At each stage the HLF require specific information and additional documents to make informed decisions about capital funding and monitoring the projects progress.

This chapter then proceeds to present each case study museum in-depth explaining the historical background and collections held. Also, where possible, details and images of the biological displays prior to the large-scale redevelopment project are included. In addition to prior displays, artistic impressions of the post-project galleries of biology are included. Furthermore, the chapter communicates the new display approaches taken at each museum, tracing their aim and objectives and the team structures put in place to achieve the projects.

Information about the museums and their projects was garnered from a range of sources. The unstructured and semi-structured interviews, discussed in the methodological chapter, were composed to collect contextual and historical information about the museum. Likewise, a range of unpublished literature, including documentation from the Heritage Lottery Fund and the individual museums, was collated to produce an overview of and set-the-scene for each case study project.

5.1 The Heritage Lottery Fund

The HLF, which was established in 1994, has been funding large grant heritage projects since its inception. A report on the projects funded by HLF money since 1994, shows that over £150 million has been awarded for 'exhibitions, interpretation and collections management' (HLF 2005a: 2). In addition, Table 3.1 in Chapter 3 identified the natural history redisplay projects funded by money from the organisation between 1990 and 2003; some thirteen projects in local authority, university and private museums.

Applications are based on a two-stage process with a simple pre-application stage added to determine if a project is worthy of funding. The pre-application form establishes the aims of the project and coincides with stage A of the Royal Institute of British Architects (RIBA) *Plan of work* (see Appendix 1). The plan of work has been adopted by most museum design consultants, and the HLF, as a way of scheduling projects and working to identical project programmes (K. Skellon pers. comm. 3.10.2007).

Stage I: At this stage, the application becomes more intense and detailed information is needed to help the HLF trustees decide the project's outcome. Here, project applicants should have reached RIBA stage C, producing outline proposals for the scheme which should include basic costs, considerations of risk and limitation and the outcomes of consultation. The HLF application for large grant projects also requires a number of plans and policies for stage I approval:

- An outline business plan
- An options appraisal
- A feasibility study
- A copy of the access policy and pricing policy
- Copies of energy, transport and environmental policies (where appropriate)
- A training plan (HLF ND: 27)

Stage II: This stage is extensive, comprehensive and ongoing as it follows the project through to fruition. Applications for this stage need to be submitted within 18 months of hearing of a successful application outcome at stage I. The stage II application requires submission of project plans up to RIBA stage E. This entails submitting final proposals along with cost reviews and a list of management needs (HLF 2009b: 5). On approval of the stage II application, projects proceed on to Stages F – K of the RIBA *Plan of Work*, known as *Delivering the Project*. These stages encompass the tender, production and completion of the project (see Appendix 1). Throughout stage II, projects are encouraged to source expertise from job-specific consultants and from an HLF representative. This representative can offer advice and act as a mentor for the project team, in addition to their role as a monitor for the funders. On completion

of the project, RIBA stage L, an evaluation report needs to be completed. At this point the final 10% of funding is released to the project.

As mentioned previously, all of the case study museums received HLF funding in addition to other monies from local, regional and European organisations. The projects went through specific stages and needed to complete each one in turn to move onto the next.

The next subchapters will examine each case study independently but will rely upon similar categorisation of themes to provide comparable information.

5.2 Kelvingrove Art Gallery and Museum, Glasgow

Quick facts
Museum originally opened: 1901
Year of HLF application: 1999
Funding from HLF: £13 million
Total funding for project: £27.9 million
Museum closed for redevelopment/ reopened: June 2003/July 2006
Designers of displays: Event Communications

5.2.1 Origins of the museum

In the mid-nineteenth century, Glasgow had numerous 'branch museums' spread across the city which held valuable collections of art, social history and natural history (R. Sutcliffe pers. comm. 13.5.2008). One such museum, Kelvingrove Mansion, exhibited the McLellan art collection, now one of the museums most prized collections. Kelvingrove Mansion sat within Kelvingrove Park in the affluent West End of the City. A number of extensions were added to the Mansion but it became clear that the collections were rapidly outgrowing their storage and display spaces. Not only that, the buildings themselves were deemed unsafe due to overcrowding and, in the case of the McLellan galleries, 'a serious fire hazard' (Glasgow Museums 2009a). It was then resolved to construct a large museum building to house the collections already overwhelming Kelvingrove Mansion with room for further collections and continued collecting.

In 1888 an International Exhibition was held in Glasgow's Kelvingrove Park (Figure 5.1), for which Kelvingrove Mansion was demolished. Profits from the International Exhibition financed the start of the existing museum building project to the sum of £40,000 (Ibid 2009a). Additional monies were acquired from public

subscriptions sending the total raised to over £120,000. The city council eventually took ownership of the project and completed the building in 1902 at a cost of over £250,000 (Glasgow Museums 2009a). The building itself 'reflect[ed] the pride, wealth and cultural ambition of one of the Victorian era's great industrial and trading cities' whilst 'the new museum aimed to encompass the entire world of art, history, archaeology and natural history' (O'Neill 2006a: 1).

Figure 5.1 Glasgow International Exhibition 1888, Unknown artist. Culture and Sport Glasgow ©

Today, Kelvingrove Art Gallery and Museum is a Category A listed building (Figure 5.2). The Category A listed status denotes that the museum building is of national or international importance and is the highest protection status for architectural structures in Scotland (Historic Scotland 2009). The HLF project aimed to conserve the building and improve its interior in a number of ways:

- Removing all of the non-original features that impede visitor flow around the building
- Enact repairs which ensure the building's conservation and embark on a phased programme of restoration of original features
- Greatly improve the environment in the building for the collection
- Upgrade the building's electrical and heating and ICT infrastructure
- Re-house collections stored in the building basement to a new store with improved conditions and the potential for expansion and greater public access
- Open up the basement, create a ground level public entrance and establish display and visitor facilities in the basement of the building and
- Increase the amount of display space by 35% (KNCP 1999: 2-3).

Figure 5.2 Kelvingrove Art Gallery and Museum, Glasgow. Trip advisor ©

These improvements to the building were proposed in order to improve and make safe the environment for the collections and the visitors to the museum. Orientation throughout the museum would be vastly improved with the removal of accretions, for example, 'the most radical change was that so much was boxed off and turned into offices and storerooms for the duration of its life and that's of course all been altered now' (J. Robinson pers. comm. 13.5.2008). In opening up areas of the museums which had previously been blocked off for offices and stores, the museum became symmetrical again and orientation improved. It also meant that the increase in the total amount of display space given over to the museum would allow for more objects and specimens to be displayed and thus, more stories and themes could be told.

5.2.2 Previous display approaches

The natural history displays originally dominated the central court in the East wing of the building (Glasgow Museums 2009b). Wooden wall mounted cases surrounded the open display taxidermies in the centre of the court. The cabinets were used to display amalgamations of native, local species in habitat groups under the title 'Natural History of Scotland'. The research manager for natural history explained 'we had large dioramas looking at different habitats so you started off with the urban environment which we called 'manlands', we then looked at farmlands, woodlands, uplands and then sandy shores, rocky shores and the sea' (Figure 5.3). This thematic approach to displaying habitat groups in

a sequence stems from the 1960s where habitat groups and environmental messages were the design trends of the period. The designer for the new displays at Kelvingrove explained that, in her opinion, the dioramas of habitat groups were big but 'tacky' (E. Dugdale pers. comm. 5.9.2008).

Figure 5.3 Thematic displays leading into the central court of the East wing, Kelvingrove Art Gallery and Museum c.1990s Culture and Sport Glasgow ©

The natural history occupied two ground floor gallery spaces – the natural history of Scotland in the central court and the bird gallery within its own designated gallery. Reminiscing about the bird gallery, which was arranged in the 1960s, the research manager talked of it as 'a very valuable resource for local ornithologists' (R. Sutcliffe pers. comm. 13.5.2008). As the gallery was taxonomic in nature it lent itself to the more knowledgeable visitor. This approach, however, did alienate a large majority of museum visitors in that labels presented 'potentially very interesting information… but not in a way that held your attention' or was particularly accessible (S. Latimer pers. comm. 14.5.2008). The curator of geology at Kelvingrove spoke briefly about the lack of interactives or activities to engage visitors in learning in the former natural history galleries: 'there was no audio-visual or anything like that. As a result, it was just gallery panels and labels so each of the different habitats would be introduced by the introductory label and then there would be an object label for each item in the case or an interpretive key' (A. Gunning pers. comm. 12.5.2008).

One of the museums' most iconic specimens, Sir Roger the Elephant, was displayed in the central court on open display alongside temporary exhibitions.

Figure 5.4 shows Sir Roger in the central court before the redevelopment project and his repositioning to a central plinth as the main feature of a parading menagerie. He remains an integral part of the museum's displays and a firm favourite with visitors.

Figure 5.4 Sir Roger the Elephant with visitors in the central court of the East wing, Kelvingrove Art Gallery and Museum c. late 1990s. Culture and Sport Glasgow ©

Alongside Sir Roger, there are a further two iconic specimens which have been incorporated into the new displays at Kelvingrove; the Baron of Buchlyvie, the skeleton of the famous draft horse and the extinct, taxidermied specimen of a Great Auk (KNCP 1999: 70).

Part of the rationale for the redevelopment project stemmed from the fact that the displays were 'very tired' with Kelvingrove becoming a 'museum of museums' (A. McReavy pers. comm. 6.8.2008). This, coupled with a new, innovative display approach, spurred the application to the HLF.

5.2.3 Project background/ HLF bid

Although the ageing displays and dilapidated building were in dire need of updating, millions of visitors flocked to Kelvingrove each year (1.13 million per annum before its closure). However, with the advent of a new Director, Julian Spalding, in 1989 the idea for a new display approach was mooted. This project

idea, and redisplay approach, was then taken on by the current Head of Museums, Mark O'Neill, who was made 'project champion' and furnished with the responsibility 'for setting the vision and starting the whole project, raising the plans etc' (A. McReavy pers. comm. 6.8.2008).

In 1999 the Culture and Leisure Services department of Glasgow City Council submitted an ambitious first stage application to the HLF. In the application the council asked for a contribution of £8.643 million to support the redevelopment of Kelvingrove. Set out within the bid was the mission for the Kelvingrove New Century Project (KNCP), the application stated:

> *'We will use our collection to enrich people's understanding of the world and themselves'* (KNCP 1999: 4).

It was to be accomplished through a number of key objectives. They were to:

- Work with the strengths of the collection to communicate across time and cultural diversity to inspire people of all ages to learn and understand more about themselves and the world we live in
- Restore the building to as near its original condition as possible and introduce new displays in ways which respect the architecture
- Build upon the museum's tradition as a social place, owned by the people of Glasgow
- Connect to the lives of our multicultural audience by being flexible and inclusive to create a genuinely visitor-centred museum and
- Reduce the proportion of the building devoted to functions which can be carried out elsewhere and maximise the space devoted to access (KNCP 2001: 7).

In order to achieve these goals the project team proposed to increase and renew all of the museum display space, conserve the collections, develop a new off-site storage facility and conduct essential maintenance to the building itself. The project was granted in January 2002 by the HLF (R. Sutcliffe pers. comm. 22.8.2007). The total contribution to the KNCP by the HLF was £12,793,000, an increase of £4 million to the original bid (L. Regan pers. comm. 31.1.2008). The new museum design had to be 'both flexible and responsive, a radical change from the old methods of display and interpretation' (Glasgow Museums 2008a). The designated galleries of art, natural history, archaeology and sculpture were

replaced by diverse galleries which brought together assorted objects and specimens from the collections under new themes. This new approach presented 'stories' centred on general themes such as 'Conflict and Consequence' and 'Scotland's Wildlife'. These 'stories' would then allow the gallery spaces to become 'flexible' with changing objects, interpretations and gallery layouts (Glasgow Museums 2008b). Written within the opening pages of the HLF bid, the project team recognised the need to refresh and update the displays due to the high amount of repeat visitors to the museum. In the document they promise to 'reinterpret or replace eight stories displays in this way each year' (KNCP 1999:11).

5.2.4 New display approach

As with most Victorian museums, collections tend to be incomplete and eclectic with bequests and donations of a variety of objects and specimens being acquired over many years. Although the collections of biology held at Kelvingrove are vast (600,000 insects, 13,000 bird skins, 6,000 eggs, 20,000 herbarium specimens, etc.) it was felt that they were not being displayed or interpreted to their best advantage or in a way in which the public could relate to them (KNCP 1999: 70). Project champion, Mark O'Neill (2006b), conceived of a new Kelvingrove where a 'storytelling approach' would revolutionise the museum's displays by amalgamating objects and specimens from within the museum's varied collections. The interpretation of these collections meant that the museum would tell stories about objects and specimens and group these stories into broad themes – working with the strengths of their collections – at the same time as recognising that the collections were piecemeal and could not 'summarise entire disciplines' (KNCP 1999: 9). Instead they would 'concentrate on telling the best stories…with the best objects' (Ibid 1999: 9). One of the major objectives for the new museum was to develop a flexible display system, which would allow for the furniture to be reconfigured in a number of combinations. Working with a number of contractors, the museum issued a brief for the flexible display system which would 'incorporate audio, sequenced lighting, computer control, integral display lighting, etc.' (Glasgow City Council 2001a: 2). The final system was developed using measurements from the building itself. The senior learning and access curator explained that:

> 'the designers went to a huge amount of effort. They went round and measured the architectural details… the skirting, the dado, all of the ceiling design, the coving and everything else and it was on that basis

> that they came up with those measurements that are used throughout the building like the modular display system so it's all built up of… modules of 245 mm so 245, 490 and then… 735 and then the horizontal measurements are all units of 400, 800, 1200 and so on' (S. Latimer pers. comm. 14.5.2008).

In order to redevelop the museum's displays, working with the new storytelling approach, a team structure was developed to map out strands of communication and working relationships within the institution (Figure 5.5).

Curators for the project sat within the display production teams and were answerable directly to their corresponding display senior production teams. There is no direct communication between the display production teams and the project team. The project team at Kelvingrove consisted of a group of 4 to 5 people who represented different sections of the museum's staff, for example, conservators, curators, education officers, etc. The project team members were responsible for making design decisions with input from many sources including the display senior production teams, the external project managers, design team and the project manager.

However, between 1999 and 2000 a Best Value Review (BVR) was undertaken to 'develop policies' for the Glasgow museum network 'and in doing so to maximise their contribution to social inclusion, lifelong learning, economic development and tourism' within the Glasgow Museums organisation (Glasgow City Council 2000: 3). The results of the BVR led to a restructuring of the staffing organisation within the museum, although this was somewhat disruptive as it occurred in the midst of the redevelopment project (A. McReavy pers. comm. 6.8.2008; Glasgow City Council 2001b: 163). The recommended restructuring meant that commonplace divisions within the museum were reorganised to create new positions and new departments:

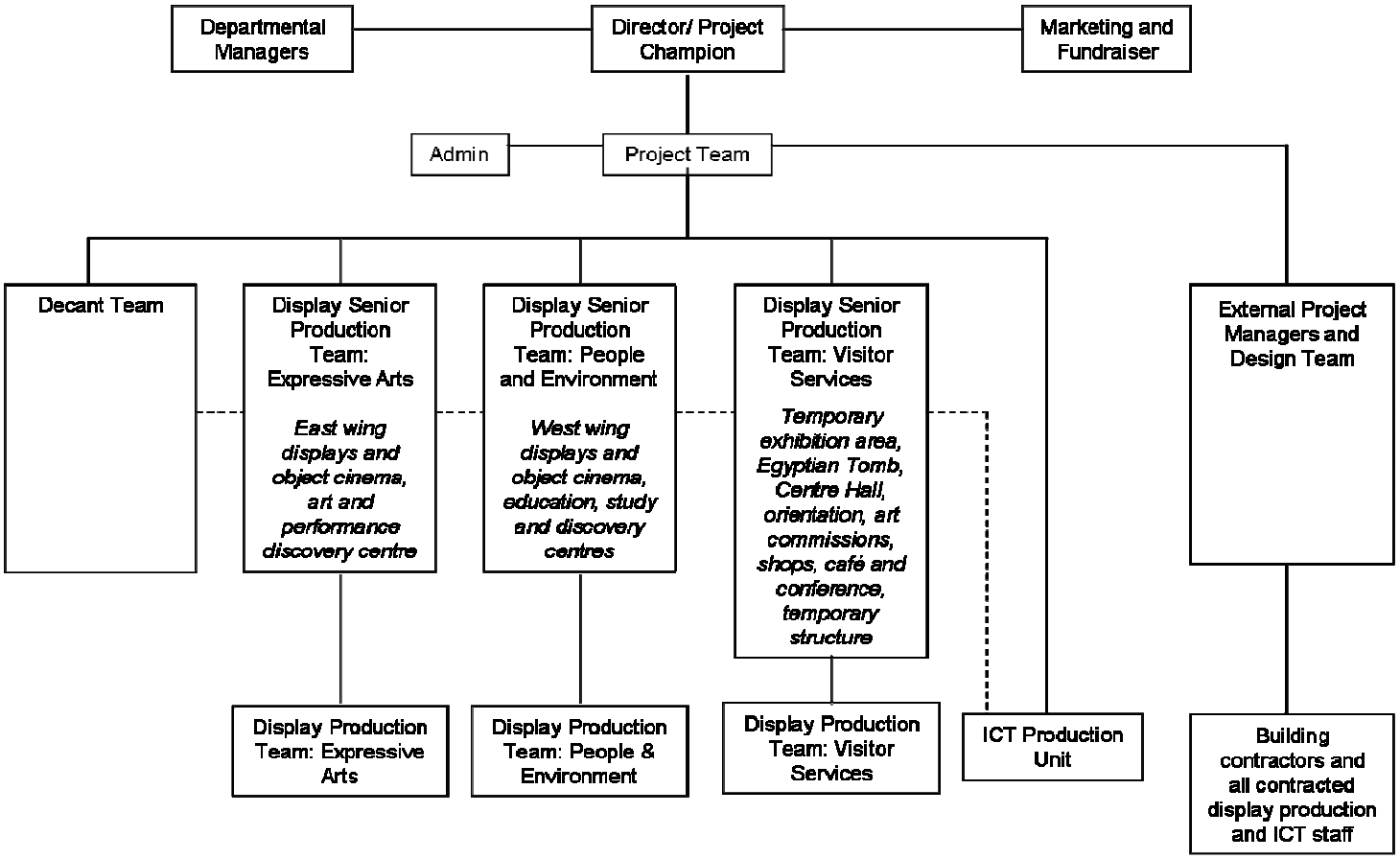

Figure 5.5 Project management structure for Kelvingrove New Century Project. Adapted from KNCP 1999: 49

> ‘we went from being largely dominated by curators in terms of numbers and having one education member, seconded from the education service, to having I think 40 on the education and access team, a research team, increased curatorial team, increased information team and that sense that all of whom, the education and access team were specifically called curators on the same grade to make sure that there was parity within the service’ (A. McReavy pers. comm. 6.8.2008).

In an interview with the research manager for the natural history division the restructuring exercise was explained: ‘part way through the [redevelopment] process we were restructured and we then had research departments… We’ve got a research manager for natural history, art, science and technology and history with a senior research manager on top of that’ (R. Sutcliffe pers. comm. 22.8.2007). Curators, therefore, were directed by research managers and sat within four main departments. Those departments and team members were supervised by one overarching senior research manager (Figure 5.6).

The research manager continued by explaining how this restructuring affected the team members’ involvement in the redevelopment, ‘the idea was that the research managers would lead a quarter of Kelvingrove each and manage the content for the new displays. So we were split into what we call DDTs, Display Development Teams. I was DDT3 which basically covered the ground floor on that side so it was basically the natural history but I also had “Ancient Egypt” and “Glasgow stories”’ (R. Sutcliffe pers. comm. 22.8.2007). The reorganisation drew together different discipline team members; DDTs had the scope of wide-ranging curatorial expertise and in-depth sector knowledge, for example natural history curators working with social history educators. The restructuring of staff and the amalgamation of duties and responsibilities meant the museum could produce a more competent, holistic interpretation of the collections through a variety of stories.

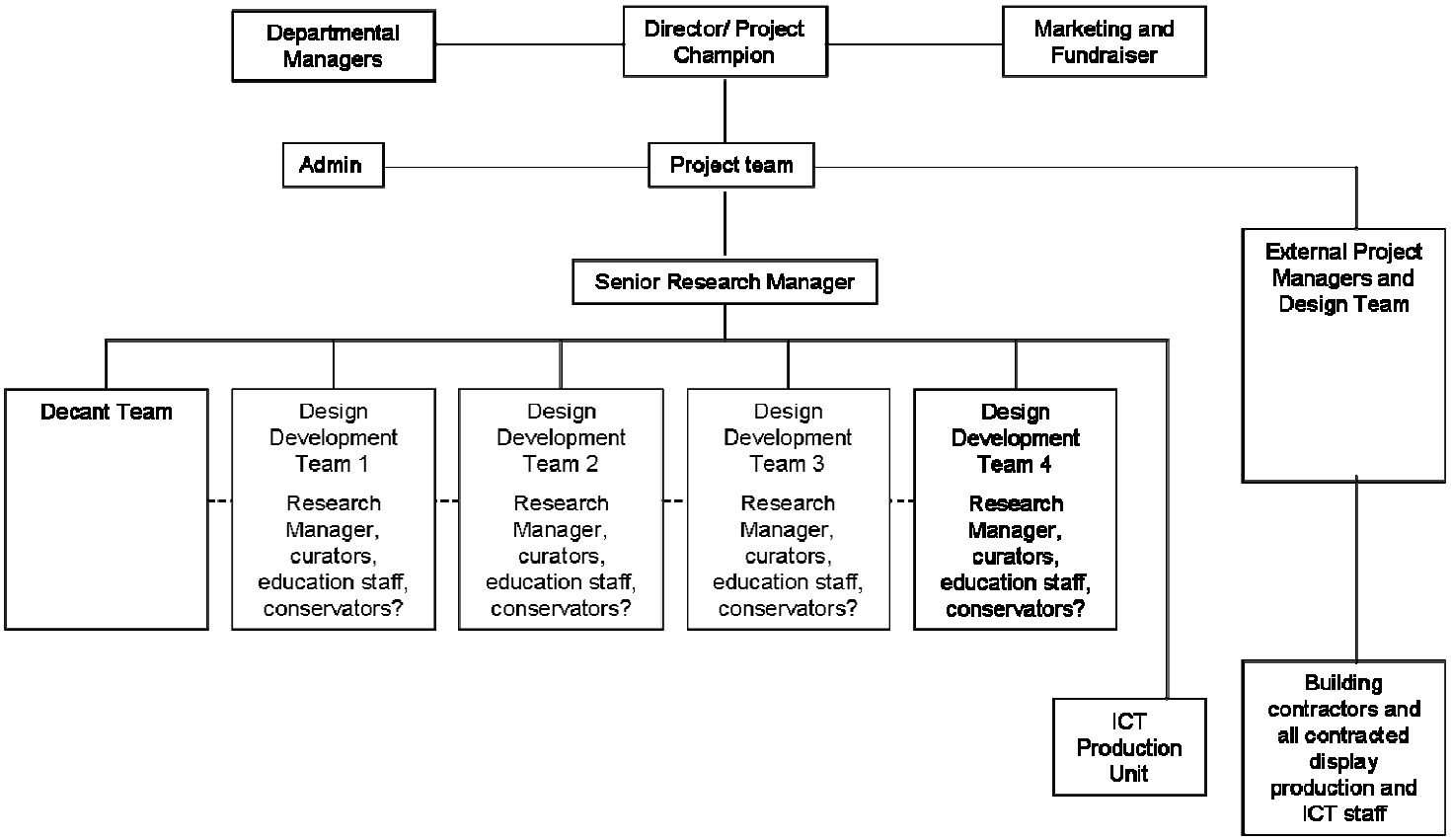

Figure 5.6 Revised project management structure for Kelvingrove New Century Project. Adapted from KNCP 1999: 49

5.2.5 Audience groups

Kelvingrove project staff identified target audiences which they would use to decide on themes and stories for the museum's galleries. Each visitor group was given a profile; what type of display they preferred, the interpretation used on the galleries, the pace and ambience of the galleries, etc. (Table 5.1).

	Target group	Display profile
1	Family groups with children under 8	Aesthetically and ergonomically appealing and comprehensible to young children and adults, interpretation and activities for small goups (2-4), low level objects and interpretation (0-0.6m), simple interactive exhibits and activities. The choice of finishes used will be tactile, easy to clean and robust.
2	Family groups with children under 8	Aesthetically and ergonomically appealing and comprehensible to adults and children, interpretation and activities for small groups (2-4), medium level objects and interpretation (0.6-1.2m), interactive exhibits.
3	Teenagers/young adults	Subject matter relevant to young adult's lives, sophisticated and modern interpretation, hi-tech, interactive, suitable for single visitors and small groups (1-3).
4	School groups (5–14)	Subject matter relevant to school curriculum (5-14), interpretation and activities for larger groups (6), medium level objects and interpretation (0.6-1.2m), interactive exhibits
5	Knowledgeable visitors	The structure of these displays will enhance the experience of the self-directed learner. In-depth interpretation and activities for single people or small groups (1-3), more likely to appreciate a traditional museum aesthetic and themes.
6	Tourists	Interpretation available in main tourist languages, higher use of images and universal symbols. Clear orientation between key objects in the collection in different galleries is important.
7	Sensory impaired	All displays should cater for sensory impaired and disabled people. However, displays for this audience must incorporate enhanced information for all senses e.g. easily accessed audio information, objects or reproductions for handling, raised diagrams and graphics, synthetic and natural smells, etc. acoustic control and seating should be accommodated into the overall design to allow visitors to listen to audio segments and explore obejcts without distraction.
8	Elderly (people over 65)	More seating and benches with back rests and armrests will be provided in these areas. Subject matter will aid reminiscence, more reflective and quieter spaces. Further information will be provided in different formats, more accessible to visitors who don't respond to screen based information.

Table 5.1 Target groups and gallery profiles used by KNCP team. Taken from KNCP 1999: 9-11

Each story, with accompanying interpretation, within an individual gallery was determined for a specific audience, although that did not mean that the story was not irrelevant to other visitor groups.

5.2.6 New displays of biology

In 2001, exhibition designers were offered the opportunity to tender for the project. A brief was devised by the project team at Kelvingrove to inform

designers of the new approach the museum wanted to take with regards to display and interpretation. This included thirteen objectives, devised by the core project team from best practice museum standards and council goals, to fulfil the museum's aim. They were to:

1. Attain a quality threshold in keeping with the importance of the building and the collections
2. Meet standards of display for access, conservation, security and health and safety
3. Deliver robust display structures, interpretive techniques and technologies that will be interesting and relevant throughout their expected twenty-year lifespan
4. Develop design solutions that can be applied to the diverse display needs of the objects in the collection
5. Achieve the display targets for both objects and interpreted paintings
6. Provide a range of different visitor experiences
7. Combine lighting, aesthetics and audio (if used) to provide a range of gallery atmospheres
8. Create displays that respond to the needs of different target audiences
9. Manage the visitor flow by developing an appropriate orientation strategy
10. Develop a flexible display approach which allows the displays to be altered and reconfigured ensuring that the objects on display can be rotated in a resource effective way
11. Achieve successful integration of objects and display interpretation
12. Respond to long-term museum issues by assessing maintenance, running costs, and energy efficiency
13. Correspond with key city council objectives, social inclusion objectives and best value review objectives (Glasgow City Council 2001c: 5).

With the new approach to display and contemporary objectives, the traditional galleries of biology were replaced by multidisciplinary, narrative galleries. However, the majority of the biological collections were situated on the ground floor of the West 'Life' wing of the museum clustered around 'nature' themes.

Life: West court

The 'spitfire' court, as indicated on the floor plans for Kelvingrove (Figures 5.7 and 5.8), houses a display called 'animal superlatives' which is an amalgamation of the biggest, fastest, deadliest, animals on the planet (Figures 5.9 and 5.10). They are exhibited on open display with interpretation in the form of specimen labels and text panels.

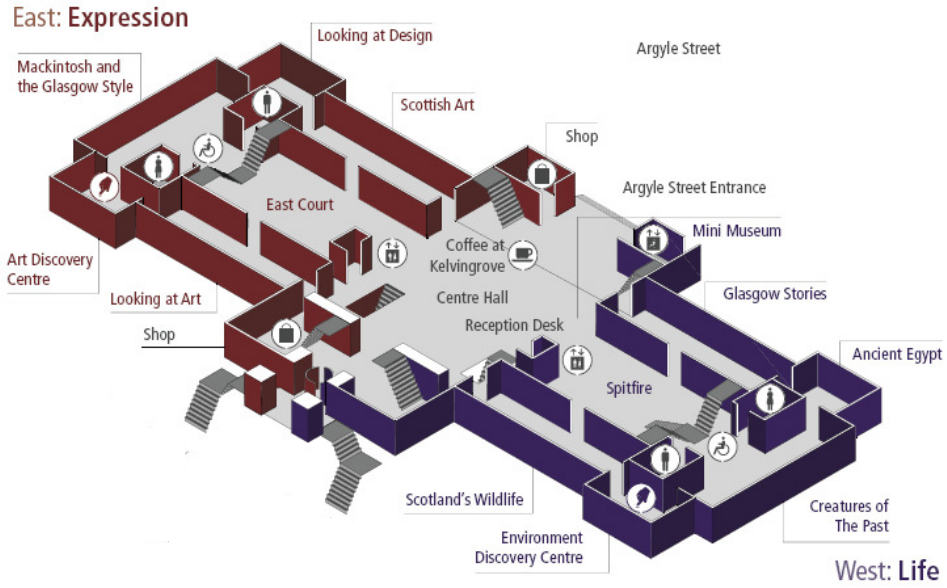

Figure 5.7 Ground floor plan of Kelvingrove. Culture and Sport Glasgow ©

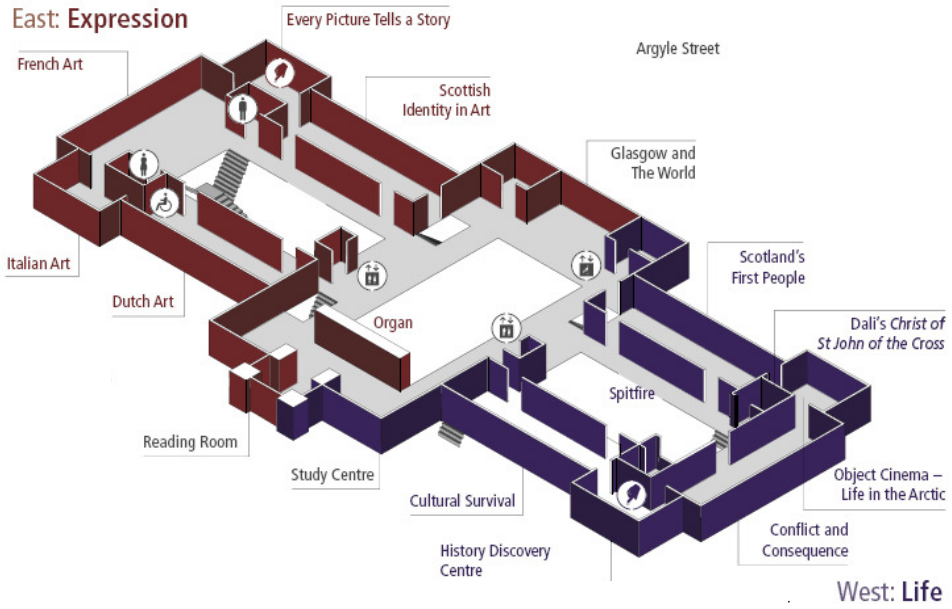

Figure 5.8 First floor plan of Kelvingrove. Culture and Sport Glasgow ©

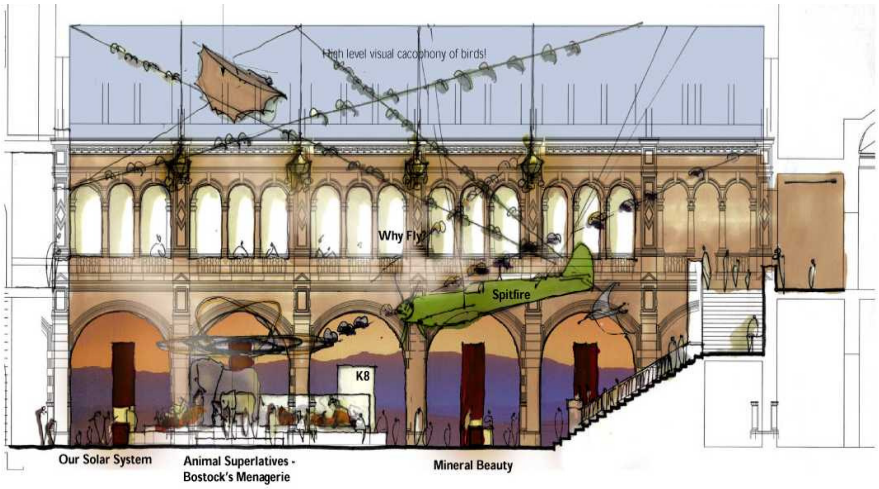

Figure 5.9 West: Life court for Kelvingrove, 2004. Event Communications Ltd ©

Figure 5.10 'Life' court exhibiting 'Animal Superlatives' and 'Why Fly' stories. Paddon ©

Scotland's Wildlife

This gallery incorporates stories about Scottish wildlife ranging from the introduction of foreign species in 'Aliens' to famous fish in 'Life in a Scottish Loch'. Taxidermies are presented on open display in the centre of the gallery using modular plinths whilst the more delicate specimens are presented behind

glass in a variety of different sized cases (Figure 5.11). The gallery has a multitude of interpretation: visitors can use interactive touchscreens to learn about the extinction of the Great Auk and then come face-to-face with a specimen, children can crawl through tunnels under the displays to find hidden creatures and audiences can open drawers to investigate species more fully.

Figure 5.11 'Scotland's Wildlife Gallery'. Paddon ©

Environmental Discovery Centre

The Environmental Discovery Centre is one of three discovery centres within the museum; the others concentrate on history and art. Each subject-specific centre offers visitors the opportunity to learn about objects and specimens in a hands-on environment (Figures 5.12 and 5.13). Most of the biological collections are represented in the centre, including botanic collections, and a beehive allows visitors to view the bees at work.

Figures 5.12 Display of seeds and skeletons in the Environmental Discovery Centre. Paddon ©

Figure 5.13 Typical hands-on bench in the Environmental Discovery Centre. Paddon ©

5.2.7 Exhibition designers for Kelvingrove

The original designers (whose identity cannot be disclosed) worked with the museum redevelopment team from 1999 until their dismissal in 2003. Speaking with one of the project team, the reason given for their release was that 'they had some very interesting designs but the building as a whole did not hang together' (R. Sutcliffe pers. comm. 13.5.2008). Further to this, no information was gleaned about the original designers.

Involved from the outset of the project, Event Communications were appointed to design the new Study Centre and the three Discovery Centres. However, in October 2003, the museum team approached the company to take over the designs and redisplay process for the whole museum (E. Dugdale pers. comm. 5.9.2008).

With their main offices based in London, the company has completed a number of prestigious projects including the Imperial War Museum North galleries for which they won the *Archi Tech AV 2003 Award* (Event Communications 2009a).

An interview with the team leader for the project ascertained that she had had no experience of presenting biological collections prior to the Kelvingrove redevelopment but had had experience of working with multidisciplinary galleries which had included 'bits and pieces'. Event Communications has worked on a number of high-profile projects including the Earth Science galleries at the Natural History Museum, London (Event Communications 2009b).

5.3 The Hancock Museum renamed as The Great North Museum: Hancock, Newcastle upon Tyne

Quick facts
Museum originally opened: 1884
Year of HLF application: 2004
Funding from HLF: £9.246 million
Total funding for project: £26.246 million
Museum closed for redevelopment/ reopened: April 2006/May 2009
Designers of displays: Casson Mann

5.3.1 Origins of the museum

The museum has a chequered history owing to complex ownership, and lease agreements, of the building and collections. In 1793 the Philosophical and Literary Society of Newcastle was established by subscription as a 'conservation club' (The Lit and Phil ND). The fledgling natural history collections at the Hancock were amassed during the 18th century and then in 1823 an opportunity arose to purchase George Allan's original biological collections (Tyne and Wear Museums 2008a). Having acquired his collection, the society displayed their biological acquisitions at the new offshoot museum of the Natural History Society of Northumberland, Durham and Newcastle in 1834. In the ensuing years, the Hancock brothers, John and Albany, became active members of the society contributing naturalist knowledge, expertise and specimens. As with many Victorian museums, the collections expanded and outgrew the museum building. John Hancock was also 'instrumental in the campaign' to set up a new Newcastle Museum and in 1884 the museum moved to its current site near Barras Bridge. Following John Hancock's death in 1890, the Society decided to rename the Newcastle Museum in honour of John and Albany Hancock (The Lit and Phil ND).

With over 500,000 specimens, over 1,000 of which are type specimens, the natural history curators had many specimens to select from to place on display (Culture24 2009). Significantly, these collections in their entirety gained '*Designation'* status (only applicable to collections in English museums) in 1999 (MLA pers. comm. 29.7.2009), elevating their importance nationally and internationally.

The museum building is also important having gained Grade II* listed status, which means that it is particularly significant and can be considered of interest both regionally and nationally.

5.3.2 Ownership of the collections

The collections' ownership rested with the Natural History Society of Northumbria from the early 1800s until 1959 when the Society 'entered into an agreement' with the University of Newcastle. The University agreed to lease the collections and building for 99 years (S. Mclean pers. comm. 8.1.2008) from the agreement date. However, in the 1990s, the 'museum entered a twilight period of nobody really wanting it'. With subsequent closures of the geology and biology departments the University felt that the running of the museum and maintenance of the building would be best passed over to Tyne and Wear Museums, a regional museums service in the Northeast of England. A management package, or 'Service Level Agreement', was put in place to realise the potential of the collections of the Society, increase visitor numbers and decrease capital spending (Tyne and Wear Museums 2008a). Thus, a tri-partite agreement was reached between all three organisations to run the museum, safeguard the collections and maintain the building (S. Mclean pers. comm. 8.1.2008).

5.3.3 Previous display approaches

Before the closure of the Hancock Museum in 2006, the museum had two main galleries dedicated to the biological collections; the 'Magic of Birds' gallery and 'Abel's Ark', and a natural history gallery called 'Living Planet'.

The 'Magic of Birds' gallery was a feature of the first floor galleried area (balcony area seen in Figure 5.14) and ground floor gallery. The bird gallery, as it was more commonly known, displayed a vast collection of native species and some foreign species and illustrated stories of breeding, migration and bird folklore. Specimens were presented in a mixture of thematic displays, including dioramas, in both wall-mounted and free-standing cases. This gallery was particularly important for the Natural History of Northumbria Society members aiding in ornithological identification.

Abel's Ark was situated on the ground floor in a long corridor of the museum (Figure 5.15). In the 1980s, curators came up with an idea which would

incorporate trophy heads and other taxidermies donated to the museum by Abel Chapman, a game-hunter of the early twentieth century, into a museum display. Abel's Ark was a fun interpretation of a Noah's Ark boat behind a glass partition which ran down the length of the corridor. Trophy heads were used to inhabit the Ark's 'windows' whilst many species of wild, exotic creatures surrounded the Ark. The display was 'by far the most popular gallery' (S. Mclean pers. comm. 8.1.2008) but particularly appealed to younger audiences: '3-6 year olds got a lot from Abel's Ark because in a way the interpretation was very minimal which encouraged those lovely conversations that would go on between the adults and the children' (G. Mason pers. comm. 10.1.2008).

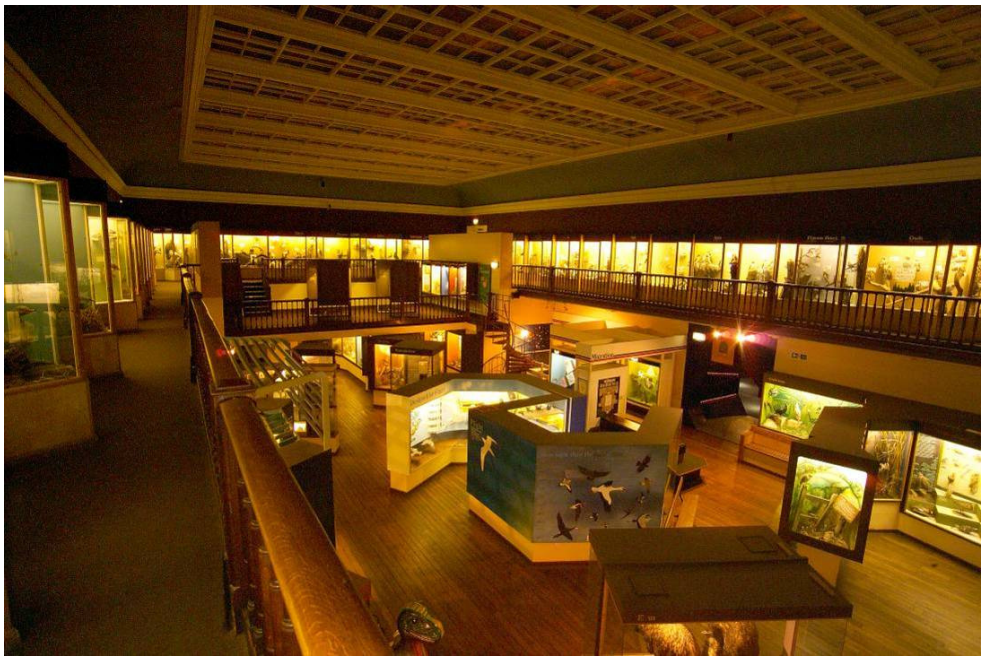

Figure 5.14 'Magic of Birds' galleries, The Hancock Museum, Newcastle upon Tyne. Tyne and Wear Museums ©

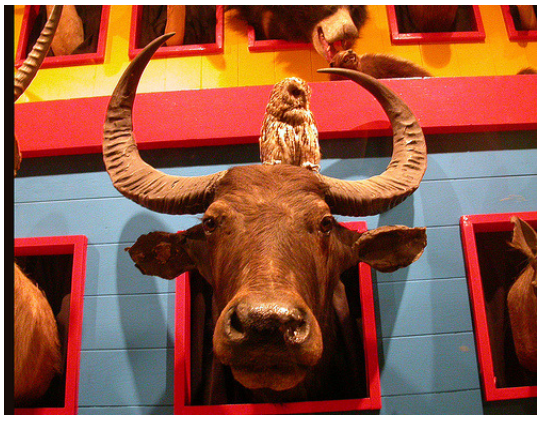

Figure 5.15 Abel's Ark, The Hancock Museum. Flickr ©

The Living Planet gallery was opened in the late 1990s to present environmental issues using both biological and geological specimens. The collections were also used to illustrate extinction, endangered species and the importance of being environmentally-friendly. It was popular with school groups and linked well with parts of the national curriculum.

The museum also presented live animal exhibits including an active beehive and tanks housing giant centipede.

5.3.4 Project background/ HLF bid

> *The project is to increase access to the following heritage sites; Hancock Museum (Grade II* listed), Museum of Antiquities collections, Shefton Collection and the Hatton Gallery. The project seeks to provide new opportunities for learning and engagement with the heritage, including the formation of a new joint library* (HLF 2005b).

In 2004 an application was made to the HLF, in support of a redevelopment project, for £8.75 million. This application proposed a number of measures to bring the Hancock Museum up-to-date and inline with other 21st Century museums. The mission statement for the project explained the rationale behind the redevelopment and also what it hoped to achieve:

> 'The development of the GNM arises from the unique opportunity to combine the collections from four of the region's finest museums, namely:
>
> - The Natural History Society of Northumbria's collections of Natural History and World Cultures currently located in the Hancock Museum
> - The Society of Antiquaries' and University of Newcastle's collections of British and Foreign archaeology located in the Museum of Antiquities
> - The Shefton Museum of Greek Art and Archaeology
> - The Hatton Gallery's fine collection of African sculpture and fine art.
>
> Bringing together the collections has enabled exploration of their potential for inter-related interpretation. The relationship of both

> natural history specimens and archaeological objects to the landscape, and the impact of humans upon the land, provides an interesting starting point from which to evolve interpretative ideas' (Casson Mann 2006a).

The amalgamation of the collections also raised another major issue for the museum: its name. Before the project was underway, heated discussions between the society and the project team took place over the renaming of the museum. Several suggestions were put forward but the final decision, after much consultation, was made and it will be known hence as *The Great North Museum: Hancock.*

The project would also fund a three-storey extension to the Hancock Museum (Figure 5.16) which would allow for improved positioning of a temporary exhibition space and learning suites. It would also allow for new staff spaces and a library for Natural History Society of Northumbria members (Tyne and Wear Museums 2008b: 34).

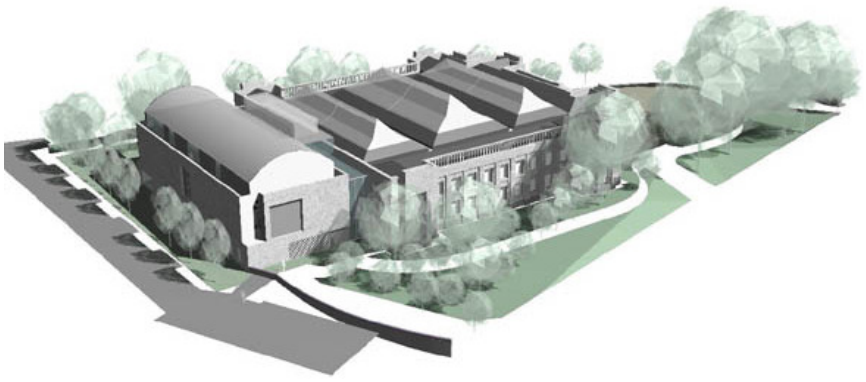

Figure 5.16 Great North Museum: Hancock, Newcastle upon Tyne. Concept design for the original building (pyramid roofed section) and extension (arched roof section). Terry Farrell and Partners ©

From the outset the management of the project was based on the PRINCE2 method (see Curtis and Cobham 2008; Office of Government Commerce 2002, 2009). This 'process-based project management method' has become a UK Government standard for project management and was adopted for the course of the redevelopment (Curtis and Cobham 2008: 594).

5.3.5 Team structures

PRINCE2 suggests a hierarchy of staffing throughout the project and strict lines of communication:

> 'It's a very structured communication system… There's a very detailed PEP (Project Execution Plan) which details how communication must work through the project in the different phases of the project… there are conventions in terms of the way communication routes work' (S. Mclean pers. comm. 8.1.2008).

Taken from the HLF stage II application the project management structure is show in Figure 5.17.

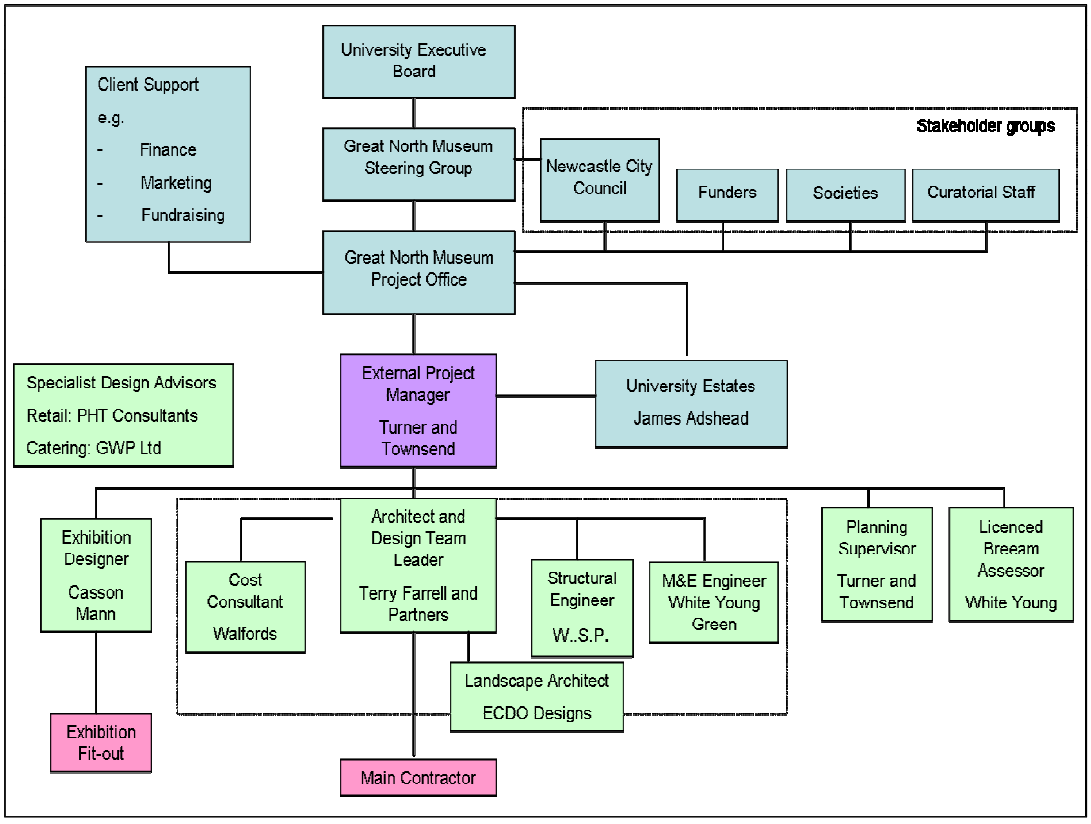

Figure 5.17 Project management structure revised after HLF stage I application. Taken from Tyne and Wear Museums 2006: 253

5.3.6 Audience groups

Following consultation with museum and non-museum users, the museum project team identified two main visitor groups from which to focus gallery interpretation. They were: families and school groups. The museum team also had to bear in mind the different stakeholders in the project, namely the Natural

History Society of Northumbria and the University of Newcastle. Displays would therefore have to provide appropriate levels of information to appeal to as wide an audience as possible.

5.3.7 New displays of biology

Early designs for the new museum show two galleries dedicated to biological collections (Figures 5.18 and 5.19). The first is called 'Living Planet', which will display specimens from across the globe, and is located in the south gallery. The second is 'Natural Northumbria', which focuses on local wildlife and is situated in the central gallery on the first floor.

Living Planet

From the outset the museum project team were clear that they wanted the biological collections to 'wow' audiences. The Living Planet gallery, which is geographically the first of eleven galleries at the Great North Museum (South Gallery), aimed to present 'the diversity of life throughout the world'. The museum project team briefed the designers, Casson Mann, to create a visual spectacle which would illustrate the 'size and scope of the Hancock's collections'. In doing so the design had to allow for the introduction of 'detailed display stories', so that visitors could learn about the animals on display as well as appreciate the specimens aesthetically (Casson Mann 2006a: 13 and 39).

After the development of a number of options, the concept of a 'bio wall', which was to span two galleries vertically, was chosen (Figure 5.20). It was designed to allow 'the visitor to move from the spectacle of the front view of the wall (a celebration of the bio-diversity of life) to more didactic investigation of the fundamental principles of bio-diversity on the rear of the display' (Casson Mann 2006a: 38). The 'wall' was made up of boxes from which nature was literally and metaphorically escaping.

Figure 5.18 Ground floor plan of Great North Museum. Farrells ©

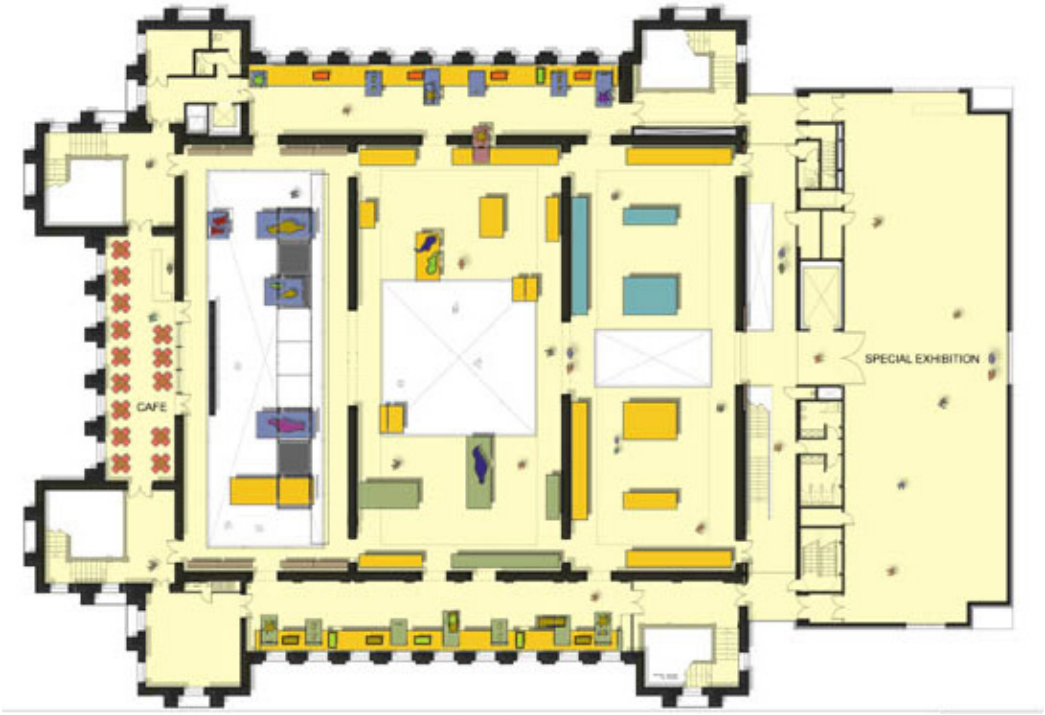

Figure 5.19 First floor plan of Great North Museum. Farrells ©

Figure 5.20 Concept illustration of the 'Bio wall' in the 'Living Planet' gallery. Casson Mann ©

The bio wall was organised into contiguous climatic regions; polar, temperate, tropical, desert (horizontally) and habitat lifestyles; sea, land and air (vertically). This allowed for the display of a mixture of specimens from which to draw comparisons. These comparisons were the basis for the interpretation of the wall and included the themes:

- Habitat
- Survival
- Feeding habits
- Adapting to environments
- Camouflage
- Skeletons and bio-mechanics

The specimens and themes could be explored through a number of interpretive media; investigative drawers, interactive databases, images and film, labels and interactive binoculars (Casson Mann 2006a: 38). The designers also propose a lighting and sound-scape scheme to bring ambience and a sensory layer to the gallery.

Natural Northumbria

This gallery was to be situated on the first floor in the central display space. A large void in the floor would enable visitors to gaze down into the 'Hadrian's Wall' gallery. The Northumbria gallery was divided into four sections which would tell the story of local habitats using predominantly local native species, including botany, to explore themes which included: farmlands, moorlands and woodlands (Figure 5.21). Each theme related to a case study within the region of Northumbria, for example, the Seas and Coasts section focused on Lindisfarne (Figure 5.22). Interpretation in the gallery would take the form of text panels, interactive maps, manual interactives and specimen labels.

Figure 5.21 Concept drawing of 'Natural Northumbria' gallery. Casson Mann ©

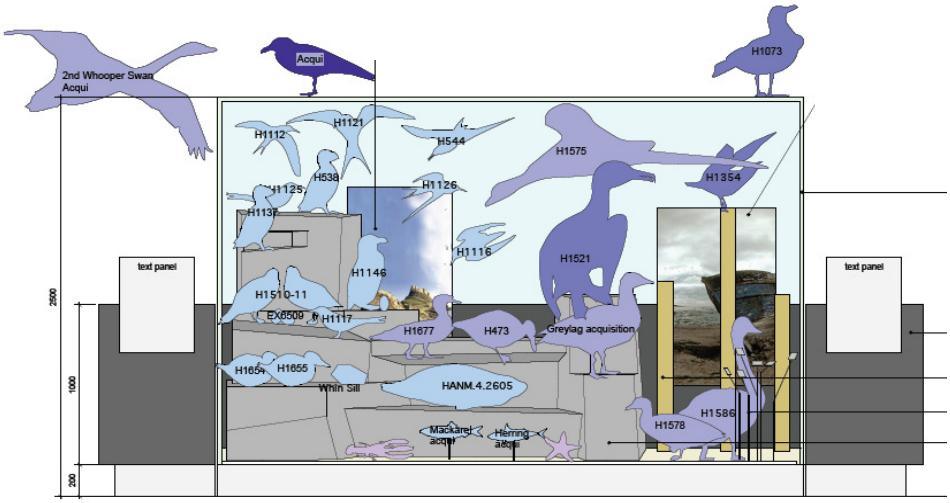

Figure 5.22 Concept drawing for 'Seas and Coast' case (Lindisfarne case study) 2007. Casson Mann ©

5.3.8 Exhibition designers for the Great North Museum

Since the foundation of the design company in 1984, Casson Mann have received numerous awards for installations and exhibitions within museums. Most notably were the 'British Galleries' at the Victoria and Albert Museum and the Lifeline Table in the Churchill Museum (Imperial War Museum), both of which are located in London. Casson Mann 'offer creative responses to all types of projects and are sufficiently flexible to be able to design galleries, whole museums, temporary and travelling exhibitions, master planning and interpretative strategies' (Casson Mann 2009: 1).

The designers from Casson Mann, in particular Jon Williams, were responsible for co-ordinating and communicating with the architects about display designs and ensuring that the project was not working at cross-purposes. The Great North Museum Project team employed world famous Sir Terry Farrell as architect for the redevelopment of the existing building and to create the extension which would house the new facilities including the learning suite and Society libraries (Olcayto 2009: 1).

Despite their vast experience as a museum design company, the senior designer for Casson Mann, Jon Williams, acknowledged that the company had not been involved in the redisplay of biological collections prior to their work with the Great North Museum team.

5.4 Royal Albert Memorial Museum, Exeter

Quick facts
Museum originally opened: 1869
Year of HLF application: 2004
Funding from HLF: £8.922 million
Total funding for project: £14.5 million
Museum closed for redevelopment/ reopen: Dec. 2007/June 2010
Designers of displays: Ralph Appelbaum Associates

5.4.1 Origins of the museum

The Royal Albert Memorial Museum (RAMM) was opened in August 1869. The building, which has dominated Queen Street for the last 150 years, sits in the heart of Exeter and was designed by local architect John Hayward (Figure 5.23). For the founding fathers of the institution, it represented the archetypal Victorian institution where education was the utmost motivation. Moreover, the building

housed multiple institutions, including the city library, the School of Art, the School of Science, a reading room and the collections of the museum. The various disciplines were assembled in 'the hope that each would nurture the other' (Exeter City Council 2003: 3).

Figure 5.23 Royal Albert Memorial Museum. Front elevation showing main entrance on Queen Street, Exeter. Flickr ©

The institution continued to grow and develop with extensions to the building and additions to the museum collections. In the twentieth century the museum became a standalone institution with the other cultural institutions moving into independent buildings throughout the city. The RAMM is a Grade II listed building denoting its special architectural and historical interest.

5.4.2 Previous display approaches

The 'World Natural History Gallery', which was constructed during the 1970s and 80s, was a large room with cases representing animals from every continent. Specimens were presented using continental themes in Victorian-style wall-mounted and free-standing cases (Figure 5.24). The centrepiece of the gallery was an open display of African specimens displayed in front of a painted backdrop (Figure 5.25). The gallery also featured a tiger framed in a diorama of natural habitat. The case carried the inscription 'Tiger, *Felix tigres Linn.,* shot in Nepal by King George V in 1911 and presented by his majesty to this museum 1915'. The groupings of animals in this gallery 'had a rather friendly intimacy, a charm, a bit of a personality', which continued to attract visitors until the closure of the museum in 2007 (K. Osborne pers. comm.

22.8.2008). Interpretively, the gallery presented individual specimen labels which gave details of distribution and behaviour, and displayed panels of information about the thematic animal groupings. The gallery did not use any multimedia to present the habitat groups but education staff had developed interactive children's boxes and activity sheets to aid with learning and interpretation.

Figure 5.24 Victorian cases in the 'World Natural History' gallery, RAMM. Paddon ©

Figure 5.25 Open display in the 'World Natural History' Gallery, RAMM. Paddon ©

Adjacent to the World Natural History gallery, Gerald the Giraffe stood alone in a transitory gallery space. The mascot for the museum, and very popular with visitors, Gerald his always stood in his own gallery since arriving at the museum in the 1930s. However, the redevelopment sees Gerald being moved from his original home to the upper floor of the museum and mingling with other exhibits. The staff are not sure how visitors will feel about this new-found position for Gerald.

The second of the main biology galleries was the Sladen Gallery (Figures 5.26 and 5.27) located on the first floor of the museum. The collection was installed in specially designed cabinets and cases in 1903 and has remained in its original state to the present day. A Victorian gallery dedicated to a collection of echinoderms, blastoids, cystids, crinoids, shells and igneous rocks (Rowley 1910: 65), it has retained its original labels and interpretation. However, modern interpretation accompanies the specimens in the form of an interactive computer. This gives visitors the opportunity to interrogate the collection as they are given more detailed information about the specimens on display. The new biology galleries are being moved to the first floor to incorporate the Sladen Gallery, which will remain unaltered.

Figure 5.26 The Sladen Gallery, RAMM. Exeter City Council, 2005. Paddon ©

Figure 5.27 Interactive computer in the Sladen Gallery, RAMM. Exeter City Council, 2005. Paddon ©

5.4.3 Project background/ HLF bid

The project will make physical changes to the Museum, making the building more 'legible' to visitors as well as to include facilities that

> *meet modern-day expectations. The collections will also be re-displayed, to emphasise the contemporary relevance of heritage and reflect and respond to change. A clear narrative will link differing aspects of the collections with associated 'branches' which encourage in depth exploration of particular interests and return visits; recognising different learning styles; different perspectives and use 'voices' of individuals and communities to promote a sense of shared involvement. More of the Museum's collections will be accessible, increasing the range and depth of the Museum resource. IT will be used as a way of making information further available. A Learning Suite will be used by people of all ages and backgrounds for activities, enhancing their experience of the Museum* (HLF 2005c).

In 2004 the RAMM, together with Exeter City Council, put together an HLF application for the redevelopment of the entire museum excluding two permanent galleries which would remain *in situ* due to recent redisplay*;* the 'Sladen Gallery' and the 'World Cultures Gallery'. This proposal incorporated plans for a new entrance at the rear of the museum and the redisplay of its major collections.

The project was approved in January 2005 with the initial exhibition designs being developed by external, international museum designers, Ralph Appelbaum Associates (RAA). Prior to the redevelopment, the Sladen Gallery was a stand-alone biology gallery on the first floor. This gallery's permanency, coupled with the want to create an uninterrupted 'Devon and Exeter Gallery' on the ground floor, acted as the starting block for the redevelopment of the biological galleries and prompted their amalgamation on the first floor of the museum.

The second stage of the HLF application, submitted in September 2006, sought to solidify the details of the proposed redevelopment. The application not only reiterated the project aim but also presented the objectives by which to achieve this aim and the new display approach which the staff intended to implement.

The aim recorded in the HLF application documents was to: 'develop the Royal Albert Memorial Museum as a dynamic 21st Century regional museum, which

interprets the past, enriches the present and responds to the future' (Exeter City Council 2006: 2).

Four main objectives were developed to achieve the aim for the project and are represented in diagrammatic form (Figure 5.28). Working to this aim and the numerous objectives, the team worked up a new approach to the display of the RAMMs collections.

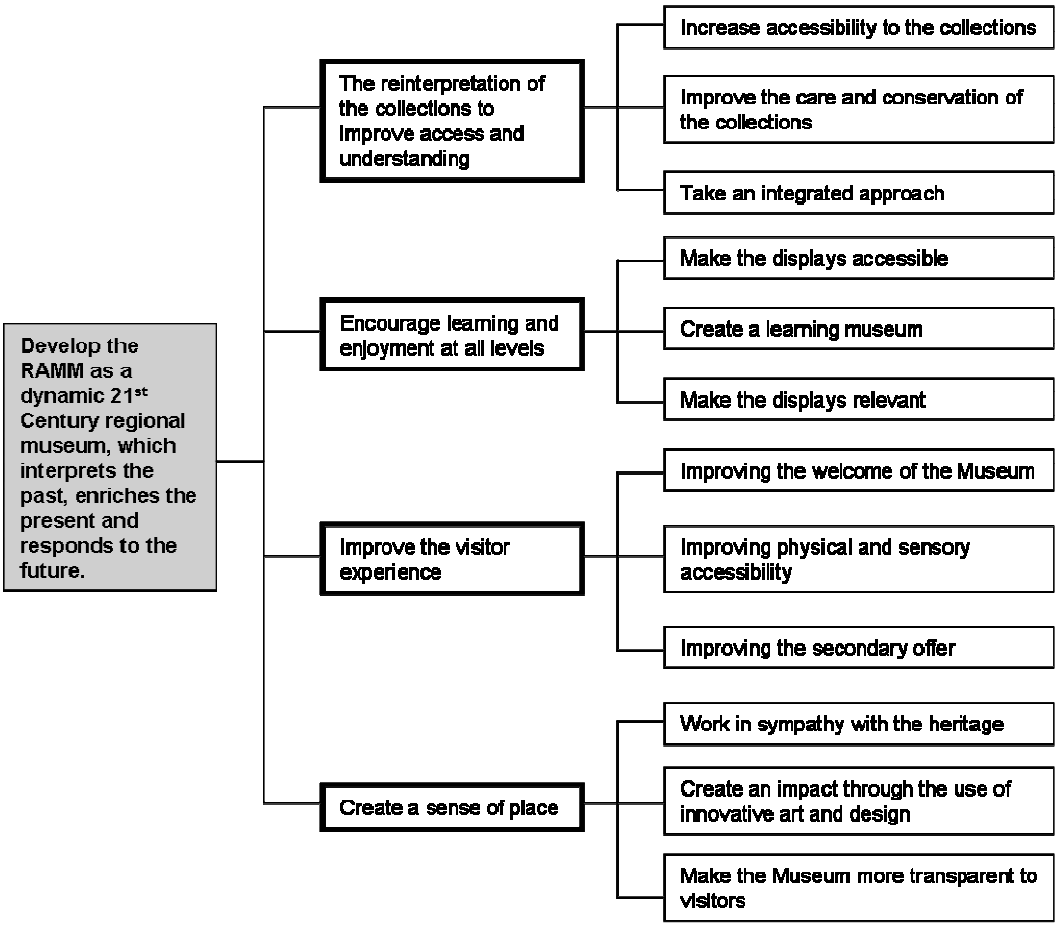

Figure 5.28 Aim and objectives chart, RAMM. Reproduced from HLF stage II application. Taken from Exeter City Council 2006: 3

5.4.4 New display approaches

The RAMM, as with the other case study museums, recognised that this project was a 'once-in-a-lifetime' opportunity to reconfigure the interior of the museum and develop new, innovative gallery displays in a comprehensive, unified manner, unlike the approaches in the past which were piecemeal and infrequent. The project team developed a two-pronged interpretation strategy, which included the mantra 'collections-led, audience-guided'. Staff were very

aware of the Victorian legacy and wanted the collections to lead the way for the stories and themes that would be told in the new museum. They were also aware of the need to consult with their audiences and develop galleries which presented an 'informed learning experience' to 'engage visitors in playful and stimulating ways.' (RAA 2006: 9). This interpretation strategy was supported by a philosophic approach: '*the Museum is about* ***people, identity*** *and* ***knowledge*** *and the Museum's methods are* ***spectacle, story*** *and* ***rhythm***' (Exeter City Council 2006: 1). Table 5.2 defines the museum's philosophical approach to the redisplay.

Key words	Within context of philosophical approach for project
Museum is about:	
People	The museum seeks to help the people of Devon and Exeter of today to understand their own lives and society by exploring, through displays and activities, the lives and societies of those who have gone before them and other lives and societies which played a role in creating what we are today. Understanding yesterday is a vital tool to understanding tomorrow.
Identity	The Museum must create an environment of empathy to enhance and support that understanding, so that it can both reflect the identity of people and their place in the natural world and help to define and celebrate it. Displays and collections are a source for inspiration, learning and creativity.
Knowledge	They also stimulate memory and imagination and provide evidence of histories, relationships and information that together contribute to our sense of people and identity.
Museum methods are:	
Spectacle	We aim to provide a Museum; a visit to which is an occasion, because it looks so good, it is unique and it excites imagination, interest and enthusiasm. Such a visit will be visually rich, intellectually exciting at many levels and full of hints of more to come.
Story	Visitors must be enthralled by the collections, led to learn, drawn on by the narrative threads which will weave through the displays, telling the histories of people, places and things.
Rhythm	A vital ingredient of story and spectacle, necessary to ensure that both work in a human way and are not simply relentless assaults on the senses which are ultimately self-defeating.

Table 5.2 Scheme philosophy, RAMM. Taken from Exeter City Council 2006: 1-2

5.4.5 Audience groups

From evaluation conducted prior to the museums closure, users of the RAMM were identified and, for the sake of the project, put into four core groups: young visitors, older visitors, specialists and families. These groups were then cross-

cut by two other groups of museum users: people with disabilities and those attending the museum for formal education (Figure 5.29). These cross-cutting groups could be applied to any of the core audience groups. For example, young people with disabilities could visit the museum and so their specific needs would encourage specialised interpretation within a gallery e.g. audio-visual interactives, but this interpretation would benefit the general visitor as well.

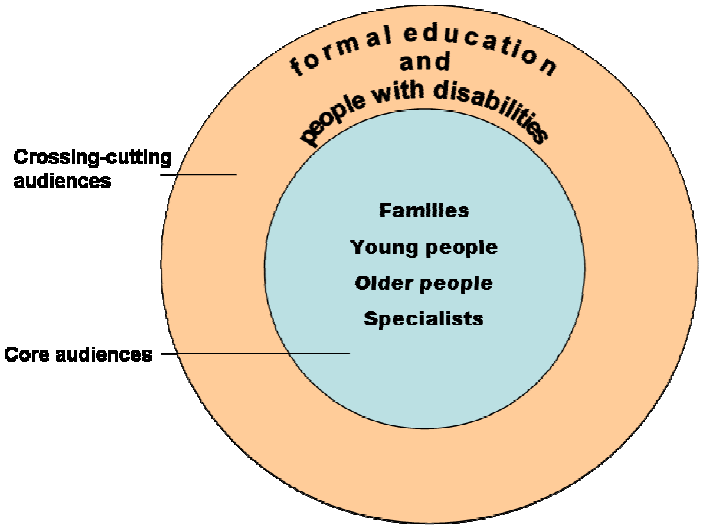

Figure 5.29 Audience groups identified for new displays at the RAMM. Paddon ©

5.4.6 Team structures

Figure 5.30 is a simplistic project management structure for the RAMM redevelopment. The curators, education and access, and conservation staff work with the project manager to ensure that decisions made are informed. The administrative staff, including the marketing manager, and external design team also feed into decisions. Although this figure shows that the design team work through the project manager, the designers also work directly with the curators, education and access and conservation staff.

5.4.7 New displays of biology

The reconfiguration of gallery layouts means that the ground and first floor galleries will allow for a flow of visitors and an easily orientated visit. Biological specimens feature in many of the 'multidisciplinary' galleries planned for the RAMM. The 'Introduction gallery' on the first floor of the museum brings together the 'star' objects from the collections. Gerald the Giraffe will take pride of place in the gallery and be available for close inspection using the 'Geraldscope' (RAA

2006: 21). The 'Core gallery' is conceived of as a multi-use space in the museum, 'part gallery, part function hall, part performance/arena' (Ibid 2006: 17). It is incorporating specimens and objects representative of the museums collections within a two-storey wall structure (Figure 5.31), and will act as a means to 'celebrate the diverse and rich collections of RAMM in microcosm' (RAA 2006: 17).

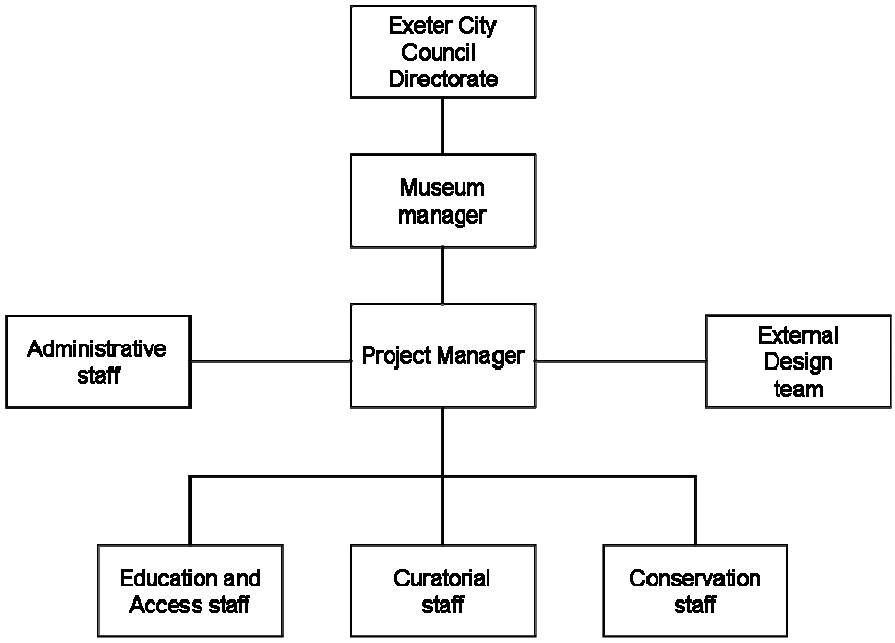

Figure 5.30 Project management structure for the RAMM. Developed from J. Parsons pers. comm. 22.7.2008

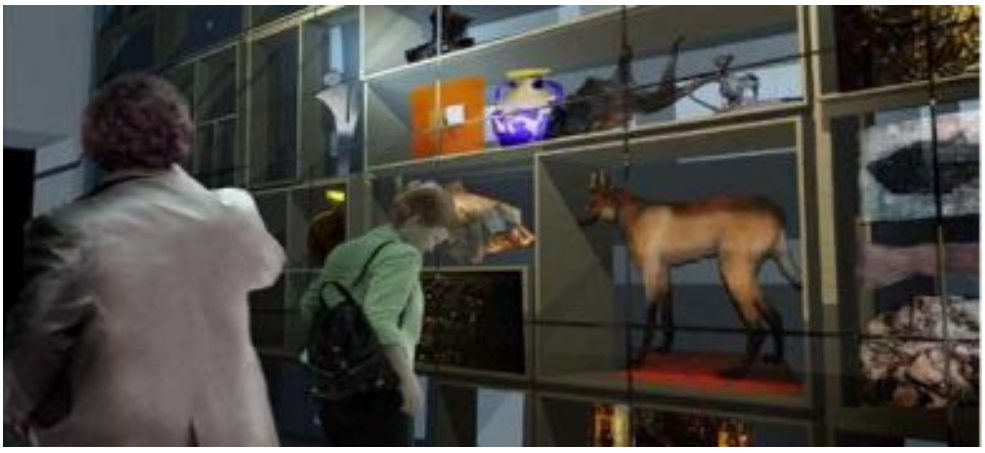

Figure 5.31 'Core Gallery', RAMM. RAA. ©

Although biological specimens are incorporated in galleries throughout the museum, for example the Devon and Exeter gallery will use specimens to illustrate stories, there are two dedicated galleries of biology. Located in two neighbouring first floor spaces, the insect gallery (Figure 5.32) and bird gallery present issues of evolution, form and human-species interaction. The theme for these galleries was determined after the thorough auditing of the museum's collections.

Figure 5.32 'Insect Gallery', RAMM. RAA ©

The bird gallery will feature AV installations to illustrate scientific concepts such as flight whilst the insect gallery will be furnished with magnifying glasses to enable a close look at the specimens on display (RAA 2006: 27-29).

5.4.8 Exhibition designers for the Royal Albert Memorial Museum

Established in 1978 Ralph Appelbaum Associates is 'the world's largest museum design practice' with offices in New York and London and is presided over by its founder, Ralph Appelbaum (Pes 2004: 30). RAA have worked with large institutions in the United States to complete innovative, aesthetic and thematic displays including the Hall of Biodiversity at the American Museum of Natural History in New York, which involved creating a 100ft-long 'Spectrum of Life' (see Chapter 2.5). The company has had experience, therefore, of working with collections of biology. Speaking with the senior designer at RAA, who has been directing the RAMM project, she stated that she had not had experience in designing a natural history or biology gallery but that design ideas were built on and lessons learnt taken from former projects and consequently shared between practices, 'we do draw on each other. It's very important to learn from other projects' (K. Skellon pers. comm. 15.7.2008).

5.5 Chapter summary

This chapter has set-the-scene by presenting the case study museums chosen as the focus of this research. Taking each museum in turn, details of the histories, design approaches and designers have been presented in order to furnish the reader with necessary facts about each museum. The details presented under specific headings allow for comparisons to be drawn across all three museums. Additionally, this chapter allows the reader to progress through the thesis with the necessary background to understand decisions made with regards to qualitative methods employed.

The next chapter will elaborate on the methods selected for use in the collection of data and chart, step-by-step, the research methodology and schedule.

Chapter 6
Research Methodology Continued: Implementation

This chapter is a continuation of the methodology chapter (Chapter 4) but for reasons of clarity, as explained earlier, the theory and practice of the methodology has been split in order to introduce the case study museums at the best possible juncture. This continuation of the methodology details the practical stages of the research design including the methods employed from the stages of the initial research through to the final research design. Furthermore, this chapter develops the study objectives. Each stage of the research project is elaborated to allow readers to trace the steps taken in the research process.

6.1 Initial research

The three case study museums selected for research in this study were:

- Kelvingrove Art Gallery and Museum, Glasgow
- The Great North Museum: Hancock, Newcastle upon Tyne and
- The Royal Albert Memorial Museum, Exeter

Before any decisions were made about which methods were appropriate for use in the comprehensive data collection stages, exploratory investigations were considered key. The initial data collection phase was used to gain an overview of each case study and as an opportunity to develop a rapport with members of the project team. As Maxwell (2004: 84) points out 'the relationships that you create with participants in your study (and also with others, sometimes called "gatekeepers", who can facilitate or interfere with your study) are an essential part of your methods, and how you initiate and negotiate these relationships is a key design decision'. Building a good rapport with project team members was essential from the outset as this would enable me to gain access to project documents and other team members.

As the initial investigation was an examination into a relatively unknown research area, unstructured interviews were regarded as the best method with which to explore the research question.

Having identified the three case study museums (see Chapters 4 and 5), a variety of individual project team members were approached in each museum to partake in the initial research.

Each museum had many team members ranging from the curator to the project manager to the director of the museum service (see Chapter 5 – team structures) but the objectives for this study set out to understand the roles of personnel tied directly to the design of the biological galleries. Therefore, it was important to select project members who were involved in the process of redisplay (interestingly the lower half of all team structures) and had different roles, for instance, a curator, a designer, a project manager and a learning co-ordinator, or equivalent (titles vary from project to project). It was felt that different project members could provide different, or similar, angles on the redisplay process. And equally they could provide personal insights and experiences of the redevelopment journey. This research would, therefore, give a broad overview of the roles of team members and their experiences of the redisplay process.

The conversational, unstructured interviews were conducted between June and October 2007 with:

- Daniel Gordon, Keeper of Biology at the Great North Museum: Hancock (26.6.2007)
- Gillian Mason, Learning Co-ordinator for the Great North Museum: Hancock (26.6.2007)
- Julien Parsons, Project Manager for the RAMM redevelopment (10.7.2007)
- Katherine Skellon, RAA Design Project Leader for the RAMM redevelopment (3.10.2007)
- Jeanne Robinson, Curator of Entomology at Kelvingrove Art Gallery and Museum (22.8.2007)
- Richard Sutcliffe, Research Manager for Biology at Kelvingrove Art Gallery and Museum (22.8.2007)

It is important to reiterate that the three case studies selected for inclusion in this research were at different stages of the redisplay process at the time of data collection. Kelvingrove Art Gallery and Museum had completed its

redevelopment in 2006 and was therefore open to visitors during the course of this study. For that reason, the majority of questions, put to key members of the project team during this initial research stage, were retrospective. Likewise, participant responses reflected different stages of the project and were answered with hindsight. The remaining two case study museums were in the middle stages of the redevelopment process and, therefore, any questions posed during these preliminary interviews and answers given reflected the stage in which the team members found themselves.

6.1.1 Ethics involving collection of interview data

Participants were contacted via email prior to the day of the interview and sent an electronic copy of the consent form (Appendix 2) and an accompanying explanatory statement (Appendix 3). The explanatory statement offered information about the supporting organisations, the nature of the research, and how the interview data was to be gathered, used and stored (Creswell 2002: 64). The statement also made clear that the interview and any quotes that might be used in the thesis would not be anonymous. The participants were, however, able to request anonymity if they felt a particular answer warranted it.

The interviewees were given time to consider whether or not to participate in the study, and were provided with the option to opt out at any time if they did choose not to participate. Having received the consent form in advance, interviewees were also encouraged to ask questions or clarify any queries on the day of the interview (DiCicco-Bloom and Crabtree 2006: 318; Donalek 2005: 125). The consent forms were then collected at the beginning of each interview session with the explanatory statements retained by the interviewee.

Each interview was recorded using a digital voice recorder, as recommended in data collection literature (DiCicco-Bloom and Crabtree 2006: 318; Rudestam and Newton 2001: 97), not simply because it makes for better accuracy but because it will also have recorded 'emphasis and pauses between utterances', something which note-taking cannot account for (Oliver 2003: 45). However, it was noted and acknowledged that some participants may find the digital-recording of their interview intimidating (Oliver 2003: 45). I aimed to gain the trust of the participant to help them overcome these initial difficulties. At the point of recording the interview, all details of date, time and place were noted in a research diary to allow for accurate future reports.

6.1.2 Conducting unstructured interviews

Each unstructured interview began with a broad opening question, or 'grand tour question' (Polit and Beck 2003: 340), such as: can you tell me about the project? (full transcripts can be found on the CD-ROM accompanying this thesis) This meant that the interviewees could choose to talk about any part of the study, although they generally started with a project overview and then progressed to more detailed information about specific elements of the redisplay process. The unstructured interview method allowed for a flexible approach - points raised by the interviewee could be queried and pursued. The schedule, which developed after each interview, was used simply as a list of prompting questions. Questions from this schedule were posed to encourage further dialogue from the respondent if a topic had been fully addressed. Further to this the questions in the schedule were devised from points raised in interviews with other project team members. This approach to interview question development is a form of comparative interviewing where data are simultaneously collected and analysed; a process employed in grounded theory methodology.

The interviews were conducted face-to-face with informants in a setting that was familiar to them, for example their project office or a quiet corner of the museum cafe. Interviewees generally had prompts to hand, for instance, design plans for the new displays of biology or the interpretation hierarchies and font choices for the gallery text, and interviewees would often use this to better explain their statements.

Interviewees were encouraged to talk about the project and their experiences with limited interruption from me (Kumar 2005: 124-125). However, verbal and non-verbal encouragements were used to acknowledge interviewer understanding and to show interest in interviewee discussion (Morrison 2008: 37).

There was no time limit set for each interview – it was dependent on the amount of time the interviewee could dedicate to the interview, the amount of information the interviewee relinquished and if I, as interviewer, had many follow-up questions in light of the topics raised by the interviewee. As a result the interviews ranged from the shortest discussion at 25 minutes to the longest taking 105 minutes.

6.1.3 Analysis of initial research interviews

By their very nature, grounded theory investigations apply a form of constant comparative analysis of the data collected with the intention of generating an overarching theory. However, at this stage of the study, the data collected were analysed using the first basic step in grounded theory analysis. This was due to the fact that the initial data collection sought to gain a broad understanding of the research area in order to identify further lines of enquiry and not to develop a theory.

The constant comparative method is specific in its process for analysing data. Each individual interview was analysed directly after collection of the data rather than collecting the data from all interviews and then conducting the analysis. So, in order to prepare the data for basic grounded theory analysis, a number of steps had to be carried out. In the first instance, each interview was transcribed immediately after having been completed. Any punctuated behaviour or non-verbal communications made by the participant at any point of the interview was noted. These accentuated discussions can often provide context or highlight when an interviewee is frustrated, angry, pleased, etc. Each transcript was then formatted to include sizeable margins for coding and printed directly after the transcription process.

Once an interview had been transcribed, formatted and printed, it was possible to begin the coding process. Coding is the method employed in grounded theory data analysis. Each sentence or paragraph which raises a point about the project, for instance, a process, concept, issue, etc. is coded using an active verb, for example '*increasing* accessibility to collections' (Charmaz 2006). The codes are then written in the margins beside corresponding text to ensure clarity in further analysis, memo writing or theoretical development (see Chapter 7). It is important to note that although there are IT packages, such as *N:Vivo*, they were deemed inappropriate for this research piece. Firstly, the data were not vast; there were six sets of interview data, and secondly, coding the data manually allowed for continued intimacy (Goulding 2002: 168). After the first interview had been fully coded, it was possible to update the interview schedule adding new questions to reflect new lines of inquiry and interview the next project member. Having completed the second interview; transcribing, formatting and printing, the codes from the first interview were compared with the new data from the second interview. Extra codes appeared, as different questions were

posed to the interviewee. The process of comparative analysis continued through the six interviews until they were all completely coded.

It is important to note that some of the unstructured interviews were conducted with different project team members on the same day due, mostly, to time constraints and availability. Where this did occur, for example, needing to interview two members from the Hancock project team on the same day, the interview schedule for both interviewees remained unaltered. Any new codes or lines of inquiry were developed and added to the schedule for the proceeding interview.

In addition to the unstructured interviews with project team members, further information about the display process and the changes in biological collection redisplays was collected from various museologists and museum professionals.

6.2 Results of initial research

Having discussed potential factors in the process of biological collections redisplay in Chapter 3, further factors emerged following the initial research. Emergent codes from grounded theory data analyses of the unstructured interviews, and issues raised during conversations with museologists and museum professionals, began to tease out the factors affecting the contemporary display and interpretation of biological collections in British museums. Factors were further developed by placing each into a category; either internal or external (Tables 6.1 and 6.2).

This categorisation divided the factors into pressures from within a museum and those from outside of the museum. In some circumstances there was overlap in the factors, for example, the designers are listed as an external factor but in fact they work closely with the museum project team; theoretically they could be placed within both the internal and external categories. However, in this instance, the work of the designer is considered as a stronger defining characteristic and therefore, the designers have been placed with the 'external factors' table.

The emergent codes from the interview data also lead to the development of research threads – lines of enquiry to follow up on in the final research design. Figure 6.1 shows the threads taken from the coding analysis. They range from

the need to understand audiences to how the collections are going to be/ were interpreted.

EXTERNAL FACTORS	
1. Media	a. popularity of specific animal
	b. current issues in media: hunting, illegal trade, medicinal uses
	c. appeals
	d. documentaries
2. Audience	a. school groups
	b. families
	c. older persons groups
	d. disabled groups
	e. specialists
	f. researchers
	g. HE/ FE groups
3. Government	a. MLA regulations
	b. policies on nature: bans on hunting etc
	c. policies on science: DNA research
	d. policies on education/ equal opportunities: access for all, social inclusion
	e. museum spending/ funding: free entry to museums, grants for national museums
	f. DDA – effects on specimens to abide by DDA rules
4. Designers	a. current trends in design: museum (lighting, technology etc.)
	b. budgets
	c. communication with museums
	d. contractors: interactives, lighting, cases etc.
	e. museum building/ gallery spaces: flow of visitors, multi-storey, architecture; listed
	f. longevity of exhibition
	g. focus on multimedia: smells, interactives, audio, touchscreens etc.
	h. previous projects
	i. experience: designing for biological collections
5. Global Issues	a. climate change
	b. extinction
	c. habitat destruction
6. Funding	a. renaissance in the regions
	b. grant-making trusts
	c. local authority/ county funding
	d. HLF
	e. entry fee charged

Table 6.1 External factors affecting the redisplay of biological collections. Results of data analysis from unstructured interviews and conversations with museologists and museum professionals. Paddon ©

INTERNAL FACTORS	
1. Themes	a. Local, regional, national, global
2. Curators	a. research
	b. knowledge of design
	c. personal views/ agendas
	d. openness to suggestions
	e. background
	f. communication with project team members
	g. personal ideas for gallery
	h. length of time worked with collection
3. Museum staff	a. education officers: own agendas, education issues, key messages, focus on particular audience, 'dumbed down' text?
	b. museum managers: interested in biology?, designation of budget, role in project team
	c. access officers: DDA awareness
	d. security/ front of house: often overlooked in terms of exhibition development
4. Museum	a. where is the museum? capital city?
	b. prestige: determine display methods etc
	c. subject specific curators
	d. dedicated to biology/ natural history or multidisciplinary museum?
	e. local authority/ university/ national/ private ownership
	f. listed building
5. Gallery	a. open display
	b. listed cases/ fixtures and fittings
	c. position in museum
	d. storage available (or open storage facilities?
	e. lighting
	f. dimensions: shape, size, height
	g. colours
	h. sympathetic to architecture of building
6. Collections	a. uniqueness
	b. state/ conservation
	c. local/ regional/ national/ global
	d. varied or monotonous
	e. type or voucher specimens
	f. limitations: not complete species collection or illustrative of a theme
	g. terms and conditions of accession
	h. size: physical, quantity
	i. reserve/ handling collection
	j. current/ previous displays: diorama destruction for new displays
	k. research
	l. pinned, dried, spirit, mounted, skeletal
	m. documentation
	n. mascotism

Table 6.2 Internal factors affecting the redisplay of biological collections. Results of data analysis from unstructured interviews and conversations with museologists and museum professionals. Paddon ©

Figure 6.1 Emergent research threads from coding of unstructured interview data. Paddon ©

6.2.1 Research threads

The next section expands on each research thread presented in Figure 6.1. As with some of the factors identified in Tables 6.1 and 6.2, some of the threads overlap.

Role in project

A number of interviewees explained their role in the project – how it had changed over the course of the project and what it meant in terms of responsibilities. The role of project team members needed to be explored in the museological literature and the primary data collection. This linked in with other research threads: decision-making, communication and working as a team.

Designer's input

Certain interviewees made reference to the perceived power of the designers in driving design decisions; in the unstructured interview with Dan Gordon in 2007 he explained that the concepts that divided up the 'bio wall' in the main biology gallery were led by the designers 'I think the original idea, which came more from the designers than it did from the project staff, was that they didn't just want to do polar and temperate and tropical, and have different animals representing different environments, they also wanted to split the gallery vertically as well, do like water, land and then air' (Ibid pers. comm. 26.6.2007). It was this kind of involvement that the research questions wanted to explore.

Gallery themes

The themes of the gallery were developed in different ways by each museum – this was highlighted by responses and discussions in these six initial interviews. Follow-up research would tease out how these themes had been chosen, why and whether they were reflective of the collections, global phenomenon, or other factors.

Importance of HLF

From the beginning of this project, the HLF has been argued as an important factor in the contemporary redisplay of biological collections in British museums. But to what extent? How important is the HLF in supporting these projects and when supported by the HLF, what restrictions, if any, are placed on project teams?

Project background

The interviews provided valuable contextual information in terms of the background of the museum and the redevelopment project. It also helped team members to work through the chronology of events and decisions made. Background would be essential to the project, for both setting the scene and justifying/reasoning decisions made in terms of design, themes, audience, etc. Therefore, this thread linked in with many lines of inquiry and would be explored through multiple methods.

Stages of the project

The museums were chosen because they were at different stages of the process. It was not until initial interviews with the selected project team

members had been conducted that there appeared to be a design process which was mapped out in terms of stages. Talking with Katherine Skellon (pers. comm. 3.10.2007), the senior designer for the Royal Albert Memorial Museum project, she explained: 'We follow the architectural RIBA stages which equate to A, B, C, D, E all the way through to about J or K… and that takes you from concept right the way through to completion of a site'. The final research design would investigate the RIBA stages and how they relate to the design process for museums.

Drivers

Drivers in the project – this could, potentially, encompass many factors ranging from government policies to funder's criteria to curatorial predilections. Many of these drivers would be determined through museological literature but personal opinions, such as those collected in the unstructured interviews, would also be sought.

Communication

Communication within a project has many facets. The lines of communication generally follow the project team hierarchies. The hierarchies have been provided for each project team in Chapter 5 (see team structure figures). These lines of communication, evidently, caused some issues amongst members of the team, '[the curators] didn't have direct contact with the designers and [they] had to always go through the project management team which meant that sometimes the designers didn't get the information they were actually after' (R. Sutcliffe pers. comm. 22.8.2007). Comprehensive investigations of the communication processes would be conducted.

Decision-making

The interviewees discussed the decision-making elements of the project – who was responsible for design decisions, monetary decisions, theme and object selection, etc. The process of decision-making within the project is important and are addressed when deciding upon the methods employed for the final research design.

Audiences and consultation

Many questions arise when considering the audience in museums. The earlier literature review (Chapter 3) reveals the shift in contemporary museum display

philosophies towards audiences (see American Association of Museums 1992; Black 2005; Hooper-Greenhill 1995 & 2001); engaging visitors and encouraging new audiences. This research will discover who the design team felt were the audiences and how and when consultation for the project was conducted.

Teamwork

This thread links with the 'communication' thread as effective communication is essential to maintain productive and harmonious teamwork. Many members of the project teams (those interviewed at the initial research stage), had not had experience of working on large-scale projects and therefore had not experienced working closely across different departments within their own museums. The research study hoped to collect information about the working practices of the teams and the ways in which they varied or were similar across the case studies.

Interpretation of collections

The research will pursue the interpretation of collections: how are collections of biology being interpreted in contemporary redisplays? The results of which will be compared with previous ages of museum display through literature and archival research.

Design approach

Many periods of museum display can be characterised by display trends and interpretation styles (see Chapters 2.4 and 2.5). The design approaches for the case study museums, designed in collaboration with external design companies, will and do have distinct features of contemporary museum display. The final research design will incorporate measures to understand the approach taken, the reasons for the approach and the decisions made to achieve the final outcome.

Having explored each research thread in more detail, the combined results from the unstructured interviews and the informal dialogues held with relevant museum specialists have been used to inform the revision of the original objectives for the study (see Chapter 1).

6.3 Revised research objectives

Following the initial data collection and basic grounded theory analytical process, the objectives for the study were reviewed. Table 6.3 places the original objectives alongside the revised objectives for ease of comparison. These objectives would give a holistic view of the case studies but also inform the overarching theory generated from the data gathered.

Original objectives (Chapter 1)		Revised objectives	
1	To describe the diversity of museum biology displays globally	1	To present a history of biological collections display
2	To summarise the recent trends in the display of biological collections in British museums from the 1970s onwards	2	To explore and explain extant museum displays of biology in a British and an international context
3	To document the contemporary display of biology in British museums	3	To identify the factors driving the redisplay of biological collections
4	To identify the stakeholders in biological collections exhibitions	4	To investigate and record the design and interpretation process/stages of a biological display
5	To examine the role of the biological curator in the creation of exhibitions	5	To assess the decision-making process in museum display design
6	To identify underlying themes in contemporary displays of biological material	6	To examine the role of the biological curator in the creation of displays
7	To assess the decision-making process in museum exhibition design	7	To identify the underlying themes and trends in the redisplay of biological material within the case study museums

Table 6.3 Original and revised objectives. Paddon ©

Revised objectives 1 and 2 were focused to collect descriptive data and place the research within a global and historical context. The data collection methods for these three objectives involved archival, literary and internet research to collect gallery photographs, exhibition reviews, journal articles, website information, etc. The amalgamation of the descriptive data was used to compose chapters two and three of this thesis, thus setting the scene for biological collection display and redisplay.

Objective 3 was added to concentrate the research methodology towards the aim of the study which was to identify the factors driving the redisplay projects. In doing so, it was hoped that the factors would provide two further consequences, 1) whether the factors informed the process of redisplay and 2) if any, which factors were central in driving the redisplay of biology.

Objective 4, 'to investigate and record the design and interpretation process/ stages of a biological display', was introduced, much like objective 3, to focus

the research methodology upon the specific research questions laid out in Chapter 1. In understanding the processes and stages of the displays, core elements, strategies, similarities and differences would be revealed. It would also show whether the three case studies were working through the same stages or whether they adopted different tactics for completing their biological collections redisplays. This objective was crucial in terms of comprehending the differences between historical and contemporary redisplays of biology.

Within the process of redevelopment, the research seeks to understand the process of decision-making (Objective 5). The results of the initial research highlighted that team members felt the decision-making element of redisplay projects had changed but how and why? The research aimed to answer those questions.

The sixth objective was incorporated to examine the role of the curator in the redisplay of collections. Whilst anecdotal evidence, gathered from casual interviews with curatorial staff over the years, had pointed towards a change in their roles, to what extent had this really changed, if at all? Was this change brought about by the redisplay projects?

The final objective seeks to identify gallery themes and trends in the new museum redisplays. In understanding the factors, process and decision-making elements (Objectives 4, 5 and 6), it is hoped that any themes/topics/stories that are not being told will also emerge.

The development of the objectives, coupled with the results from the initial research, informed the final research design and the methods chosen to collect research data.

By developing the results of the initial research further, a basic iterative 'operational' model was suggested for the process of redisplay (Figure 6.2).

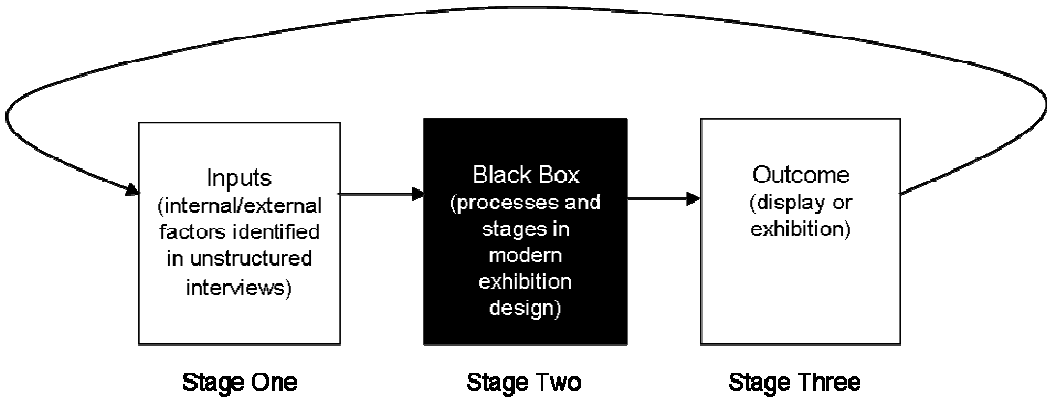

Figure 6.2 The 'operational' model developed using findings of pilot study and preliminary research. Stage One identifies the factors in Tables 6.1 and 6.2 as 'inputs' in the display process. Stage Two has identified the 'Black Box' as the processes and phases involved in the production of the final display (Stage Three). Paddon ©

Three major stages were identified within the process; 'inputs', 'black box' and 'outcome'. Most current museological research focuses on the third operational stage, the outcome, which includes work on evaluation of the final display (see chapter 3.5). In order to reach this final stage, the initial stages (i.e. stage one and two) need to be completed. The 'inputs' and 'black box' stages are recognised as crucial to idea development and decision-making and will form the focus of this research. The 'inputs' stage represents the factors and drivers in the display of biological collections. These factors, which have been tentatively identified in this chapter (Tables 6.1 and 6.2), feed into the 'black box' stage where the project evolves. The central stage of the model forms the core of this research study. This operational model was developed and expanded in the course of the main data collection and analysis phases.

Knowledge of the project processes will help to better understand the final outcome; why each display looks different (or similar), what decisions were made, how designs progressed, etc. Two of the case study museum projects were completed before the conclusion of this research, allowing for full process insights. The results of all three case study projects will generate a final, overarching theory of biological collections redisplay.

6.4 Final Research Design

The final research design reflected the results of the initial research results, the acquired knowledge of the grounded theory approach and qualitative methodological appropriateness. Subsequently, appropriate methods were

selected and are presented in this subchapter. The data collected and the methods chosen complement the qualitative data triangulation practice where results are validated by corroborating evidence, for example, facts given in an interview can be confirmed or discounted using archival evidence.

Although this thesis has acknowledged the grounded theory approach as part of the theoretical framework guiding the research design and methods chosen, it has not specified which of the two variations it is following. These two variations arose as grounded theory was developed and the two founders, Barney Glaser and Anselm Strauss, took different paths in the approach to the method comparative analysis (Glaser 1993, 1998, 2002, 2005; Strauss and Corbin 1990, 1997). The constructivist form of grounded theory 'places priority on the phenomena of study and sees both data and analysis as created from the shared experiences of researcher and participants and the researcher's relationships with the participants' (Charmaz 2003: 313). However, the objectivist grounded theorists 'believe that careful application of their methods produces theoretical understanding. Hence their role becomes more that of a conduit for the research process than that of a creator of it' (Charmaz 2003: 313). In other words, the objectivist researcher is far enough removed from the data to be objective and can report back the findings of their research as a useful theorising of respondent's views and opinions of the phenomenon of study. This study employs the objectivist variation of grounded theory research, maintaining an unprejudiced approach to data collection and sufficient removal from the research phenomenon in order to generate a theory solely from the data collected.

6.4.1 Selection of a primary data collection method

As discussed in chapter 4, the variety of methods available to the grounded theorist is vast. They must, however, be used in a manner appropriate to the research question and the variation of grounded theory being employed. As mentioned previously, this study has taken the objectivist approach to the research question which denotes that a detached stance is employed in the data collection process (Charmaz 2003: 312-313). For numerous reasons, participant observation was rejected as a primary data collection method for this study. As detailed in chapter 4, participant observation demands that 'the researcher engages in the same activities as the people being observed in order to observe and record their behaviour' (Gravatter 2008: 357). This closeness to the

research phenomenon is not encouraged by the objectivist grounded theory approach. Also the method was rejected because of its time-consuming characteristic; gaining access to all three projects over substantial periods of time was impracticable and would only emphasize small segments of the long redisplay process. Furthermore participant observation can affect the participant's natural behaviour in the observed study. Allowing for objectivity and to clearly answer the aim of the research, in-depth interviews were considered the appropriate primary method of data collection - 'flexibility and control inherent in in-depth interviewing techniques fits grounded theory strategies for increasing the analytic incisiveness of the resultant analysis' essential in developing a relevant grounded theory (Charmaz 2003: 312).

6.4.2 Designing the interview approach

Having decided upon an interview approach in which to collect primary research data, the thematizing of the interview investigation had to be completed. Kvale (1996: 88) developed a seven step interview process, where the initial stage of 'thematizing' advocated a 'high degree of conceptual clarity as to the interrelationships among the study's purpose, the research question and the analytic method' (T. Lee 1998: 81-82). As emphasised above, the establishment of a grounded theory framework and analytic approach, coupled with the research question and objectives (as revised following the initial research results), were essential in informing the interview format and subsequent design stage.

6.4.3 Selecting the appropriate interview format

From the three interview formats (see Chapter 4), semi-structured interviews were chosen as the best interview tool for the final research design. Unstructured interviews, which had been the tool for collecting the initial research data, were rejected for use at this in-depth data collection stage. Whilst the unstructured interviews offered respondents freedom of discussion in the preliminary investigations, a more structured approach needed to be taken to focus in on emergent phenomena threads. However, the structured interview technique was also rejected at this juncture. The rigidity of a structured interview schedule and the lack of flexibility in participant discussion discounted this method. The semi-structured approach was deemed most appropriate as it sits between the two extremes of interview format allowing the researcher to guide

the interview with non-sequenced, scheduled questioning whilst at the same time, gives the interviewees the opportunity to expand on questions posed.

6.4.4 Selection of interviewees

Having chosen the semi-structured interview format within which to frame the interview questions, it was necessary to select participants. The initial unstructured interviews were conducted with six members across the three case study museums. However, this research scope and small group of interviewees was extended to collect data from twelve key project members, four from each museum. Each member plays a specific role in the redisplay project development and could provide valuable insights into the process under study.

To allow for constant comparison (see Chapter 6) between participants, each of the four members from one museum held similar roles to those in the remaining two museums, for example, one team member might be named as 'project manager' whilst within a different project the same job role was given the title 'collections and interpretation officer'. The four main project role categories were:

- Project manager (or equivalent)
- Curator of biology/natural history (or equivalent)
- Education officer (or equivalent) and
- External designer

Accordingly, the twelve key project members, approached to participate in the study, are presented in Table 6.4.

It is worth mentioning at this juncture, that some participants were reticent of the project. However, having gained the trust of other project members, and gaining assurance from the likes of project managers, the final few interviewees agreed to participate.

Additional interviews were conducted with other project team members – whose data are included in the data analysis for the project. These interviewees were not selected by me as researcher but suggested as possible interviewees by other project team members. The additional four interviewees (Table 6.5) had

direct input into the redisplay projects but saw themselves as outside the main project role categories identified initially.

Project	Role	Name
Kelvingrove New Century Project	Project Director	Anthony McReavy
	Research Manager	Richard Sutcliffe
	Senior Education and Access Curator	Sue Latimer
	Design team leader (Event Communications)	Esther Dugdale
Great North Museum Project	Project Manager	Steve McLean
	Curator of Natural History	Dan Gordon
	Interpretation Co-ordinator	Gillian Mason
	Senior Designer (Casson Mann)	Jon Williams
Royal Albert Memorial Museum	Collections and Interpretation Officer	Julian Parsons
	Curator of Natural History	Dave Bolton
	Access Officer	Kate Osborne
	Senior Designer (RAA)	Katherine Skellon

Table 6.4 Key project team members for interview identified across all three case study museums. Paddon ©

Project	Role	Name
Kelvingrove New Century Project	Curator of Entomology	Jeanne Robinson
Great North Museum Project	Assistant Curator of Natural History	Nicola McNicholas
Royal Albert Memorial Project	Assistant Curator of Natural History	Jessica Marsh
	Marketing Manager	Ruth Randall

Table 6.5 Additional interviewees in final research design. Paddon ©

6.4.5 The development of the semi-structured interviews

The qualitative interview process is addressed in many research texts. They provide information and guidance on interview formats, question development, interview scheduling and conducting interviews (Fontana and Frey 1994; Holstein and Gubrium 1995; McCracken 1988; Patton 1990). Such texts were employed in the development of the interview questions, and subsequent schedules (for example see Appendix 4).

Interview questions development

Using Patton's six question types: behaviours/experiences, opinions/values, feelings/emotions, knowledge, sensory and background, a combination of

questions were used to gain information about the process of redisplays and, more specifically, to gather data pertaining to objectives 3 through to 7 (see Table 6.3). So, the knowledge questions, for example, were added to seek facts about a topic and the behaviour questions to understand what a person had done or was doing (Patton 2002: 352).

The interview questions could be split into two types. The first aimed to gather contextual information, for example, the history of the museum, the size of the collections, where interviewees sat within the team structure, etc. which helped to set-the-scene for each case study (Chapter 5). The second type of question sought to tease out information pertaining to interviewee's personal opinions, feelings and reflections of the process, for instance, how decisions were made, whether they were included in all stages of the project, whether they omitted any themes from the galleries, etc.

The interview questions were split roughly into five groups: introductory, the museum, design, collections, and audience, making the schedule easier to read whilst conducting the interview (Charmaz 2006: 29). Each interview consistently began with questions from the 'introductory' group, gathering basic facts about the interviewee, the museum, the project and thereafter the flexibility of the semi-structured format allowed for a changeable order of delivery dependent on the answers given and the nature of the question e.g. factual, behavioural, knowledge (Patton 2002: 352) (see Appendix 4).

Conducting the semi-structured interviews

The interview procedure closely followed that of the initial research interviews. All were conducted face-to-face, one-on-one and in a comfortable setting for both the interviewee and the interviewer. The correct ethical procedures were adhered to in order to ensure that data was collected transparently and in accordance with Bournemouth University guidelines (2003). Once again, an explanatory statement was provided in electronic form to the participating individuals prior to the interview and in paper form on the day of the interview. Consent forms were signed by the participants and collected prior to the start of each interview. Interviewees were also encouraged to raise any queries at the beginning of the meeting and were informed about the recording of the interview and subsequent data storage.

As an ice-breaker to build rapport and put interviewees at ease, a series of eight pictures of biological collection displays were presented (see Appendix 5). Interviewees were invited to look over each picture and then encouraged to discuss their immediate reactions with regards to liking or disliking the displays, the form of interpretation, gallery lighting, nature of the display, etc. Participants were informed that there were no right or wrong answers. I found this informal activity to be effective in encouraging the interviewees to relax before I began posing the interview questions.

I worked through the interview questions with each participant, interspersing factual questions with more in-depth, probing behavioural and emotion-based questions (as detailed above). The interview schedule, devised before the interview, acted as a prompt to me but also allowed for flexibility in delivering the questions (Charmaz 2006: 29). Often answers from open-ended questions led me to introduce a follow-up question which restated, and overlapped the former. This reiteration of question and the proceeding answer acted as affirmation of the prior answer given.

The interviews sought to gather the perspectives, experiences and opinions of those involved in redisplay projects of biology in the selected museums. Retrospective insights, time for reflection and freedom of speech, also in talking to me as an impartial, interested observer, meant that the interviews often acted as a form of counselling for participants. The opportunity to reflect on the process also meant that interviewees were able to recount specific events, even though exact timescales were often difficult to recall, and reflect on relationships with other project team members at certain points along the journey.

Each project team member identified for inclusion in this study was interviewed once between November 2007 and August 2008. Although there were only 12 key members and four extra members interviewed, the semi-structured interviews generated vast data. In fact, the interviews took between 45 minutes and three hours to complete. This extensive data collection period was vital to allow enough time for transcription, analysis, and revision of the interview schedule as the iterative constant comparative process commands (Figure 6.3). The time was also taken to visit the museum case studies on numerous occasions to collect archival data and make gallery observations.

Bias, in the semi-structured interviews, was limited because there was only one interviewer and the use of the interview schedule meant that all relevant question areas were covered with the interviewees.

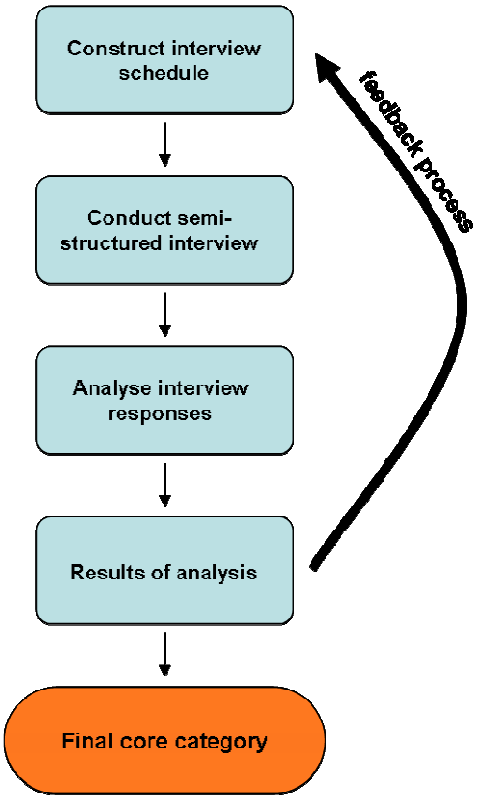

Figure 6.3 Basic iterative process model for collection, analysis and results of data collected from the semi-structured interviews. Paddon ©

Analysis of data collected

The analytical stages and collection of data are simultaneous, iterative and constant. Figure 6.3 shows how the results from the analysis of one interview flow back into the design of the next interview schedule, and thus impacts on the responses and analysis of the subsequent interview. This process continues until the data collection is complete. The exact analytical steps, however, are explained in the next chapter.

The intensive primary data collection phase (November 2007 – August 2008) allowed for full transcriptions of the interviews, line-by-line initial coding of each interview, question development (where appropriate) and continued coding as the interviews were constantly compared to one another. Some interviews, however, were conducted on the same day at the same institution. This was

mainly due to access to staff, who kindly gave up their time from the projects to partake in the interviews, but meant that interview analysis was impossible in the one—two day period in which they were conducted.

6.4.6 Selection of complementary data collection methods

This chapter has introduced the methods, initial analysis and initial results employed in the research design. The main method of data collection was the interview – both unstructured and semi-structured but in order to triangulate and validate results from these interviews it was essential that other forms of qualitative data collection were employed. One major form of qualitative data collection was rejected at this stage, the questionnaire. The questionnaire method was rejected at this stage owing to three major weaknesses. A questionnaire survey would not:

1. facilitate the description of the '[complexities] of interactions' (Marshall and Rossman 1999: 134), i.e. the process of display design. The information gathered would not fully explore the underlying factors in display design.
2. facilitate the 'discovery of nuances in culture' (Marshall and Rossman 1999:134), i.e. it would not be possible to identify diminutive differences and similarities between the case study museums or in their 'cultures' of display or
3. allow for contextual information to be gathered (Marshall and Rossman 1999: 134). This contextual information is vital when trying to understand the roles of the display team members, the decision-making process and in identifying underlying milieu.

Therefore, it was felt that, overall, the questionnaire approach would not provide sufficient opportunity to collect in-depth contextual information or in-depth procedural information which were both necessary to comprehensively answer the research question.

Methods selected to complement the semi-structured interviews were:

1. archival research
2. appropriate literature
3. site visits and gallery observation

These three methods will now be explored briefly.

6.4.7 Archival research

Archival research was conducted and collected for the duration of study. The wealth of archival material on the changing trends in natural history galleries underpins the contextual analysis but also triangulated evidence to develop the final core theory and multiple process models.

In this study, six main forms of archival research were collected as follows:

- photographic evidence, and artist's impressions, of the displays and exhibition spaces
- paperwork from funders and stakeholders,
- architectural and design plans,
- minutes of meetings and other project documents,
- museum guidebooks and leaflets and
- historical-context documents.

All of the archival documents provide the study with contextual information, as the next passage explains, but they also and perhaps more importantly, allow for triangulation of the interview data.

Photographic evidence in the form of past, present and future biological displays have been used to present and illustrate the changes at each museum. These photographs were either primary resources, taken by me during research visits, or from the museum's archives. Paperwork from funders and stakeholders is particularly pertinent when trying to synthesize the project goals and the pressures placed on each museum to complete their projects. They also provided background information such as the total capital invested in the redisplays and viewpoints of individual organisations. Architectural and design plans allowed the new displays to become comprehendible even if the museum redevelopment was not complete. The plans provided future projections of gallery layouts, audience flow and colour schemes whilst putting the objects into the displays. Minutes from meetings and other project documentation was vital in understanding the processes involved in the design and interpretation of a new gallery. They can be used as indicators for key decision-making strategies and in understanding project team dynamics. Museum guidebooks, floor plans and leaflets are a useful source used to analyse old and new and, in some cases, future layouts (Morse 1994: 37). Guidebooks and leaflets also carry

historical information and often focus in on key objects and collections – highlighting familiar favourites and museum mascots. Documents with historical context can offer a range of information from original plans and subscribers to the museum, to visit figures and innovative new displays. They also hint at the origins of the collections and the museums themselves. Historical context was an important facet of this study, as it is used to determine the individual identities of the three museum case studies.

6.4.8 Appropriate literature

Literature falls within two categories: unpublished and published. Both forms of literature have been used throughout this study to develop, for example, a theoretical framework, identify knowledge gaps and provide contextual information about the case study museums. Here, the two forms of literature are addressed with reference to their application within the study.

Published literature

Published literature was used throughout all aspects of the study to inform initial ideas, identify theoretical stances, decide methodologies and methods to be used, and to confirm findings and conclusions.

Published literature ranged from general texts, involving subjects such as research design (Allison and Race 2004, Fitzpatrick *et al*. 1998; Swetnam 1997) and methodologies and methods (Auerbach and Silverstein 2003, Gillham 2005; Johnston 2006) to subject-specific texts such as those describing museum exhibition and display design (Dean 1996; Lord and Lord 2001).

Journal articles, as published literature, also provided contextual and focused information about general and subject-specific topics, and again, these were employed throughout all stages of the research project. Journals focusing on museological issues included *Museum Practice*, *Museums Journal*, *Museum Management and Curatorship*, and *NatSCA News*. For example, the *Museum Practice* journal, amongst other interesting articles, provided reviews of worldwide biological galleries such as San Diego Natural History Museum (Adams 2002), Saffron Walden Museum (Museum Practice 1997) and Naturalis in Leiden (Martin 1999). These articles, as well as giving an overview of the current galleries, often provided background information about the establishment of the collections and the museums themselves.

Unpublished material

'The inclusion of unpublished or grey literature is essential for minimizing the potential effects of publication bias' (Blackhall 2007: 359). Published material often includes only the 'positive' outcomes and results as opposed to both positive and negative (Fink 1998: 218). Clearly, this purely 'positive' bias in published material is unacceptable and would skew any results or conclusions from the qualitative data collection. To avoid this bias (Cohen 2000: 224), unpublished material was collected and employed within this research study.

Unpublished material can take many forms including conference papers, theses, newspaper articles and leaflets (O'Leary 2004: 68). These sources of information differ from those classed as archival data, within this thesis, because they do not originate from the museum's archives. Here, unpublished documents including the HLF grant applications, audience evaluation reports and design documents have all been employed to potentially limit any researcher bias. Drawing on these unpublished pieces of work gives valuable, and otherwise unknown, insights into the processes behind the redisplay of biological collections. Unbiased literature presentation gives a holistic foundation for the outcomes and conclusions of this research.

Both forms of literature were used to further triangulate the data collected by the primary research method, the in-depth interviews, and the archival data pertaining to the case study museums.

6.4.9 Site visits and gallery observation

In addition to the methods described already in this chapter, site visits and gallery observation were key in allowing me to form my own opinions of the museums, their collections and the key project members. At each museum I encountered different stages of the redisplay process. They are described below:

Great North Museum Project: I first visited two project team members in June 2007, when I conducted the first set of unstructured interviews. The museum had already shut to members of the public and as a result the collections were being decanted. The project team worked from two separate buildings outside of the main museum building. The project, at that point was entering RIBA stage E (Final Proposals) which meant that the designs were fixed from that point

forward. Any tweaking of the designs would have major cost implications. Return visits to the team were made in January 2008 and June 2009 (when the museum reopened). I finally gained permission to visit the senior designer for the GNM project in June 2008 and subsequently conducted the interview with him at his offices in London on 15th July 2008.

Kelvingrove Art Gallery and Museum: The first visit made to Richard Sutcliffe and Jeanne Robinson was in August 2007. The museum had been open to the public for 13 months and had been receiving record amounts of visitors. From the first visit in August 2007, through to the subsequent meetings held in May and August 2008, I was able to gain first-hand experience in the galleries and get to grips with the new display philosophy (see Chapter 5). Again, reticence on behalf of the designer meant that the final interview for this set of data was conducted in September 2008 but by this time, I had a thorough understanding of the galleries, their layout and features.

The Royal Albert Memorial Museum: The first contact made for this case study museum was with Julien Parsons. I secured an interview with him in early July 2007 and found out that the project was in RIBA stage E, working to a tight deadline to complete the stage by the end of August 2007. At this point the museum was still open to the public which meant that I was able to view the collections *in situ* prior to the redevelopment. Having met with Julien, a subsequent meeting was arranged with the senior designer on the project, Katherine Skellon, at her offices in London in October 2007. I conducted an unstructured, exploratory interview with Katherine which marked the completion all of the unstructured interviews for my initial research (see Chapter 6.1). The museum officially closed its doors in December 2007 and since then has remained closed to the public with the anticipated opening date of June 2010. The semi-structured interviews took place with two project team members in November 2007, and the remaining four in July and August 2008. These return visits gave me the opportunity to revisit the galleries before closure but also to interview the participants at differing stages of the redisplay process.

These site visits and gallery observations, where possible, proved invaluable to understanding the dynamics of the museums and the spaces for biological collections display. They also gave insights into team dynamics and allowed me access to unpublished literature.

6.4.10 Summary of data collection methods

For this thesis, both unstructured and semi-structured interview styles were employed. These interview formats were informed by the other methods of research and the characteristics of each interview format. The unstructured format was used in the initial data collection stages (phase 1) where general opinions, beliefs and facts were gathered from selected 'cases'; museum staff and designers involved with the redisplay projects (6 unstructured interviews in total). It was also important to conduct initial unstructured interviews to 'map out the issues which the interviewee [defined] as important' early in the research (Oliver 2003: 55). Semi-structured interviews, sixteen in total, were employed during the more focused, comprehensive data collection phase (phase 2) to gain more structured data and to allow for 'theoretical saturation', which is 'the point in category development at which no new properties, dimensions, or relationships emerge during analysis' (Strauss and Corbin 1998: 143). The relative flexibility in the semi-structured interview schedule and the ability of the participant to add depth by answering further impromptu questions, allowed for an in-depth reconstruction of 'perceptions of events and experiences' (Denscombe 2003: 103; DiCicco-Bloom and Crabtree 2006: 316) essential in understanding the factors that affect the contemporary display of biological material.

By gaining an in-depth description through the use of semi-structured interviews at each case study museum, 'the complexities of processes and interactions will be so embedded with data derived from the setting that it cannot help but be valid' (Marshall and Rossman 1999: 192). This is extremely important when justifying the use of interviews but also in determining how 'valid' the data collected are.

These main methods will be triangulated by archival research, appropriate literature and site visits and gallery observations to produce the grounded, core theory.

6.5 Chapter summary

Now that this chapter has explained the data collection methodology and the methods employed in the research, a model for the final PhD research design can be generated (Figure 6.4). The model demonstrates how the various components of the study come together to answer the research questions.

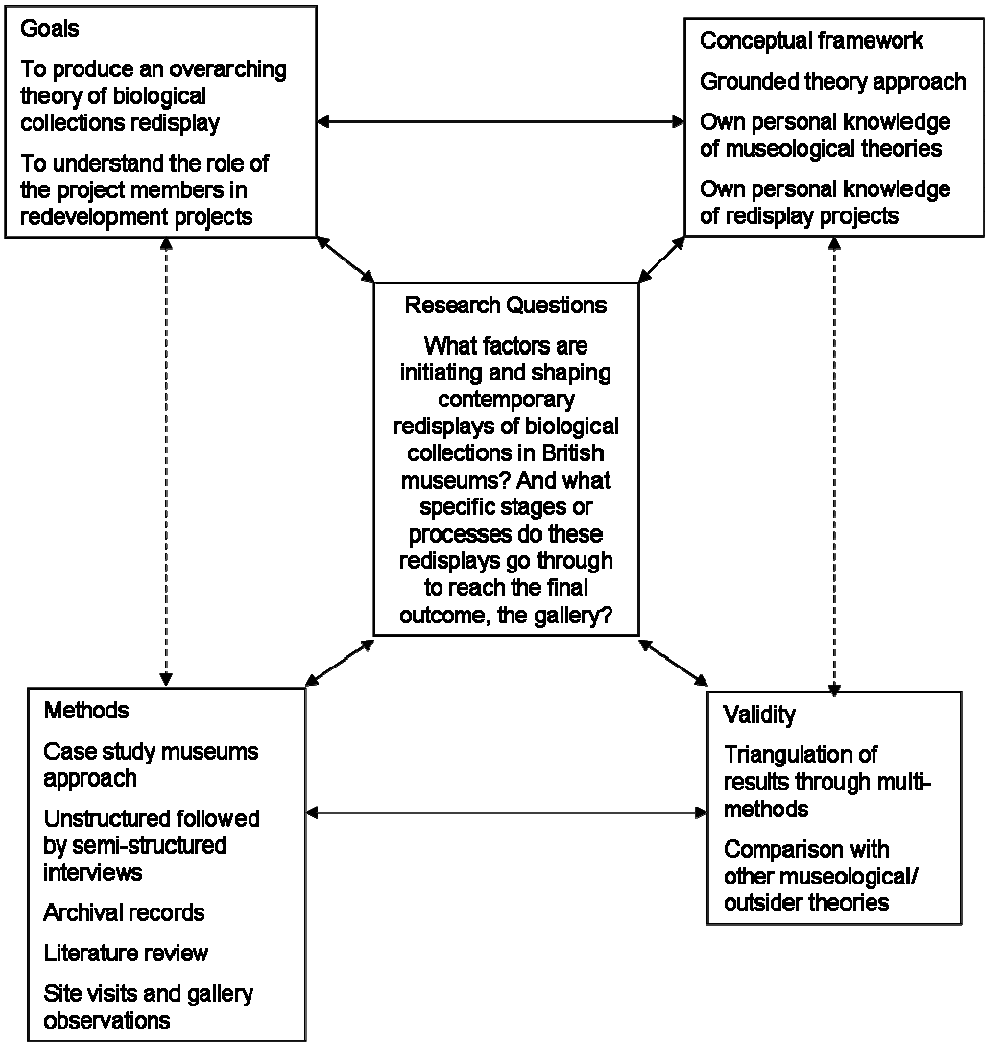

Figure 6.4 PhD research design. Adapted from Maxwell 2005: 9

The previous chapter introduced the case study museums chosen as a focus for this research. Together with the methodology, the research design has been introduced and the scene set for the analysis and results of the research. The next chapter explains the steps taken to analyse the collected data using the grounded theory method.

Chapter 7
Data Analysis: Coding for Grounded Theory

The initial methodology chapter (Chapter 4) introduced, amongst other things, the methods employed in this study and provided an overview of the grounded theory approach. The previous chapter detailed the initial research, the results and emergent research threads, subsequent revised objectives and the chosen methods for in-depth data collection. In this chapter, the process of data analysis is introduced with the steps for each phase specified.

Presentation of the full transcripts for each interview can be found accompanying this thesis as a CD-ROM. Each interview has been edited for clarity in terms of sentence structure, sentence length and interviewee expression as recorded in my research notes. Participants were sent copies of their transcripts and asked to clarify any points or make grammatical changes where necessary. Few of the participants chose to amend original versions but those that did were checked against originals so as not to lose content, context or spontaneity.

7.1 The coding process

Coding is the analytic approach applied to Grounded Theory studies. Defined by Charmaz (2006: 42) as a method which 'categoris[es] segments of data with a short name that simultaneously summarizes and accounts for each piece of data', codes are both close to the gathered data and theoretically and conceptually produced.

Although different coding stages have been predicated by the various proponents of grounded theory (see Glaser 1993, 1998, 2002 and 2005; Glaser and Strauss 1967; Strauss and Corbin 1990, 1997 and 1998), this study has selected specific stages to form an analytical framework for the primary data collected during the semi-structured interviews. The four analytic stages are described below for clarification purposes using examples and diagrammatic representations.

7.1.1 Initial (line-by-line) coding

Initial coding, or line-by-line coding as was used in this research piece, is the first step in the analytic process. As an analytic step, initial coding remains close to the raw data it is derived from and does not take on the theoretical or conceptual stance that the subsequent stages of the process do. The initial coding technique is used to generate the first sets of codes from the raw data, codes which are constantly compared against new data and further emerging initial codes.

Initial coding can take three main forms; the first is word-by-word coding, the second line-by-line coding and the third, coding incident to incident (see Charmaz 2006: 50-53). The second form was selected as the most appropriate method for initial analysis and code creation using the interview data gathered. It is the favoured method amongst most grounded theorists as it can help 'identify implicit concerns as well as explicit statements' (Ibid 2006: 50). Line-by-line coding also provides a detailed interaction with the data (as opposed to incident by incident coding) whilst maintaining a sufficient distance from the minutiae of the data i.e. word-by-word coding.

During these initial stages of coding, rules were adopted from Charmaz's text for practical reasons. They were:

- Remain open
- Stay close to the data
- Keep your codes simple and precise
- Construct short codes
- Compare data with data
- Move quickly through the data (Charmaz 2006: 49).

It is important to remember at this very early stage in the analytical process that data should not be forced into a category and that the researcher's preconceptions should be as limited as possible.

By observing these rules, and using active verbs to describe code categories, the interview data was analysed. Figure 7.1 is an extract taken from an interview conducted with a project team member from one of the case study museums.

Lacking space Selecting themes 'Editing process' Second-guessing visitors Justifying decisions Omitting objects Making decisions 'Letting go'	There were lots of themes and you can't possibly squeeze them all in. It's a huge selection process that we went through, the editing process and some of those themes are just too hard, too difficult for visitors to get. That's normally the reason why. Objects also get de-selected and that's purely because we haven't got enough space or cost to provide an extra showcase. We have to let go of things as we move on, which is hard for everybody.

Figure 7.1 Line-by-line coding example using interview extract. Paddon ©

The codes for each sentence appear on the left hand side of the page whilst the original interview text can be seen on the right hand side.

Each sentence of all sixteen semi-structured interviews, and the six unstructured interviews, was analysed using the line-by-line approach to achieve the initial open codes. The adoption of this approach and the use of active verbs meant that the emergent categories had both fit and relevance to the overarching theory (Charmaz 2006: 54; Glaser and Strauss 1967). In addition, some of the codes were *in vivo* codes. These types of codes are explained briefly in the next subsection.

In vivo codes

From Figure 7.1 it is possible to note two codes on the left-hand side which are in inverted commas; 'Editing process' and 'Letting go'. These *in vivo* codes represent the participant's use of specialised terms or terminology (Charmaz 2006: 55) or, as Seale (2003: 295) states, they are 'categories that interviewees themselves appear to be using'. These codes act as 'symbolic markers of participants' speech and meaning' (Charmaz 2006: 55) and further bolster the fit and relevance of the emergent coding categories.

7.1.2 Focused coding

The focused coding stage is the next step in the development of the analytical process. From the initial line-by-line codes, the most significant and frequent codes are synthesised to incorporate data 'incisively and completely' (Charmaz 2006: 57). Focused codes progress to become theoretical and conceptual

categories. This process of assimilation accounts for the elimination of certain initial code outliers. It also accounts for the reduction in the number of codes progressing to the subsequent stage; theoretical coding.

7.1.3 Theoretical coding

As the analytic process progressed, the coding stages became more abstract and began to develop into conceptual and theoretical constructs. The decisions taken by me as researcher led to the production of eleven focused codes which were all connected to each other through the initial codes generated from the raw data. Further abstraction and theorising led to the third stage in the analytical process and the generation of theoretical codes. These final codes encompassed the 11 focused codes, and therefore all of the initial codes. The theoretical codes, as well as the focused codes, will be examined comprehensively in the results chapters of this thesis.

7.1.4 The core category

The aim of this research, and in employing the grounded theory approach to qualitative data gathering and analysis, was the construction of an overarching theory, or hypothesis, that would explain the process of biological collections redisplay at the selected three case study museums. The core category was reached by progressing through each analytic stage, theorising and developing codes interpreted from the primary data. Strauss and Corbin (1998: 146) explain the core category and its main attribute as 'its ability to pull the other categories together to form an explanatory whole'. In addition, they claim that a 'central category should be able to account for considerable variation within categories', the conceptualisation and theorisation of which have formed the development of my codes throughout the process.

7.1.5 Coding features

The entire analytic process is inductive and comparisons are constant (Glaser and Strauss 1967) leading to the recoding of some data. This is acceptable, acknowledged, and even expected, within this approach to qualitative data analysis (Charmaz 2006: 70). Through each step of the coding process, the data were compared with each other, for example, across interviews and within interviews (Charmaz 2006: 54; Strauss and Corbin 1998: 206).

Figure 7.2 illustrates the movement from one stage of the coding process to the next. Each step of the pyramid represents, figuratively, the amount of data, or codes, in use at each stage.

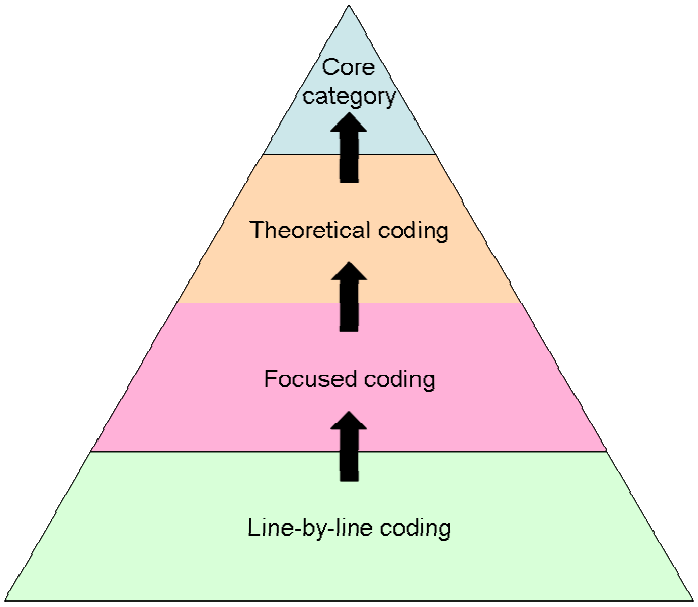

Figure 7.2 Coding pyramid. Each stage of the coding process is building on the previous one; tightening theories and ideas, progressing to the final core category. The core category envelopes all of the theoretical codes, focused codes and subsequently the line-by-line codes, aside from any outliers in the different stages of conceptualisation. Paddon ©

During the constant comparative process of coding, memo writing is a major component. It is advocated most strongly by Charmaz (2006) and Strauss and Corbin (1998: 217), the latter of which describe them as 'analytical and conceptual'. The next subchapter elaborates on the process of memo-writing and the stages of the analytical process in which it applies.

7.2 Memo writing during data analysis

In Charmaz's (2006) text, 'Constructing Grounded Theory', an entire chapter is devoted to memo-writing. Here, Charmaz (Ibid: 72) refers to memo-writing as a 'major analytical phase of [the] journey' and as a process it 'expedites your analytic work and accelerates productivity'. Although I will not dedicate the entire chapter to memo-writing; techniques or practice, I do feel justified in explaining the importance of the process within this research piece. Charmaz mentions how it is essential for the reader to understand the development of coding stages further advocated by this 'pivotal intermediate step' (Charmaz 2006: 72).

‘Memos are uniquely complex research tools. They are both a methodological practice and a simultaneous exploration of processes in the social worlds of the research site’ (Lempert 2007: 245). Memos are synonymous with codes produced during data analysis. Memo writing allows the researcher to pause at each code and consider the category theoretically, ‘elaborat[ing] processes, assumptions and actions’ emerging from the particular piece of data.

They bring together the pieces of the coding puzzle and act as a reminder, for the researcher, about the coding selection in sentences or paragraphs of data. Memo-writing is an intimate process which encourages the researcher to engage with the data. An example of memo writing is shown below for an initial, line-by-line code (Figure 7.3). The interviewee discusses the importance of being able to redisplay the collections in the years to come after the redevelopment is completed:

> ‘We’ve always said that flexibility is a really important part [of the new galleries] so we want the flexibility to be able to change things, not have design that fossilises our galleries’ (J. Parsons pers. comm. 22.7.2008).

A code was assigned, in this case ‘creating flexible displays’, to this particular sentence. In a research journal, my memo elaborates on the code, detailing my thought-processes and associated theoretical ideas, or as Glaser and Strauss (1967: 107) express it ‘the initial freshness of the analyst’s theoretical notions’. They continue, it will also help ‘to relieve the conflict in his thoughts’ in the researchers mind (Ibid 1967: 107).

Memo: ‘Creating flexible displays’.
By creating flexible design features in new displays, e.g. flexible furniture, galleries are becoming more innovative and dynamic. Static displays, which remain in the museum for eras, are removed and replaced by ever-changing displays of new material, new stories or new interpretations. The interviewee sees this form of flexibility in design as a modern trend. I agree. This memo links with ‘changing trends in natural history displays’ because flexibility seems to be a phenomenon of collection redisplay in the 21st century museum. Re-using and recycling is a concept introduced by governments – possibly this flexibility and reusability of gallery furniture constitutes a link?

Figure 7.3 Memo for ‘Creating flexible displays’ taken directly from research journal. Paddon ©

Figure 7.3 is only one example of a line-by-line coding memo. Throughout the course of this research analysis, I have written memos relating to every code and done so for new codes generated in each subsequent stage (Figure 7.4).

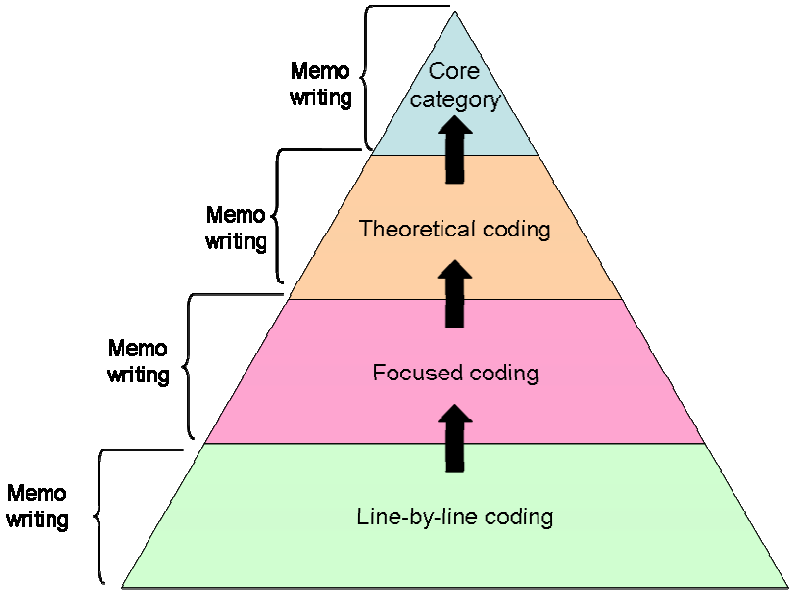

Figure 7.4 Coding pyramid showing memo writing at each stage of analysis. The black arrows denote the movement of analysis upwards; coding becomes more focused and theoretical and results in one core category, or theory, being produced. Memo writing occurs at every stage of the coding process and simultaneously with code generation. Paddon ©

As the researcher ascends the pyramid of stages, concentrating the research findings at each new level, the decisions and ideas are recorded in the developing codes. These codes become more elaborate and conceptual and also form the beginnings of a narrative. Charmaz (2008: 100) explains 'As you raise a code to a category you begin to write narrative statements in memos… that explicate the properties of the category'. This continues until the researcher reaches the final coding stage; the core category, where the memos which have been produced throughout the analytic process unite to construct the final robust, overarching theory.

7.3 Chapter summary

This chapter has sought to explicate the constant-comparative method for grounded theory data analysis. Each step of the analytic process has been detailed with examples provided. Memo-writing, the 'pivotal, intermediate step'

(Charmaz 2006: 2), has been introduced using an example initial line-by-line coded memo taken from the authors own research journal (Figure 7.3).

The remainder of the thesis chapters will discuss the research findings and emergent overarching theory.

Chapter 8
Factors in the Redisplay of Biological Collections

So far, this thesis has presented the museological research problem under investigation; the redisplay of biological collections in British museums and the factors and processes that affect collection redisplay. In order to answer the research question, an aim and seven practicable objectives were formulated (see Chapter 1) and provide the focus for the research. Through a comprehensive historical narrative (Chapter 2), the display and interpretation of biological collections has been charted, incorporating developments from the earliest recorded museums of the Greco-Roman period to the modern, contemporaneous museums of Britain and the rest of the world. A brief literature review (Chapter 3) explored possible factors to redisplaying collections, from museum architecture, with its impact on display and interpretation, to government policies and museum-related initiatives. The methodology for the research study was outlined in Chapters 4, 6 and 7 with the case study museums introduced in Chapter 5.

This chapter is the first of three results chapters. The results are presented according to the stages in the grounded theory 'pyramid' of research analysis (Figures 7.2 and 7.4). Each chapter represents an analytic step upwards through the pyramid and whilst the core category is elucidated in the brief final chapter, theoretical undertones are constructed throughout Chapters 8 and 9.

This chapter explores the first stage of the analytic process – the progression from initial codes to focused codes. Groups of initial codes were brought together and given more theoretical, overarching headings – focused coding categories. It was also possible, having ascribed many of the initial codes to more than one focused coding category, to make links between focused codes. In the interests of clarity, this grouping of codes and the links between the codes is represented diagrammatically in Figure 8.1.

As mentioned in Chapter 7, each stage of the analytic process involves writing memos to record ideas and thoughts as they are developed. Although the reader does not have access to my research journal, and therefore cannot be familiar with each memo at every stage of the coding process, they do become

aware of the ideas and theories arising from the coding process through the findings reported within the following results chapters. It is unwieldy and impractical for the reader to interpret and comprehend the memos in their raw state, which are also divorced from their context in their unrefined form. The object of these results chapters is, therefore, to interpret the codes at each stage, using them as a platform for theorising the emergent concepts in the research, and to reveal the factors and process of contemporary biological collections redisplay.

8.1 Results of the first analytical stage

Figure 8.1, a cluster diagram, shows the 66 initial codes, or line-by-line codes, (in circles) and the eleven focused codes, or family units, (in squares); the results of the first stage of data analysis. As the focused codes emerged during the analytical process, it became clear that they could be considered as factors in the redisplay of biological collections.

The following eleven sections correspond to each of the focused codes identified during the analytic process. Using the data gathered from interview participants, alongside published and grey literature, the findings of the research begin to emerge. The focused codes suggest that their overarching categorisation is a factor in the changing nature of biological collection redisplay. They also help to define the new dynamic project process at work and raise the conflicts, problems and issues involved in such large-scale redevelopments.

The sections presented below are not presented in an order of significance but each has links to the next. Beginning with the 'Accentuating Victorian architecture' code, the sections make their way round the clusters of focused codes (Figure 8.1) to finish with the category 'Designing flexible galleries for indeterminate longevity'. Due to the linkages between focused codes, there are overlaps with emerging ideas and issues – for example, 'access' is an initial code linking the 'Accentuating Victorian architecture' code with the 'Shifting power: the audience in the museum' code. Here, access is dealt with from two angles; the difficulties in opening up access in period, listed buildings, but also from the perspective of the audience and the steps taken by museums to ensure better access for their visitors. Many similar linkages are made throughout the sections as ideas overlap and issues interconnect.

Figure 8.1 Initial and focused codes in cluster diagram

The remainder of this chapter is dedicated to the discussion of the focused codes.

8.2 Accentuating Victorian Architecture

Whilst the facades of our local and regional British museums have gone unchanged for many years, as a result of their protection via listed building status, the interiors of Victorian institutions have been changed, in some cases beyond all recognition, from their original architectural and experiential visions. Gallery spaces have become victims of progressive design trends whilst growing collections have caused the reclamation of public rooms. The monies, given in support of the redevelopment of these British museums, has enabled museum teams to not only address the redisplay of the biological collections, but also, to embrace the buildings within which the collections are cared for and displayed. This move to revamp and restore the original museum building has led to the development of 'accentuating Victorian architecture' as a key concept, and factor, in the redisplay of biological collections; the reasons for which are explored within this chapter.

'Accentuating Victorian architecture', in the context of contemporary biological collection redisplays, is regarded as a focused code, and as a result, has numerous initial codes which bring together theories about the transformations occurring in museums. Here, aspects such as circulation routes, prescriptive viewing orders and off-site storage facilities all play a part in accentuating the Victorian architecture of the three case study museums, not to mention the raw architecture of the buildings themselves.

Taking, in the first instance, the architectures of the three case study museums – which were all designed and built in the nineteenth century – they all possess different architectural styles. From Spanish Baroque, in the case of Kelvingrove (Glasgow Museums 2009c), to the neo-Gothic architecture of the Royal Albert Memorial Museum, finally to the Hancock's Greek Revival style, all are grandiose, dramatic, landmark buildings. And it is these landmark buildings, according to Suzanne MacLeod (2005: 3), that can '[create] a visual feast and sense of occasion that is rarely experienced in other building types'. However, working with these buildings, in the case of restoration, revamping and accentuating their original features, can be difficult. This is, for the most part, as a result of listed building status, granted to protect the fabric of the building from

extensive remodelling and/or reworking. This may, at first glance, appear to impede the progress museums of the twenty-first century are trying to embrace, but these restrictions have, in fact, forced museum redisplay teams to concentrate on the origin of their institutions, embrace the architecture of the past and position the collections within suitable designs to emphasise their interpretations.

In embracing their Victorian legacies, the accentuation of the original architecture was a feature of all three case study museum redevelopment projects. For the RAMM (Exeter City Council 2004: 5) the aim was 'to reveal the original clarity of the existing building'. Similarly, the Great North Museum (ND: 1) project team developed an aim which was to see 'the restoration of the listed Hancock Museum' completed as part of the redevelopment project. And finally, the Kelvingrove New Century Project (KNCP 2001: 7) planned to 'restore the building to as near its original condition as possible and introduce new displays in ways which respect the architecture'. These planned restorations and revelations were as a direct result of badly remodelled, and inherited, museum spaces. Dan Gordon explained 'over the years, people have built false walls, they've filled in spaces, they've blocked things off so you never really got the sense of the original space as it was conceived when the museum was first built'. In the mid-twentieth century, there was a trend to hide original architectural features to conform, in most cases, to contemporary design trends or it was seen as a way to avoid pitting the objects on display against the architecture that surrounded them. Now museum personnel are exposing those distinguishing features and unmasking their historic buildings (J. Parsons pers. comm. 22.7.2008); they are embracing, enhancing and accentuating their architectural heritage. They are '[making] the original Victorian architecture sing again' (K. Osborne pers. comm. 22.8.2008) to work in harmony with the multidisciplinary collections and contemporary display furniture.

The results of this research confirm that museum buildings are being 'stripped back' in order to '[bring] back the splendour of the Victorian museum' (S. McLean pers. comm. 8.1.2008). It is this decision to 'strip the building back to its essentials' (S. Latimer pers. comm. 14.5.2008), removing all of the crude twentieth century accretions that have enveloped Victorian craftsmanship, that is accentuating the architectural features which have been hidden by years of alterations. Not only has the uncovering of past accretions allowed the museum

building ‘to sing’, it has also allowed museum staff to work creatively and intelligently with the buildings’ features and proportions. One such example is the use of architectural dimensions as a way to create proportional display units. Esther Dugdale (pers. comm. 5.9.2008) explained ‘we worked back and found the original scale that the Victorians had used to give the proportions to the galleries and we used that for the displays’.

Displays, their furniture, collections and supporting multimedia, are no longer competing with the architecture of these museums. Instead, museum display furniture ‘looks like it belongs’ (Ibid pers. comm. 5.9.2008), not opposes the building in which it sits. This effort to work harmoniously with the collections and their homes, the museum building, and the frankness of the architecture, has provided new opportunities for collection interpretation, design ideas, story development and overarching themes. ‘The nature of the architecture is such that we would want to enhance and capture that and make the best use of that. That has had an effect on the displays. It’s been one of the deciding and defining factors in the way that we display things and the whole interpretation approach’ (J. Parsons pers. comm. 22.7.2008).

Accepting change in the form of a reversion to a building’s original integrity, inevitably means altering a museum space to accommodate these changes, the consequences of which have considerable impacts on the audience, collections and museum staff.

Within the redevelopment projects under study, the decision-makers - the project manager and remaining project team members - made it clear from the outset that the projects were aiming to improve access and that visitors were a top priority in the redevelopment agenda. The KNCP (2001: 7) stated that it aimed to ‘create a genuinely visitor-centred museum’ and ‘reduce the proportion of the building devoted to functions which can be carried out elsewhere and maximise the space devoted to access’. These goals are representative of the three museums studied. Marrying the return to the building’s original integrity with the prioritising of access and visitors, meant that private spaces such as offices, laboratories and storage facilities, had to be re-evaluated. As a result, each museum took the decision to restore those private spaces to public spaces, earmarking them for the purpose of display and formal and informal learning facilities. The knock-on effect of this decision was two-fold.

Firstly, the museum architects and designers were given the opportunity to work together to create a renewed synergy within the museum. Sinuous visitor circulatory routes and enticing vistas were developed, gallery placement was considered carefully in light of project themes and collections, and likewise, museum project teams were offered the chance to create linked displays and incorporate overarching themes. The second effect, which is equally if not more radical, is the resultant removal of on-site collection storage to off-site facilities. I will address each effect in more detail.

8.2.1 Making private spaces public once more

Restoring such large, grandiose buildings to their original glory is extremely costly. In each case, over one third of the total redevelopment budget was spent on the restoration and upgrading of the museum building (see KCNP 1999: 175, Exeter City Council 2006: 6, Tyne and Wear Museums ND: 1). But, the realignment of the interiors of these museums, with the original architectural vision, brought about changes in the public and private spaces within the museums, 'we're adding maybe 40% of display space to the museum so it's quite a big change in terms of floor space for exhibits' (S. McLean pers. comm. 8.1.2008). But, in the wake of the reclamation, private museum spaces have suffered. Museum offices, stores and laboratories were cleared allowing for the re-establishment of unbroken visitor circulatory routes, and improved visitor orientation. In many cases, these broken routes around museums meant visitors often had to backtrack through galleries to reach the next, causing disorientation and visitor frustration.

Research into visitor circulation in museums has divulged much about museum visitor characteristics and behaviour (see for instance, Ambrose and Paine 1993: 220-228; Klein 1993; Royal Ontario Museum 1999). Complex circulation models have helped to inform museum professionals about likely circulatory routes visitors will take – although this tends to focus on gallery-level circulation. Circulation also has to be considered on the museum-level. All of the museums that form the focus of this study, are multi-storey buildings. Circulation studies commissioned at the museums illustrated, in the case of Kelvingrove, 'two thirds of those million visitors that we had before we closed, never went upstairs' (A. McReavy pers. comm. 6.8.2008). This is symptomatic of most museums but what is not so certain is the reason(s) behind the failure to explore upper

storeys. There are a number of suggestions: the material on display, museum fatigue, lack of time, etc.

Taking into account this revision to visitor circulatory routes around the museum, with thanks to the redevelopment of the entire collection of galleries, project teams were offered the opportunity to consider the placement of each new display thus revising the museum's layout and aiming, at the same time, to overcome the 'upstairs, downstairs' divide. Applying Lehmbruck's (1974) typologies of circulation, it is clear that in opening up the museum, circulation becomes a decision to be made by the visitor. Museums are embracing the move away from dictatorial routes around museums (the arterial, comb and chain typologies), towards providing choice and alternatives (fan or block typologies).

However, although museums are passing ownership for certain decisions over to the visitor, museum personnel are prepared to encourage visitor flow along specific museum routes (Macdonald 2002: 140-141). Gallery placement was tactical, as Anthony McReavy (pers. comm. 6.8.2008) explained: 'the challenge was to get people to go to what they wanted to see as quickly as possible whilst at the same time routing them past things that we wanted them to see, much like a department store.' This was achieved through the creation of vistas, drawing visitors through the galleries, enticing them to the next display. The Victorian architecture of each museum lent itself to this precise aspect of design. Esther Dugdale (pers. comm. 5.9.2008) stresses the response which all interviewees made, that the Victorian museum was 'built for drama… it was built to frame views'. The importance of gallery placement was not overlooked, and should not be overlooked, as established by Falk and Dierking (1992: 149) who suggest that 'those exhibits closest to the front door will get the most exposure, 'the discovery centres and the galleries that are much more interactive… they are all in the corners as far away from the doors as you can get' to draw people through the museum (A. McReavy pers. comm. 6.8.2008). The tactical placement of galleries will also affect how a visitor responds and behaves (Ibid 1992: 149). Kate Osborne (pers. comm. 22.8.2008) spoke of her worry that the galleries were not allowing for different paces of learning and engagement, 'I do worry looking at the plans that we have not created enough social spaces in those galleries, seating, gathering, group stuff'.

The circulatory situation within galleries is much the same as the free-flowing circulatory routes around the museum, offering the visitor choice, 'we've designed the plan so that you can go wherever you want' (K. Skellon pers. comm. 15.7.2008). Gallery spaces in the redeveloping museums are typified by the lack of prescriptive routes. Again, this move to non-prescriptive viewing of objects and narratives has a two-fold effect. It can offer the opportunity for self-directed learning; 'dipping in and out' (K. Osborne pers. comm. 22.8.2008) but it can also deter some visitors. 'I think it depends on the individual…whether they feel quite confident throwing themselves into a situation or whether they need that beginning and end' (N. McNicholas pers. comm. 10.1.2008). This decision to move to non-prescriptive routes and pathways, through both the museum and galleries, works in unison with the move to flexible displays, an aspect which will be considered in more depth in the section of this chapter 'Designing flexible galleries for indeterminate longevity'.

For the museum team, one of the main challenges to the re-introduction of free-flowing circulatory routes around museum galleries is the creation of non-prescriptive gallery narratives. Sue Latimer (pers. comm. 14.5.2008) suggests that 'the key principle of the interpretation was that whether it's an element as small as a label or a graphic for the whole story you couldn't make the assumption whatsoever about where people were to come at it from'. In all non-prescriptive galleries, all hierarchies of text and other information, must make sense to the visitor who is unconstrained in the routes they pursue and decisions they make about the information they assimilate. Similarly, the concept of haphazard, randomised information in-take whilst moving around the gallery means that an overarching theme needs be identified in whichever text or interpretation format the visitor happens to come across, 'you can come in at any point and hopefully the text is written so that you can pick up what the whole gallery is about from any piece of text' (J. Williams pers. comm. 15.7.2008). This non-prescriptive viewing concept also, positively, allows visitors to return to stories and narratives if the museum, or gallery, is particularly busy. Richard Sutcliffe (pers. comm. 13.5.2008) explained 'there are a few stories where [the viewing order] does matter but the majority you can go wherever you want, which is really good when the place is busy because sometimes you can't get to the one you want to see first.' In creating gallery spaces which allow for 'dipping in and out' and 'picking and choosing', museums are also catering to the needs of their repeat visitor audiences. The RAMM's new narrative approach and

collection interpretation mean that 'the galleries don't have a specific order; you can read them in any way' (J. Parsons pers. comm. 22.7.2008). This change in the way in which museums tell stories and use text in their galleries can be seen as empowering the audience. This shift in power from prescribing a route for visitors to follow, telling a story which has to be attended to in a sequential manner, has been substituted for choice, decision-making on the part of the visitor. This shift in power forms a link with another of the focused codes; shifting power: the audience in the museum.

This non-prescriptive routing appears to be a characteristic trait in museums as they move from didactic displays where the visitor is controlled in their learning and the information they have available to them, to constructivist learning, where the visitor will take away from the experience as much or as little as he or she wants.

Orientation was another key factor in the move to accentuate the Victorian architecture of the buildings. Difficulties in orientation, and circulation, were identified in evaluation studies, for example building usage surveys, prior to the redevelopment of the museums. Museum personnel could identify with the frustrations of their audiences, 'we were pretty certain that people in the old building did get disorientated because we did as well!' (J. Parsons pers. comm. 22.7.2008). Therefore the issue of orientation was a key concept to be addressed in the redevelopment of the museums.

8.2.2 Storage solutions

As mentioned above, there are two effects of removing twentieth century accretions. The second effect – the removal of on-site storage facilities to purpose-built, off-site warehouses – marks a monumental change in the way biological collections and other disciplinary collections are stored.

For the positive, optimistic observer, the removal of invaluable, organic biological collections from damp, insufficient storage within the museum, to purpose-built, climate-controlled, satellite facilities (Cassar 1995: 125) is one of the most significant acknowledgements of the importance of museum collections in the past 100 years. Dan Gordon (pers. comm. 26.6.2007) commented, 'we're actually going to have proper storage for a lot of the animals and a lot of the specimens that were here'.

Making way for public space, by reclaiming private work areas or, as one museum worker put it: 'we've basically freed up the building for display' (R. Randall pers. comm. 22.7.2008), means that the amount of display space gained in museums is around 30-50% (KNCP 1999: 3; S.McLean pers. comm. 8.1.2008).

For others the move is more contentious, 'given the opportunity, I wouldn't have an off-site store. I think that every effort should have been made to actually develop the whole site; have everything on one site. That would have made a lot of difference' (D. Bolton pers. comm. 15.11.2007). Ironically, the accentuation of Victorian architecture has led all project museums down the off-site storage path. So in swapping private spaces for public spaces the museums have become more Victorian and in-line with their original ideologies but, at the same time, collections would not have been housed in off-site facilities, separating the curator from the museum itself.

In addition, this move to storing collections off-site, particularly for the curatorial staff, immediately produces a psychological barrier between the collections, displays, audience and themselves. In the harshest sense, the move to store collections off-site, exacerbates the already-difficult relationship between the curator and the audience. Now, divorced from the collections, and working within the museum, curators are seemingly not performing their duties of collection care and management. But housed in offices off-site, curators are still unaware of audience interactions with biological collections. The once observed 'front and back' divide in museums (Forgan 2005: 578) between the curator and the audience, may now be considered the 'in-house and out-of-house' divide as collections and curators are again, divorced from the general public. Consequently, the museum team, which has accepted change as the redevelopment project requires, has adapted its team working, decision-making and communication approaches. After completion of the project and the dispersal of staff to various sites, either based at storage facilities, the museum or in other office buildings, the museum family is functionally broken-up (Morris *et al.* 2009: 134). Knowing that a project is limited in time, team members may be reticent to change their teamwork, decision-making or communication habits, knowing that working environments are likely to return to form on completion.

In light of the fact that museums are now placing their collections in off-site storage facilities, where should a curator be stationed? With the collections, is the obvious answer, but if we are asking curators to embrace change, accept change, and work more closely with museum visitors, and their peers, are these off-site storage facilities not creating more of a problem than they solve? It was never the intention of this study to seek out the answer to this question, as it has arisen from the interview data collected, but it is one that deserves considerable attention and could form the focus of further study.

8.2.3 Access and the accentuation of Victorian architecture

All of the aspects contributing to the accentuation of the Victorian architecture of these grand, civic institutions are underpinned by an overarching contemporary issue in museums: access.

Access can mean many things in museums; physical, intellectual, emotional, etc., and it can have many levels within those categories; specimen, collection and museum. It has also been 'a big driver' in the redisplay of biological collections (J. Parsons pers. comm. 22.7.2008). In fact, for the designers, the accessibility of displays has impacted on their work. Jon Williams (pers. comm. 15.7.2008) explains as a designer for the Great North Museum redevelopment '[Access] has been becoming law for a number of years and that's becoming more onerous for us, that's had a strong impact on the things we do, even aesthetics. It's getting quite difficult to do design-led things'.

Strict measures have been put in place to ensure access in museums, in all its formats, is considered by the institutions. In gaining Accreditation status, museums need to show that they have taken steps to ensure that their institutions are compliant with the terms of the Disability Discrimination Act (MLA 2004a). For the redevelopment of biological galleries, museum project teams work with access consultants to audit designs before they come to fruition (J. Parsons pers. comm. 22.7.2008; R. Randall pers. comm. 22.7.2008). This takes into account the hierarchies of text, opportunities for multisensory interactives, cased specimens, movement through the galleries for wheelchair users and partially-sighted audiences, etc. But museums are clear that no disability should go overlooked. Kate Osborne (pers. comm. 22.8.2008) articulated 'we're trying to devise approaches that will help with all kinds of disabilities because you can't have a hierarchy of disabilities; you've got to deal with all of them'.

This awareness of access issues has not only been the focus of the Museums, Libraries and Archives Council but also the key funders, the HLF. In their guide to applicants, they state that projects will only be considered for grants if they 'make sure that everyone can learn about, have access to and enjoy their heritage' (HLF 2006: 3). Funders are driving decisions made by museum staff and the ways in which they spend their monies. Tough decisions need to be made throughout the course of the redevelopment projects regarding access. Many decisions will have budgetary implications, for example, changing designs in order to comply with the DDA, more often than not, means having 'to make concessions elsewhere' (J. Parsons pers. comm. 22.7.2008) to keep within the limited redisplay budget.

In terms of accessing collections, the premise for redisplaying these biological collections has been the opportunity to re-interpret them, making intellectual and physical access easier. But the decisions made to site the vast remainder of biological specimens off-site, surely lessens other forms of access? Not necessarily. In the case of the Great North Museum, the collections are being relocated within another museum, albeit off-site. It is hoped this move will improve access to collections, not only for the general public, but also for the expert, 'we can accommodate researchers and get the specimens out. You know, we can get our drawers of study skins out for research' (N. McNicholas pers. comm. 10.1.2008).

There appear to be two different types of off-site storage. Sites like those for the Great North Museum natural history collections where they are re-housed within other customised museum buildings or discovery centres (similar to Leeds Museums and Galleries, C. Stringer pers. comm. 7.5.2009), and those that are truly separated from the museum and the public. The RAMM and Kelvingrove collections are being stored in the second type of storage facility mentioned. They take the form of warehouse-type buildings and are situated in industrial parks, away from most local transport links. This approach to off-site storage solutions can be seen in other redevelopment projects around the UK, for example, Sheffield's Weston Park Museum and Winchester City Museums. But will museum audiences travel the distances to get to a museum's off-site store? Will visitors be granted access to collections and staff? In which case, are the access issues simply being shifted by moving collections off-site, or worse still, are collections access issues becoming more acute?

8.2.4 Conclusions

Accentuating Victorian architecture, as a factor in the redisplay of biological collections, acts as an overarching theme to the many facets explored above. In accentuating the Victorian buildings, left as legacies for today's society, museum redisplay teams have been offered the opportunity to rethink internal spaces, create new display philosophies, overall design concepts, and use of space within the museum. In doing so they have created new circulatory routes, developed off-site storage facilities and created opportunities for improved access for all.

With accepting change as the overarching theory resulting from the research into biological collections redisplay, it is clear to see that the improvement of the physical structure of the museum has offered up opportunities for change. In these project museums, staff have accepted the change in collection's storage, albeit with some reservations, and embraced the shift away from prescriptive, didactic routes to the non-prescriptive, self-directive routes around museum galleries we now see.

In accepting the Victorian legacies of architecture, museum teams are working together to create displays that enhance and support those legacies. Perhaps, as restrictive as these buildings may seem to many, within and outside of the museum, the same problems will be faced by the museum teams of the future in the contemporary style museums which are emerging across the globe today; Te Papa Tongarewa, the New Acropolis Museum and the National Museum of Australia, to name a few.

The need to accept change in museums is clear. But the implications of the consequent decisions are not always so clear-cut.

8.3 Shifting Power: The Audience in the Museum

The Victorian museums of this study were conceived of as institutions within which collections would be gathered and displayed to educate the masses (Alexander 1995: 158; Fyfe 1996: 213; Hooper-Greenhill 2000: 2). The idea that the Victorian natural history curator, the expert in all biological and geological studies, would form a focus group to gauge what his or her audience wanted to see on display, or conduct interviews to identify the kinds of subjects or stories that the visitor was interested in, or would study how individual learning styles

differed across the mass audience, was inconceivable. Displays of biology, as well as writing styles, have remained didactic in nature since their Victorian inception. Lindauer (2006: 213) believes that this forced learning and interpretation in museums can be viewed as 'asserting factual information and exuding an aura of truth or respected knowledge' about a subject, a collection or a specimen. Further to this, the didacticism witnessed in countless museum displays demonstrates the social and/or cultural power of curator over visitor (Ibid 2006: 213). Lindauer interprets this power, a term defined by Mieke Bal as 'truth-speak', as the trust which is placed in the 'experts' by the visitor – that display information, museum literature and curators, are correct and truthful (Bal 2006: 201).

But the tables have turned. With the advent of the 'New Museology', or 'Museologie Nouvelle', in the 1980s, and its progressive theorisation in museological studies (Halpin 2007: 49), there has been a call for 'change, relevance, curatorial reorientation and redistribution of power' (Stam 2005: 54-55). This call for change was borne out of pressures from the social, economic and political environments of the late twentieth century, in which many British museums were obliged to justify their value and worth. The factors of the New Museology; change, relevance, curatorial reorientation and redistribution of power, are observed in the shift in power towards the audience, a factor which has appeared in the analysis of the data collected at the case study museums.

The redistribution of power is most keenly seen within two groups in the museum: the audience and the biological curator (curatorial power shifts are examined within the self-titled section of this results chapter). Here I am concerned with the change in power for the audience and visitor; the shifts in museological thinking which have encouraged those power changes and the implications, if any, these shifts in power have for audience involvement in the redisplays of biology across Britain.

This shift in power for the audience charts many aspects of museological change including increased awareness of access issues, the need to understand the museum audience (who are our visitors? What do they want from their museum?, etc.), the implications for team structures in museums, the need for consultation/evaluation and audience development programmes, and the implications for displays and designs in light of thinking about the audience.

Each of these changes has been observed at the participating institutions and are seen from different perspectives according to the position of the member of staff. They will now be examined more closely.

As described above, the museum sector, as a result of the developing New Museology, came to the realisation that if change was to happen and museums were to become more relevant to their audiences, and society, they would need to consult with them and markedly change the ways in which displays were developed.

Although the need to understand the museum audience, and their motivations, emerged in Britain during the 1960s (Merriman in Hooper-Greenhill 1994: 59), it was not until the 1980s that the sector, as a whole, embraced the idea of audience consultation (Dean 1996: 19). Audience consultation, or evaluation, has three major stages (Grewcock 2001: 44-57). Beginning at the conceptual stage of the project, front-end evaluation is used to test ideas, themes, stories, concepts, etc. and build up visitor profiles, whilst simultaneously identifying new audiences (Ambrose and Paine 1993: 107; Hein 1998: 59). The second stage occurs at the same time as the development of the project, formative evaluation, and can be used to test display schemes, text and reading levels, display formats and furniture, etc. (Diamond 1999; Durbin 1996: 216). The final stage where consultation occurs after the gallery has opened is known as summative evaluation (Grewcock 2001: 44-57). At this phase of the evaluative process, consultation is used to rectify problems in a gallery and feed into future redisplays (Hooper-Greenhill 1994: 75).

In line with the New Museology philosophy of empowering the audience, the first audience surveys of the last century identified and defined the key audiences in museums. This identification and definition of audiences was a key factor in the redisplay of biological collections for the three project case study museums.

8.3.1 Front-end evaluation

In order for each museum to identify and define their audience, museum staff, and external consultants, conducted front-end evaluation with museum users and non-users. They employed a mixture of qualitative and quantitative methods: self-completion questionnaires, demographic and quantitative research, focus group research, and observational studies, in order to identify

and define their audiences (D. Gordon pers. comm. 10.1.2008; DBA 2006; Economou 2004: 33; KNCP 1999: 24-27).

Maria Economou (2004: 30) explained, in her paper about the evaluation strategies employed at Kelvingrove, that the consultative studies were 'the first step in determining who visits the museum'.

Having conducted front-end evaluation, the project teams identified a variety of audiences (Table 8.1) who would feed into the interpretation, story and theme development. Julien Parsons (pers. comm. 22.7.2008) explained that by working with consultants at the conceptual stage of the redevelopment, it was possible to identify 'who our audiences are and who they should be… we ended up with quite a simple split in terms of the redevelopment and key audiences'.

	Kelvingrove Art Gallery and Museum	Great North Museum	Royal Albert Memorial Museum
1	Families with children under 8	Families	Families
2	Families with children over 8	School groups	Young people
3	Teenagers/Young people	Younger people	Older people
4	School groups (5-14)	Older people	People with specialist interests
5	Knowledgeable visitors	Academics	People with disabilities
6	Tourists	Tourists	Formal education groups
7	Sensory impaired		
8	Elderly (people over 65)		

Table 8.1 Target audiences for Kelvingrove, GNM and RAMM. Groupings taken, respectively, from KCNP 1999: 9-11; S. McLean 2008; RAA 2006: 10)

From Table 8.1, it is clear that the key audience in these museums is the family group. Steve McLean (pers. comm. 8.1.2008) stated 'we know that family audiences are going to be our key audience'. This was corroborated by Jon Williams (pers. comm. 15.7.2008) who said, 'the core audience is families; there's no doubt about that'. The family group has been identified as 'a very fast-growing section of the museum audience' (Middleton in Hooper-Greenhill 1994:

15), and one that dominates the redisplay of biological collections in museums at present.

The prioritisation of the family group as the overarching target audience at these museums, illustrates a change in display philosophies in civic museums. Whereas previous displays, with Victorian philosophies, set the text and reading levels for the expert visitor, or well-educated visitor, the new displays focus on the family group, how they interact, learn, have fun and interpret collections for themselves. However, the move to simplify interpretation, primarily for family and school audiences, has been judged by some in the museum community as a step towards the 'dumbing-down' of museums – this is a highly-contested, well-established discourse in museums (Barr 2005: 99) which has been keenly debated in museums with biological collection displays.

Some authors, such as Frank Furedi of the 'Institute of Ideas', argue that the 'dumbing-down' of museum displays is indicative of a 'twenty-first century philistinism' whereby, culturally, intellectuality is shunned (Furedi quoted by Barr 2005: 99). Defensively, and understandably, museum staff feel that this is not the case. Kate Osborne (pers. comm. 22.8.2008) explained that she felt that the time for arguing about dumbing-down displays had passed, and that, as part of accepting change, contemporary museum teams are becoming more attuned to interpreting collections for a wider audience:

> 'I think actually we're getting beyond, in museum design, we're getting beyond the arguments that if it's comfortable to read it must be dumbing down. I think we're getting much more savvy at maintaining the intellectual content displayed but just making it easier to get to that content. And I think that's really good!'

In agreement with this perspective, many of the interviewees freely brought up the topic of dumbing-down during their interviews. The designer for the Great North Museum gallery of biology described the criticisms design teams are faced with in this contemporary design period 'the criticism we always get, is that you're dumbing down. Well, no, we're not dumbing down, we're just telling one story, keeping it simple because it's complicated anyway' (J. Williams pers. comm. 15.7.2008). Referring to the importance of the simplification of, what was, complex interpretations of science, the project manager said: 'I think we're hoping that we're going to achieve a good balance that will attract that diverse

range of audiences. But the bottom line is the family audience is still going to be the core business, no doubt about it' (S. McLean pers. comm. 8.12008).

For many of the interviewees, the harsh criticism received from staunch museum critics expounds the difficulties involved in pleasing everyone, 'that's the [criticism] that really hurts me the most because we're not dumbing down, we're focusing. We're giving [the audience a] focused point of view rather than all over the place but we're bound to get that' criticism (J. Parsons pers. comm. 22.7.2008).

Of course, this discourse in museums has had an impact on the interpretation of biological collections. Although museum staff may want to focus on the family audience, they understand that interpretation needs to be multi-layered, and within those layers it needs to be pitched at different levels. 'We need to put everything at a certain base level but that's quite low. When I say low I don't mean that in a patronising way but not everyone is interested in the same depth [of information] so rather than putting it all there and burying people what you obviously need to do is layer it' (J. Parsons pers. comm. 22.7.2008). It is also important not to alienate other visitor groups, as Jon Williams (pers. comm. 15.7.2008) explained

> '[the museum is] partnered with the university and the graduates use the collections for research; they're experts… so it's always been a really difficult path to try not to dumb it down, make it child-friendly to the point where it alienates the other group, but then we don't want to make it academic because the core audience is families, there's no doubt about that.'

This has led to other implications for biological collection interpretation but this will be explored further in 'Displaying biology in 21st century museums' (see section 8.10) and 'Designing flexible galleries for indeterminate longevity' (see section 8.12).

In addition to recognising the family audience as the key target group, the museums also had another visitor group in common (and one which is not directly addressed in the categorisation of visitor groups), namely repeat visitors. Anthony McReavy (pers. comm. 6.8.2008) stated 'we had a very loyal and established visitor base, half of them were repeat visitors' to Kelvingrove. This

statement is echoed by Ruth Randall (pers. comm. 22.7.2008), who stated that the RAMM 'have a very high number of repeat visits… MORI quite often does polls and we always come out much higher than all the other museums in the number of people who have been more than 5 times a year.' With such high numbers of repeat visitor at each institution, the museums made clear from the outset of their projects that they would aim to provide flexible gallery spaces, stories, and furniture to keep displays fresh. This flexibility in display design is explored in more detail in the section 'designing flexible galleries for indeterminate longevity' (see section 8.12).

Although most museums in Britain conduct visitor surveys on some level, the evaluation and consultation programmes developed as part of the front-end process for the three case study museums, sought to gather information which would not only detail the audience demographic but would involve the consultation of local groups and allow for the testing of concepts and designs through qualitative research. As Lankford and Scheffer (2004: 218) explain, 'when an exhibition or programme is still in development, front-end evaluation may be used to gauge audience reception and the effectiveness of the learning encounter before it is installed or utilised in the museum'.

At the GNM the team conducted a number of consultation exercises which ranged from sessions with teachers to focus group interviews to pre-closure surveys with general members of the public (G. Mason pers. comm. 10.1.2008)

This mixed-methods approach to data collection is common across the museums studied and serves as a means to collect both rich, real data (qualitative) and broad, highly-comparable data (quantitative). The introduction of evaluative methods to the museum sector has meant that museums have been forced to consider different approaches to consultation – a simple questionnaire will not suffice – and in employing a variety of consultation methods, Katherine Skellon (pers. comm. 15.7.2008) admits, 'We're really starting to understand what the audience wants, that's really come through'.

This 'getting to know your audience', and the subsequent understanding of the audience, is symptomatic of the museums as they move through the redisplay process and is beneficial to the museum project team 'always, an understanding of audience needs and expectations will enhance both the process and the

product of exhibitions' (Dean 1996: 19). For many museum professionals, who have been employed at their museum for a substantial period of time, the tendency is to assume audience knowledge, what they want to know and what subjects interest them. Front-end evaluation is a means with which to test out those preconceptions and begin to work together thus increasing the relevance of the displays to the audience.

The definition of museum audiences and the identification of the key target audience, in all three museums, helped to develop the aims, objectives and project briefs, and also interpretive frameworks (A. McReavy pers. comm. 6.8.2008).

In addition, front-end evaluation study data were submitted as part of the HLF bids, 'we've done lots of audience work' declared Ruth Randall (pers. comm. 22.7.2008) 'that was put into the HLF submission so we know where we're going on that. We know what our approach is'. Cementing the approach to the study in your own mind and the minds of your funders only justifies the project further. It also acts as a objective measure of appropriateness for funders – the HLF stipulate that projects must 'encourage more people to be involved in and make decisions about their heritage' with a sustainable outcome '[supported] by their community' (HLF 2006: 3-4).

8.3.2 Formative evaluation

From the outset of each redevelopment project, the museums developed focus groups, 'boards' or 'panels'. These focus groups incorporated members of the public who fitted the target audiences identified during the front-end evaluation stage. Julien Parsons (pers. comm. 22.7.2008) explained that 'the focus groups were based on [the front-end evaluation] audience groups plus specialists groups and teachers'. The maintenance of these focus groups throughout the duration of the project meant that involvement from the audience, and potential audiences, was fairly constant. Jon Williams (pers. comm. 15.7.2008) acknowledged 'it's also about everyone feeling that they are having a say in their museum, which is important'.

For Jeanne Robinson (pers. comm. 13.5.2008) these groups and initial surveys acted as a check for decision-making throughout the development stage of the redisplay process, '[the visitor surveys results were] kept very much in the

forefront of our minds when we were thinking about the style of the interpretation and the objects that were selected'. For others, data collected during the front-end and formative evaluation stages was important but didn't necessarily change the display approach, 'the feedback from [focus groups] was quite interesting but I'm not sure it meant that we changed direction' (J. Parsons pers. comm. 22.7.2008). So, for some, the evaluation undertaken with museum audiences is only useful as a checking mechanism. For others, the power of the audience is transferred directly into the decision making process, for example in the case of Kelvingrove.

Dean (1996: 13) states 'arbitrary, unilateral choices in exhibition topics are not acceptable to a public with other leisure options'. For Kelvingrove, audience consultation was used to guide the decisions about which stories to include in the new galleries: '[The Kelvingrove team] went through a huge process of consultation, audience consultation, where they had big sessions, where they listed all the stories that they wanted to tell and the public were invited to come in and tick the ones [they liked]. And so they whittled them down' (E. Dugdale pers. comm. 5.9.2008). In fact, audience consultation led to the story selection for the galleries but was not the sole deciding factor in final selection. Anthony McReavy (pers. comm. 6.8.2008) explained

> 'We… ended up with a list of about 100 stories and they were evaluated. We did it according to three criteria; what we had and what the strengths of the collection were; what the public were interested in seeing, so there are a couple of examples of stories where we haven't really got great collections but the public were just so keen; and the third one which was the opposite of that, was what we felt it was important to show, so there were a couple of stories that scored very low amongst our evaluation but we felt, as an educational institution, that it was absolutely right for us to have'.

The involvement of the general public in deciding upon which stories they wanted to see in their museum is not always echoed in other museums. The remaining project museums conducted consultation programmes but the results did not seem to have such a powerful impact as they did at Kelvingrove.

For many of the 'traditional' museum professionals, consultation is subjective and is viewed with pessimism. Reflecting on the formative consultation process

conducted with audiences as part of the RAMM audience development strategy, Dave Bolton (pers. comm. 15.11.2007) commented upon the suspicions he held about the quality and acceptability of evaluation results: 'most surveys either have too small a sample size to be really effective or they ask the wrong questions'.

Perhaps an effective way to combat this pessimism is by using the, quite expensive, example set down by the Kelvingrove redevelopment team. In order to test their new display ideas with audiences, a prototype display, which included furniture, text, etc, was set up within a gallery of the museum (R. Sutcliffe pers. comm. 13.5.2008). In similar evaluative programmes conducted by staff at the Science Museum, the mock-ups sought to 'involve visitors in the construction of the museum' (Macdonald 2002: 170). The prototypes gave the audience the chance to experience the new approach in its totality as opposed to testing individual display components bit by bit. The outcome was two-fold. It was a beneficial tool for the audience, gathering more valuable data than simple roundtable focus group discussions. And secondly, it allowed the project team members to see their approaches in action. For Sue Latimer (pers. comm. 14.5.2008), senior education and access curator for the Kelvingrove redevelopment project, this prototyping format acted as 'consultation as demonstration'. She explained that the curatorial teams often struggled to pitch their written interpretation at the right level. So instead of criticising curatorial efforts, and preaching about the way in which text panels and labels should be written, she felt it was far more advantageous to have audiences evaluate actual representations of the new galleries. 'The text that was coming through just wasn't right so [the mock-ups were] partly to demonstrate [to the curators] what the issues were' (S. Latimer pers. comm. 14.5.2008). In this way, curators could learn firsthand what aspects were working and what needed revision.

Dave Bolton (pers. comm. 15.11.2007) also highlighted his awareness of the audience wanting to please the evaluators illustrating his awareness of the social desirability bias in consultation, 'I think there's a chance that people will not want to react unfavourably'. One way in which the museums attempted to counteract this bias, was through the employment of external consultants as Gillian Mason (pers. comm. 10.1.2008) explained

> '[the consultants] set up two evenings of interviews. The first focus group was people's children, the second focus group was older people

who might be retired who either might have grandchildren or they might find interest in leisure pursuits. I went along to it. I was in one room with a one way mirror, because the [consultants] didn't want us to be there. They felt we might influence what [the participants] thought we wanted to hear.'

For all the case study museums, the front-end and formative evaluation stages have been imperative to the process of redevelopment. Not only have evaluation studies identified key audience groups, they have offered the opportunity to test ideas and concepts with audiences, whittle down stories, and made the audience feel a part of the development of their museum. Although evaluation studies may hit upon biases, such as the social desirability bias, steps have been taken at each museum to generate a broad range of consultative data with which to inform decisions and provide checking mechanisms.

8.3.3 Summative evaluation

Equally as important as the front-end and formative evaluation stages is the summative evaluation stage. Summative evaluative occurs on completion of the project, as the display opens (Brookes 1992: 98). As part of HLF bid success, and at the stipulation of other funders, museums must now compile audience feedback. The project manager for the Great North Museum project explained 'there's an evaluation budget. The museum has to be evaluated over one or two years after it opens in terms of monitoring it's performance and what we've achieved'. He continued 'DCMS Wolfson have, for example, a very rigorous evaluation programme in which you have to continually evaluate what you have done, what you've achieved, what the impact of the funding has [been]'. Evaluation of the final outcome is crucial in justifying project success, but also continuing opportunities for future funding. Gallery longevity is discussed in a subsequent section, and is an important feature of these new, flexible approaches to redisplay (see 'Displaying biology in the 21st century museum' [section 8.10] and 'Designing flexible galleries for longevity' [section 8.12]).

The only museum to have re-opened its doors to the public during the course of this research was Kelvingrove. They are therefore the only project to have conducted summative evaluation studies of their displays, albeit simple studies. The initial feedback has been tremendous with 95% of visitors rating the museum as 'very good' to 'excellent'. Visitor numbers also outstripped

expectations. The original figure was set at 1.6 million per annum after opening but the actual amount of people who visit the museum in the first year of its reopening was around 2.2 million (R. Sutcliffe pers. comm. 13.5.2008). Kelvingrove recorded 989,000 visitors in the year before its closure (A. McReavy pers. comm. 6.8.2008). More substantial summative consultation will take place, however, in the forthcoming years to evaluate 'what's working and what's not' (S. Latimer pers. comm. 14.5.2008).

8.3.4 Evaluation conclusions

As has been shown, evaluation is a continuous process which runs simultaneously alongside the development of the project. From conception to completion, the process justifies the need for redisplay projects, identifies missing audiences, aids, at different levels, the decision-making process, involves communities in their museum and tests concepts. Evaluation in museums is here to stay and will only develop further as museologists and museums embrace the change in audience power.

But this shift towards empowering the visitor or 'putting the audience at the centre of museum interpretation', as Blackwell and Scaife (2006: 70) express it, means that 'the historic practice of taking objects/collections as the focus' has changed the contemporary display of biological collections in museums.

8.3.5 Love/Hate

Having established who the museum audiences are, it is imperative to know what they think about displays of biological collections. Although there is a tendency, in all museums, for curators to believe their subject is of utmost interest to visitors, little in-depth research has been undertaken to prove which collections appeal to the majority of audiences. Basic visitor surveys at the three case study museums revealed that museum audiences either loved animals on display in their museum, or they hated them, 'in the benchmark surveys that we had done every year, which only give you a very general feel for what people think, 50% of people said they loved stuffed animals, 50% of people said they hate them' (G. Mason pers. comm. 10.1.2008). This trend reached across the three museums with senior designer Esther Dugdale (pers. comm. 5.9.2008) explaining 'For every visitor that goes "oh look! There's a so and so", there's another one that says "I just really don't like this"'. And so in this sense,

curators, museums staff and funders need to accept that specimens on display won't appeal to everyone.

But why is there such a strong love/hate relationship occurring between the public and biological collections? The most obvious reason is the manner in which specimens were collected. For the game-hunters of the day, the display of taxidermied specimens, overcome on expeditions into the wilds of far-off continents, was representative of their 'mastery over the natural world' (Ryan 2000: 203). Although museums do not amass collections in this way today, the negative connotations continue to persist (D. Bolton pers. comm. 15.11.2007).

In order to break those negative connotations and encourage museum audiences to embrace collections of biology on display in museums, Julien Parsons (pers. comm. 22.7.2008) thinks that the RAMM may have developed the right approach. He explained

> 'No matter how much you try and explain that… we don't go out shooting animals, some people still persist in that sort of idea. What we're trying to do with some of these [animals] is to actually explain the stories behind the collectors so that people get some concept of why they did it. It's difficult to explain sometimes why they did it! But that these are historical artefacts as much as they are natural history specimens, biological specimens.'

Focusing on individual specimen stories will not justify the actions of past generations, but will go some way to explaining, as Parsons mentions, the attitudes of the Victorian and Edwardian collectors, and why it is imperative that we maintain these collections for future generations. Dave Bolton (pers. comm. 15.11.2007) exclaimed 'what you really want is the younger generation to come to look upon the museum positively', and accept the historical nature of the collections.

However, this acceptance of vast biological collections in museums, is still tainted with hypocrisy in light of the extinction debate in museums – the message is that the human race is unlawfully killing species at an unprecedented rate but the visitor is asking why, in that case, we have museums full of extinct, rare, and endangered specimens.

As some museums have maintained serried ranks of specimens, for example, the Great North Museum maintained a dedicated bird gallery up until its closure in 2006, visitors have become accustomed to cabinets crammed with specimens and have been invited to open Victorian drawers full with row upon row of insects, bird-skins, bird eggs, etc. Is the museum expecting too much of the visitor to accept this display of the natural world whilst, at the same time, pushing the conservation message? This will be further discussed in 'Displaying biology in the 21st century'.

Perhaps for some visitors, a less obvious explanation for the dislike of displays of biological material in museums is connected to similar feelings about the display of human remains. In Moira Simpson's text 'Making representations: museums in the post-colonial era', the author tackles the issue of human remains display and collection repatriation. She quotes from the Council of Australian Museums Association; 'it is well-known that some museums indulged in practices that morally could never be condoned and today would certainly not be undertaken' (Simpson 1996: 171). This resonates with biological specimen collection. As a sector, museum acquisition must abide by the rules of the Convention on International Trade in Endangered Species of wild flora and fauna (CITES) and thus, collecting methods of the Victorian and Edwardian period are themselves now extinct.

For those members of the public who do not agree with the display of natural history collections in museums, maybe the time has come for acceptance. Acknowledging that policies and international conventions are shaping the ways in which museums specimens are acquired may sway some agnostics towards the importance and value of displaying biological collections.

Having discussed the possible reasons for visitors disliking collections of biology on display, there are many reasons for visitors enjoying biological displays. The main reason, and one acknowledged by the interviewees, was accessibility. For many visitors, galleries of natural history allow them to get up-close to animals. Of course, there are countless live animal encounters, even within the museum, but it does not always guarantee the visitor the ability for close inspection. Katherine Skellon (pers. comm. 15.7.2008) explained how the ability to get close to an animal impacts on the design of contemporary galleries. 'Everyone's trying to bring visitors much closer to the objects and improve the interpretation level.

It's all about engagement and capturing people's imagination and getting them up close so that they can really investigate a little bee or a bird or a big lion or whatever.' This effort to encourage engagement with collections and investigate the specimens more closely, is breaking down the barrier between the animal and the visitor. It also links to the debate about changing access in museums.

8.3.6 National Curriculum

In recognition of the need to cater for school audiences in museums, learning agendas have sought to incorporate aspects of the National Curriculum (Reeve 2006: 50). Reeve determines that this ability of the Natural Curriculum to drive the decisions about which topics are relevant in museums today is 'restrictive' and leaves museums with no choice but to deliver subjects for fear of excluding one of their main audience groups; schools (Ibid 2006: 50). Ruth Randall (pers. comm. 22.7.2008), marketing officer at the RAMM, spoke about the pressures to include National Curriculum aspects in biological collection redisplays 'there are a lot of National Curriculum links that have to be put in there because they must be there if you are going to be getting school groups coming'. Likewise, Katherine Skellon (pers. comm. 15.7.2008), designer for the project, said 'there are going to be educational curriculum agendas that need to be addressed' in order to satisfy the projected visitor figures for school groups.

But is this shift towards National-Curriculum-driven galleries of biology a good thing? Reeve argues that 'excellent museums and galleries may not appear to "fit"' with the learning outcomes of the National Curriculum syllabus, and will therefore be passed over by teachers and schools (Reeve 2006: 50). Julien Parsons (pers. comm. 22.7.2008) explained this 'fit' in terms of the previous gallery displays at the RAMM:

> 'there are definitely some areas that get more use from our educational services than others because of the nature of the National Curriculum in terms of that formal education. Sad to say, but inevitably, those tend to be Romans, Egyptians, Tudor and Stuarts and World War II, those very definite curriculum-led approaches'.

The National Curriculum, as a driver, illustrates a shift in didacticism from the curator to a shift towards the government-led audience agenda. Hein (1998: 9) argues 'unfortunately, museums that happen to have collections on topics that fall outside the main themes of the required topics must struggle to justify the

educational value of their possessions'. Fortunately, as Steve McLean (pers. comm. 8.1.2008) acknowledged, biological collections 'fit' with government agendas in the education of science for school groups, and others '[there] is a deliberate effort to try and engage schools, secondary school students, with the sciences through the use of our collections'. He continued 'part of the reason is this lack of scientists developing in the market place and people not taking science to tertiary education and so on'. Science-based displays in museums are a fundamental component in the governmental drive to increase scientific activity in Britain (House of Lords 2006). The Great North Museum was part of a project titled 'Real World Science' which, by its own admission, 'demonstrated the valuable contribution that natural history museums can make to secondary science teaching and learning' (A. Lee 2001: 1).

8.3.7 Conclusions

This research has highlighted the power of the audience to dictate the redisplay of biology both directly and indirectly. Direct in the sense that the museum audience is being consulted and the results of consultations are informing decision-making about gallery stories and themes. 'I am a believer in that you talk to your audiences, you don't just do it on your own' (K. Osborne pers. comm. 22.8.2008).

To Sheila Watson (2007: 11), the shift to include and consult audiences about what they want from their museum is a 'way of broadening the power sharing and of making museums more relevant to more people'. It is important then, that museum staff realise the change in audience power and accept it whilst maintaining 'a reasonably strong degree of direction and central editorial control' in order to co-ordinate such complex and lengthy redisplay projects (Merriman 2007: 344).

Accepting that audiences will continue to be consulted in the redisplay of biology, and other collections redisplays, Blackwell and Scaife (2006: 63) argue, along similar lines to Watson (2007: 10-11), that museums are 'handing over power, skills and knowledge to the community', not simply shifting power from one museum group to another.

Of course, it is imperative that museum audiences are consulted during the course of the redisplay process. If not 'communities can feel that museums are

not relevant to them… because they have not been invited to contribute to the collecting and exhibiting process' (Watson 2007: 10-11). For all of the museums in this study, the consultation process was, and will continue to be, a 'very critical' process (G. Mason pers. comm. 10.1.2008).

Indirectly, the audience is influencing biological redisplay topics and subjects. Educational agendas, such as the National Curriculum, encourage museums, and their staff, to steer displays towards dictated learning agendas. Eilean Hooper-Greenhill (1988: 224) indicates that 'the discourse of the museum reinforces and is reinforced by governmental, educational and cultural agencies', equally, if not more so, than by the objects, audiences, curators, ideologies and personal agendas within museums.

8.4 Visitor-Centred Goals for Biology Galleries

With the shift in power, or the broadening of the power base (Watson 2007: 11), towards the audience, biological collection redisplay projects are also setting visitor-centred goals. Museum project teams have developed highly structured audience development plans and have developed strategies for visitor learning. In setting goals for visitor learning through individually-tailored plans and strategies, museums are guided by the 'Generic Learning Outcomes' (GLOs) outlined by the Museums, Libraries and Archives Council's learning framework; 'Inspiring Learning for All' (Hooper-Greenhill 2007: 20).

Many factors contribute to the mapping of visitor-centred goals, including generalities such as enhancing the visitor experience, encouraging engagement with natural history and making the audience happy, all of which are examined in this section.

Kotler and Kotler (2000) examine the question 'can museums be all things to all people?' In doing so, they reveal that museums must be clear in their mission, or ideology, in order to make 'sound choices' (Ibid 2000: 286). At the same time, they need to '[reach] out to a large public and [offer] a richer museum-going experience for visitors' (Kotler and Kotler 2000: 286). From these research results parallels can be drawn with the findings of this in-depth study.

8.4.1 Making everyone happy

So can museums be all things to all people, or, more specifically here, can redisplays of biology be all things to all people?

In satisfying one audience group, you may disappoint or frustrate another but isn't this to be expected? As complex beings, humans have different rationales for visiting museums as Falk and Dierking explain:

> 'Some visitors are very knowledgeable about specific aspects of the museum collection; others are relatively uninformed… Some visitors learn best when they touch things; some visitors learn best by reading… Some visitors will go to a museum only with other people; some visitors strongly prefer to visit museums alone. All these factors, and more, make up the visitor's personal context and strongly influence the visitor's museum agendas' (1992: 25).

The museum project team's redisplay mission is made difficult by the multitude of different audience needs and knowledge. And so with this sizeable matrix, beyond the simple divisions of visitor groups, the museum project team members realise that it is not possible to make all displays relevant to all people, or make everyone happy 'you can never please everybody… this museum will be scrutinised by the sector as well as by its visitors. Some people will love it, some people won't love it and I'm relaxed about that because it's inevitable' (S. McLean pers. comm. 8.1.2008).

All project team members, across the three case study museums, are aware of visitors fearing the loss of objects, specimens and collections that were previously on display, 'I know that there were some people that came into the museum when we were closing and said "oh, it will be a shame if you can't have all those birds out" because it was like a three-dimensional record of all the British birds' (N. McNicholas pers. comm. 10.1.2008). This comment, made by a curator on the Great North Museum redevelopment project, is indicative of responses from several interviewees across the research cases. It shows that a small minority of visitors would rather not risk the museum redisplaying the collections of biology for fear of getting a redisplay which does not appeal to them, or that contains fewer, less accessible and familiar objects; the gain does not outweigh the loss. This feeling within certain visitors, the pessimism about redisplays, can be explained by drawing an underlying theoretical stance from

the social psychology theory 'loss aversion', which is more commonly associated with economic studies involving risk, etc. Tversky and Kahneman (2000: 143) demonstrated that 'choice depends on the status quo or reference level: changes of reference point often lead to reversals of preference'. With this in mind, the museum visitors who are reticent to see changes in biological displays are making their decisions based on three distinct reference points: the museum as it stands before the redevelopment, the proposals for the redevelopment and redisplays of biological material seen in other recently redeveloped museums. Kate Osborne (pers. comm. 22.8.2008) suggested 'a lot of [visitors] will go "oh isn't it lovely, it's all new and shiny…" and you'll get somebody who will say "I liked it better as it was before when it has nooks and crannies and it was charming", etc.' This aversion to the loss of what was displayed prior to the redevelopment suggests that audiences need to accept change. Helping audiences to understand the reasons for the redisplay by consulting and communicating with them throughout all stages of the project, broadens the power base to the visitor, and potential audience, and may facilitate the relief of this 'display loss'. Jon Williams (pers. comm. 15.7.2008) realised 'whatever we did would be a massive change to what was there' but through the consultation process, people felt included and that they had a say in the way their collections were going to be redisplayed (A. McReavy pers. comm. 6.8.2008; J. Williams pers. comm. 15.7.2008; S. McLean pers. comm. 8.1.2008). Perhaps optimistically, the research participants, those from the Great North Museum teams and the Royal Albert Memorial Museum teams, felt that the level and hierarchy of specimen interpretation would appeal to a multitude of visitors, 'it would be nice to know that all sorts of different people could get something out of [the new displays] (D. Bolton pers. comm. 15.11.2007).

It is not possible to satisfy every visitor in the museum, but museums have never been able to do that. By consulting with audiences and alleviating worries about the new redisplays, museum project teams have aimed their re-interpretations at a wider cross-section of identified visitor groups. Summative evaluation and follow-up research will show whether the new approaches to interpretation and the consultation with audiences have worked.

8.4.2 Enhancing the visitor experience

For the HLF, as the key funder of all three projects, money has not been awarded on the premise that visitor numbers to these museums will increase.

Anthony McReavy (pers. comm. 6.8.2008) explained 'the imperative for the project was never really to increase numbers. It was more about improving the quality of the visit, renewing the displays, rethinking our rationale, reordering the building to create new visitor services'. This response was echoed by Julien Parsons (pers. comm. 22.7.2008), project manager for the RAMM redevelopment, who said the redevelopment was 'about increasing the quality of this experience, not increasing the number of visitors'. He continued 'HLF have always understood that, so that's a really important part of it. We're not going to be judged solely on how many people we get through the door, it's about the experience of the people' (Ibid pers. comm. 22.7.2008).

Enhancing the visitor experience involved, as Anthony McReavy (pers. comm. 6.8.2008) suggested, a number of elements including improvements to the building and its facilities. It also included making 'the dwell time longer' (R. Randall pers. comm. 22.7.2008). The idea is that the new museums will be 'uplifted and refreshed' (K. Skellon pers. comm. 15.7.2008).

Learning from tourism management, providing an enhanced visitor experience in these three museums will have two major effects:

1. It can encourage regular and repeat visits and
2. positive word-of-mouth recommendations work in favour of [museums] since minimal marketing input is required to attract new visitors (Page 2009: 365).

Providing new displays and interpretation, enhancing the visitor experience, will ensure local visitors want to return.

In addition, museums will benefit their users by providing a more appropriate learning environment. Katherine Skellon (pers. comm. 15.7.2008) exclaimed 'it's all about engagement and capturing people's imaginations'.

Enhancing the visitor experience is not simply about the displays, it encompasses the whole visiting experience. Page (2009: 367) says 'understanding the visitor experience is a key factor in determining the success of a visitor attraction, and has wider implications for the public perception of specific attractions as day-trip destinations'. With this in mind, the whole museum experience is scrutinised beginning with the ease of navigation to the

building itself (signposting through towns and cities), the parking availability and proximity to the building and public transport links (Falk and Dierking 1992: 84) to the museum café or somewhere to sit within a gallery. The visitor experience then extends to the facilities provided within the museum, for example, cloakrooms, gift shops and a café or restaurant. Orientation and way-finding materials must also be obvious and adequate. Falk and Dierking (1992: 88) explain 'all visitors want to know where they are and where they are going'. Esther Dugdale (pers. comm. 5.9.2008), senior designer for the Kelvingrove redevelopment, explained how Event Communications designed displays which would act as familiar points of reference for visitors:

> 'Because it's completely symmetrical people lose where they are in the building very, very easily. And that's why we use the courts to create so much drama because then you always knew you'd come in on the spitfire or you'd come in on the heads [gallery installation] and you could orientate yourself.'

In order to orientate visitors, the museums use statement objects, such as the Spitfire and Elephant in Kelvingrove Art Gallery and Museum, or the Giraffe at the Royal Albert Memorial Museum. In addition, Hein (1998: 161) states that museums may use 'signs, maps, colour codes, distinctive graphics and ideograms' to orientate visitors.

Figure 8.2 is the first floor plan for the GNM, clearly indicating the gallery layout, pathways through the displays and visitor facilities. Clear signage and mapping is also being devised for the RAMM (J. Parsons pers. comm. 22.7.2008; K. Skellon pers. comm. 15.7.2008). Figure 8.3 shows how the Kelvingrove museum orientation leaflets use colour-coding to help visitors navigate their way around the symmetrical building. Colours are also used on signs within the museum highlighting whether visitors are within the 'Life' area or 'Expression' area. Circulation and orientation in the Great North Museum has been made more straightforward thanks to the removal of former accretions. Improving the visitor experience, as explained, will not only engage audiences in the museum but will ensure that they return in the weeks, months and years to come. Providing adequate resources, facilities and a sense of security, familiarity and continuity will complement the improved visitor layouts, interpretations and displays of the positive visitor experience.

8.4.3 Setting learning outcomes

Museum evaluation, as discussed in 'Shifting power: the audience in the museum', runs throughout the process of redisplaying biological collections. From the outset, audiences are consulted about themes and stories and as the project progresses, focus groups are used to test interpretation, interactives and concepts, helping decision-makers to make informed choices for the museum. The final stage in evaluation, for these projects, comes after the museum has been re-opened. Museums must evaluate the redevelopment in order to procure the final payment from the HLF (S. McLean pers. comm. 8.1.2008).

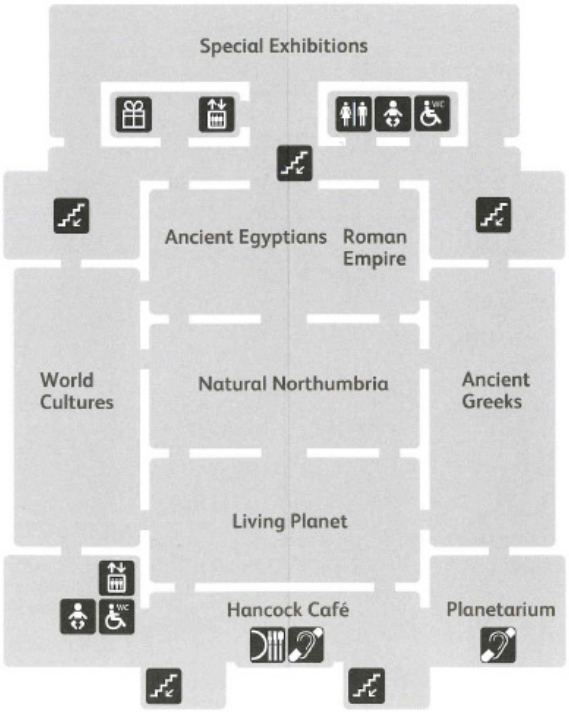

Figure 8.2 First floor plan of the Great North Museum, Newcastle upon Tyne. Tyne and Wear Museums ©

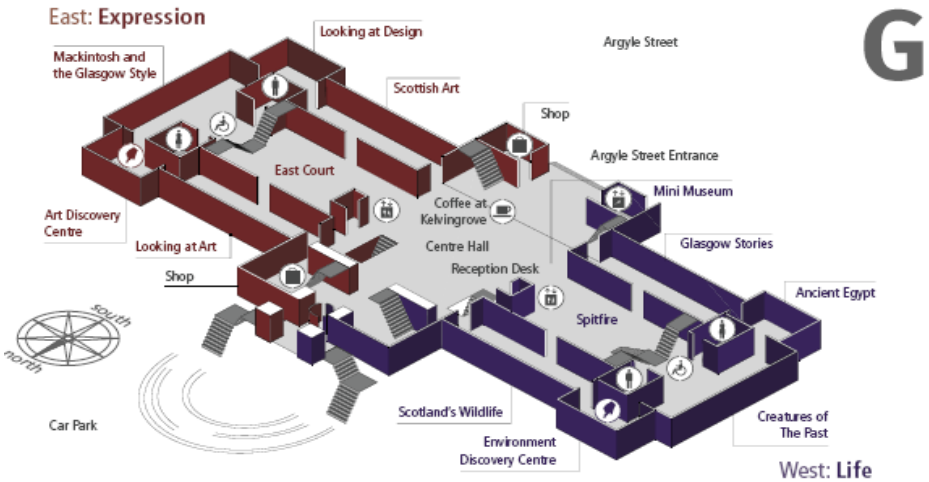

Figure 8.3 Kelvingrove ground floor plan showing colour-coding used for 'Life' and 'Expression' galleries. Culture and Sport Glasgow ©

But how do we know whether the redevelopment has been successful? Any project, within the museum or otherwise, can be evaluated for success using three parameters: time, budget and quality (Verzuh 2005: 18-19). And museums have used visitor numbers to illustrate how successful they have been in redisplaying their collections. Here, I am concerned with the success of biological galleries in terms of the visitor. How do we know when a biological redisplay has been successful?

In 2000, as part of a Department of Culture, Media and Sport initiative, the Museums, Libraries and Archives Council (then the Museums and Galleries Commission) developed a 'national framework for learning in Museums, Libraries and Archives' (Hooper-Greenhill 2007: 20). The resultant framework, *Inspiring Learning for All*, which works in alignment with the National Curriculum, identified 'Generic Learning Outcomes' which would help museums to 'provide evidence of the impact' of redevelopment schemes on the audience (MLA 2008a: 1). Figure 8.4 shows the five learning outcomes identified.

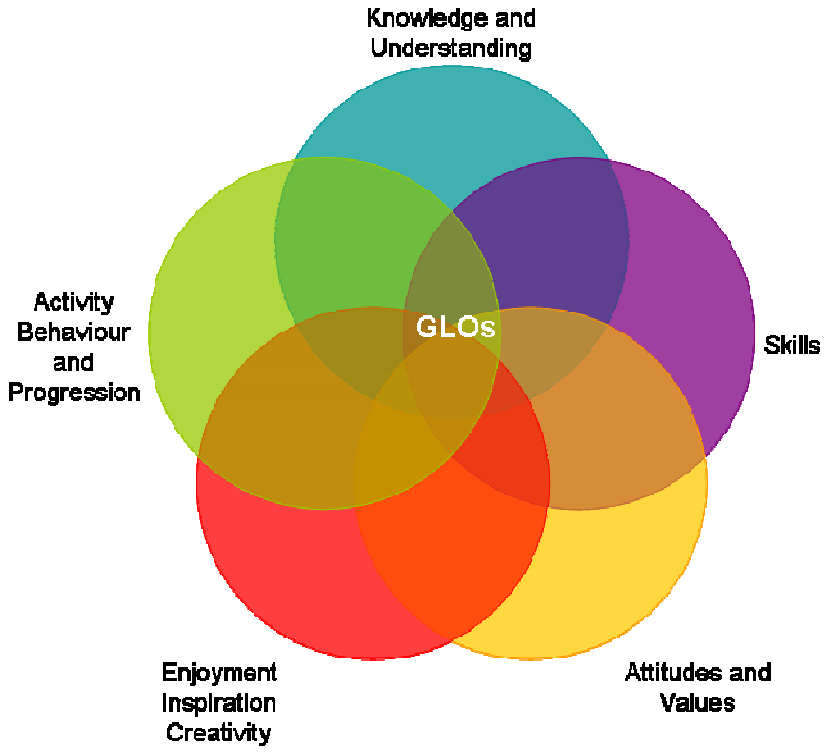

Figure 8.4 Generic Learning Outcomes as set out in the Inspiring Learning for All framework. MLA 2008c

Sue Latimer (pers. comm. 14.5.2008), Education and Access Curator for the Kelvingrove redisplay project explained that the GLOs were rooted in the learning agenda from the start 'that was what was so satisfying about it, that whether you want to call them the learning or behavioural or emotional objectives they were what were being delivered so it was just embedded in the whole process really.'

However, the learning objectives were not static from the beginning of the projects. They were developed as a result of project progress. Kate Osborne (pers. comm. 22.8.2008), Access Officer for the RAMM project, suggested 'the [development of the GLOs] is an iterative process because I thought of some learning outcomes, in fact, for the Insect and Bird galleries, and I need now… to go back and revisit those in light of what is actually going to go on display' (K. Osborne pers. comm. 22.8.2008).

8.4.4 Encouraging engagement with the natural world

Perhaps the most practical visitor-centred goal, in terms of biological collections, is the encouragement and involvement of the public in the natural world. Dave Bolton (pers. comm. 15.11.2007), curator of biology at the RAMM, stated that the redisplay project '[is] trying to use collections to get people to be aware of what's out there'.

One of the main goals of the local natural history gallery at the GNM was to 'inspire people to be interested in the natural world of Northumbria' (N. McNicholas pers. comm. 10.1.2008). In addition the GNM plays an active role in the continuation of the Exploring Your Environment (EYE) project. Set up to collect environmental information (EYE 2009: 1), the EYE project forms a part of the new local natural history gallery at the GNM where 'there are… one or two computer terminals where people can come in and input their information directly into the system'. This engagement with the natural world is transferred from the static displays of taxidermies, skeletons, and pickles in the museum to the dynamic and ever-changing natural world outside. Gillian Mason (pers. comm. 10.1.2008) added 'what we're trying to do is give people a virtual toolkit, encourage them to go out' and observe wildlife.

Within the display 'Wild about Glasgow' visitors are also encouraged to input environmental information they have gathered from Glasgow and its surrounding areas onto a touch-screen computer (Figure 8.5) (Glasgow Museums 2006: 1).

Figure 8.5 'Wild about Glasgow' environmental data collection touchscreen. Paddon ©

The RAMM is the only museum of the three surveyed which is not incorporating biological recording within its galleries. As the long-standing curator of biology, Dave Bolton explained

'We used to be a biological recording centre here and I spent a lot of time running that as a sideline… I say more of a sideline, it was actually the main driving force for the whole of the department at some stage because that was our way to the public. We ran various schemes like butterfly recording where we'd go out to the public and say "we're here, we can give you talks about butterflies and what we'd like you to do in return is to record what it is you see and give us the information". We did that with dormouse and mice, otters and things like that so there were various schemes. I suppose we still could do it under the aegis of the Devon Biological Records Centre but it's more difficult to do that at this stage because we recognise that we haven't documented what we have got in the museum and that's the priority now' (D. Bolton. pers. comm. 15.11.2007).

Here Bolton makes a valuable point. He recognises the value of the biological records centre in bridging the gap in communication between the museum visitor and the museum team member. Knowledge and expertise can be exchanged directly, furnishing visitors with the tools to venture into the outdoors and survey their local wildlife. This kind of engagement with museum staff and the environment can provide visitors with a sense of pride and achievement whilst ensuring an empowerment through learning.

The revision and re-introduction of environmental record collecting in museums, revived from the 1970s and 1980s (see Chapter 1.5; Institute of Terrestrial Ecology, Biological Records Centre: 1978; Stansfield: 1973; Stewart: 1980), has boosted the integration of museum visitors into the contemporary museum's zeitgeist.

8.4.5 Conclusions

Visitor-centred goals in biology galleries are multi-faceted and multi-dimensional. They range from the practical (recording centres) where an engagement with the natural world is cultivated, to the setting of specific learning outcomes in galleries (GLOs of the *Inspiring Learning for All* framework). These museums are now striving for visitor satisfaction and are aiming to provide an improved visitor experience.

Centring the goals of the redevelopment projects on the museum visitor has placed them at the heart of the museum and the redisplay process. Objects and visitors are vying for attention as museum project teams make vital decisions. The main concern for museum project teams is the way in which audiences learn from, interpret and use natural history collections. Although this shift towards the visitor-focused museum is not radical for all museums, it has changed the contemporary process of redisplaying biology in the case study museums examined.

Figure 8.6 illustrates the shift towards visitor-centred galleries away from the object-centred displays prior to the redevelopment. Victorian museums would sit to the far left, crossing over with some of the former displays in the three case study museums. The visitor was not the focus of the nineteenth century museum.

At the other extreme of the scale are those museums which rely heavily on interactives, multimedia and textual information instead of collections. Museums have shifted along the continuum throughout the past 150 years. Contemporary extremes rarely exist; most British museums would sit within the red range identified in the continuum, much like the redeveloped museums, although some smaller civic collections maintaining their object-focused stance. The shift towards the centre of the continuum represents a change. But it is not a change that sees the object becoming less important than the visitor. In the case of the

RAMM, who are 'object-led and audience-guided', the 'objects come first but the audience is a close second' (R. Randall pers. comm. 22.7.2008). Some museum redevelopments in the recent past may have gone too far to the right of the continuum, forgetting about the objects in the gallery and focusing too intently on the visitor as Steve McLean noticed:

> 'I think museums definitely went too far down the kind of Disney plastic route, to the point where they almost excluded the specimens completely. I think the insect gallery in the natural history museum [London] had hardly any objects in it whatsoever (pers. comm. 8.1.2008).

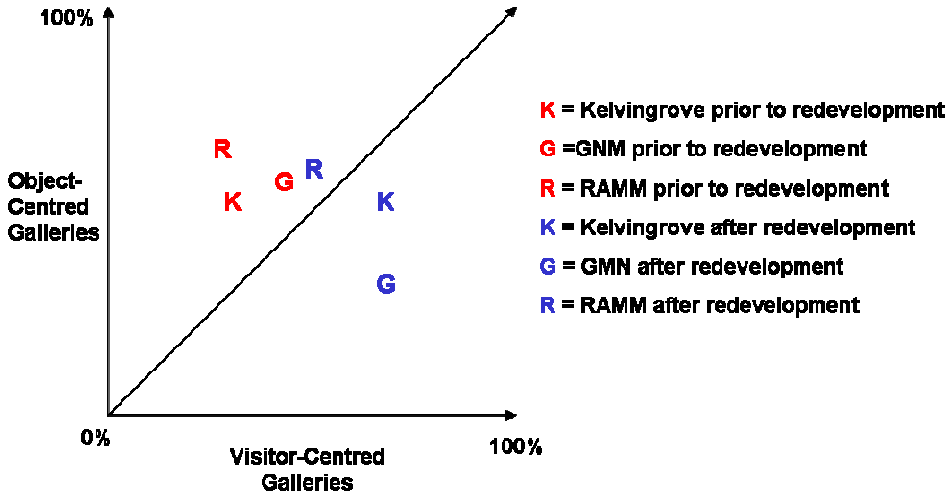

Figure 8.6 Continuum to show difference in focus of biology galleries before and after redevelopment. Paddon ©

The museums of today are, and should be, embracing their objects and visitors as equal entities in the redisplay process.

8.5 Playing it Safe? Keeping Stakeholders Happy

Suzanne MacLeod (2007: 72) points out that these monumental redisplay projects are placing 'new demands and expectations' upon museums. 'The complexity of these projects have not gone unmarked' she says, as 'museums and galleries today are shaped by architects, designers, engineers, funding bodies, regional development agencies and other interested parties' (Ibid 2007: 72). But perhaps, most worryingly MacLeod acknowledges the role that these multitudinous stakeholders are playing in the redevelopment of museums 'this

expansion of participants and stakeholders raises interesting questions about the social relations and plays of power shaping the contemporary museum'.

This section explores the effect of stakeholders upon the redisplay projects; whether museum teams are pandering to the demands of stakeholders and whether stakeholder demands are dissimilar to those of the museum. How do stakeholders ensure that their demands are met? And does this impact on the museum redisplays, if at all?

The first step is to identify the 'stakeholder'. What is a stakeholder? Genoways and Ireland (2003: 81) proclaim stakeholders to be 'any person or group that can place a claim on the museum's resources and products.' They continue 'this may include members, employees, board members, teachers, civic leaders, granting or funding organisations, cooperating organisations, competing organisations, the media, visitors and others.' (Ibid 2003: 81)

A stakeholder map in Freeman's (1984: 25) text suggests the kinds of groups and organisations associated with the firm in order to make it a success. The same principles of 'stakeholder' and 'firm' can be applied to museum redevelopment projects, allowing relationships to be mapped out. Here (Figure 8.7), the 'firm' is replaced by the 'museum redevelopment project' and several of Freeman's stakeholder categories are replaced by stakeholders found in this research, meaning they are more appropriate to museum redevelopment projects.

Many of the interviewees replied that everybody is a stakeholder in the redevelopment projects (A. McReavy pers. comm. 6.8.2008; K. Osborne pers. comm. 22.8.2008; N. McNicholas pers. comm. 10.1.2008; S. Latimer 14.5.2008; S. McLean pers. comm. 8.1.2008). Richard Sutcliffe enthusiastically stated:

> 'Everybody! Absolutely everybody. Anybody who visits, anybody who has donated stuff in the past, all the staff, all the contractors. Everybody has an input one way or the other' (R. Sutcliffe pers. comm. 13.5.2008).

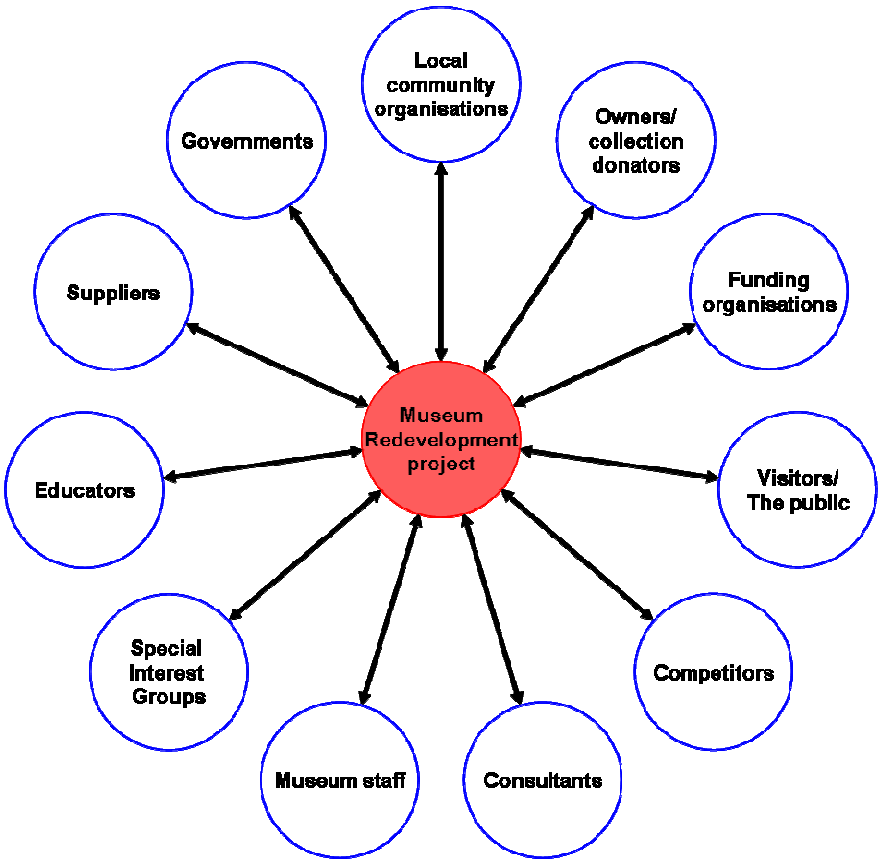

Figure 8.7 Stakeholder map for museum redevelopment projects. Adapted from Freeman 1984: 25.

But interestingly, Gillian Mason discussed the changing nature of stakeholders as projects progress. She splits the stakeholders into two groups: short-term and long-term stakeholders. She said of stakeholders:

> '[There is] a very long list, a very long list! I mean stakeholders in terms of long-term use are visitors. When somebody says to me who's the client that can change depending on who you talk to but I think the stakeholders are the people who are going to come and use this museum but in terms of now, I suppose our stakeholders are the two societies who actually own all the material and buildings that we're working on and without them this project wouldn't be moving forward, the main funding bodies, the HLF because without the HLF it wouldn't have started the whole process, that was a core bit of funding that needed to kick start the whole thing, and helped us to get match funding. The university because they are spearheading the whole thing, and again, without their support this project probably

> wouldn't have been pushed on as it has been because they are part of this management agreement with the Tyne and Wear museums and the private societies. I'm worried I haven't covered everybody but yes, currently it is the funders and the societies but when it opens it is the visitors' (G. Mason pers. comm. 10.1.2008).

Although I agree that visitors to museums are the long-term users of the redisplays, I think stakeholders in museum redevelopment projects can be sub-divided into categories. The table below (Table 8.2) shows the division of stakeholders according to the devised categories.

Investing money	Investing time and expertise	User groups
Funding organisations	Staff/employees	Visitors
Local Authority	Consultants (inc. Designers & Architects)	Related organisations
The public/ Visitors	Related organisations	Friends' groups
		Researchers

Table 8.2 Stakeholder divisions in museum redevelopment projects. Paddon ©

Visitors appear in two categories: those who contribute financially and those who will benefit from the outcome, the users. As publicly-funded institutions, civic museums are responsible for the spending of monies generated through taxes (Lang *et al*. 2006: 6).

On top of local and regional government-controlled contributions, museum visitors are encouraged to contribute directly to fundraising initiatives. All three museums earmarked substantial fundraising budgets, and were successful in generating the extra income needed. Therefore, even though visitors are considered generally as the users of the redisplays, they also contribute twice-over in economic terms. So, visitors have a strong vested interest economically, not just socially and culturally.

Ultimately, the two stakeholder groups which are investing time, money and expertise are working together to produce displays of biology that will appeal to the user groups identified. The group identified as inputting time and expertise are also working to satisfy those who are inputting money. This satisfaction is played out as projects adhere to specific funding criteria laid down in funding bid

applications. Steve McLean (pers. comm. 8.1.2008) talked about the advantages of having many partners on a redisplay project when it came to financing the redevelopment,

> 'the advantage is that you can use your partners to achieve the funding as is required in terms of the funding criteria so that is a big advantage to having the diverse range of organisations, the societies and charities, not that we have but you can use that as well.'

Genoways and Ireland (2003: 81) continue to say that the identification of stakeholders is 'vital' as 'the success of the museum depends on the support of the stakeholders'.

Each funding organisation has specific criteria which will be used to decide whether or not to support a project. Jon Williams discussed the key funders in the GNM redevelopment, explaining how each funder expected the project to affect their criteria and goals:

> 'Obviously the big one is the Lottery Fund. They are only interested in heritage so the collections and the building to some extent, although mainly the collections. ERDF are interested in regional development so they are looking at, "does it generate new jobs?", "does it kick-start other developments in the area?" I don't think that we do contribute to that but the business plan that the client puts together needs to show that it does that. I think some of the other organisations like [the Clore Foundation] would be interested in education spaces within the museum. They tend to focus in on study facilities, classrooms and things in terms of activities that the museum is doing just to improve education. So yes, that all has to be taken care of' (J. Williams pers. comm. 15.7.2008).

In some cases, the goals of funders are not those of the museum. Richard Sutcliffe explained about the withdrawal of funding from Scottish Natural Heritage:

> 'Our endangered wildlife display, [Scottish Natural Heritage] actually didn't fund it in the end because they disagreed with something we'd said. It was just the way it was worded. We thought we'd said the right thing but they interpreted it differently and therefore didn't give us the funding for that one. But there's also things like some of our text in the

> Scottish wildlife gallery has been vetted by Scottish Natural Heritage in relation to where we're mentioning legislation and national nature reserves. So they did drive on that, they were very keen that we had a graphic displayed which talked about national nature reserves. Seeing as they gave us quarter of a million pounds towards the display we weren't going to argue with that' (R. Sutcliffe pers. comm. 13.5.2008).

The quotation above illustrates how some funders are engaged in the new displays on an intimate level. Others look for more indirect consequences as a result of their funding. Steve McLean (pers. comm. 8.1.2008) uses *One North East* as an example:

> *'One North East* are very focused on tourism and regional regeneration and development and so on. They are very interested in jobs and tourism and retail and so on and commercially what we're doing for the region, so they want to see what we're doing. They want to see how many tourists we're bringing in, how much income we're generating for the region, etc. So there are all these commercial targets as well as the visitor expectations, as well as all the other funders.'

Decision-making for the project is further complicated by multiple stakeholders. Jon Williams talked about the impact on the design process. He said 'the approvals process. It can be quite long-winded getting approval from everybody' (J. Williams pers. comm. 15.7.2008). But, it is necessary. Phillips (2003: 160) declares 'stakeholder communication is more than good for the organisation. It is a matter of moral obligation. Individuals and groups who contribute to the organisation should be permitted some say in how that organisation is managed.' Although Phillips refers to management, in terms of companies, this can be applied to the museum redevelopment project process. All stakeholders should be consulted about the larger, more important decisions as they will be affected by the resultant decisions made. For some, this will be in the form of a funding monitor and organisational feedback. For others, the feedback will be given through consultation.

Museums are shifting from institutions that were answerable only to themselves to institutions that acknowledge they are publicly-owned, funded and consumed. This transition has led to the acknowledgment of the importance of all

stakeholders and the need to incorporate their beliefs and opinions. Museum teams should carefully consider the funding organisations' motivations and whether they impact politically, economically and/or religiously on gallery messages. Referring to the incorporation of funder's messages, and the messages of the institution, Anthony McReavy commented 'we have a responsibility to be a little bit more balanced on how we handle some of these things' (A. McReavy pers. comm. 6.8.2008).

Not everyone will be happy about decisions made, including individual staff members, but the outcomes must fit with the museums mission and ideology. Museums should not 'bend the rules' for economic gain or include overt political stances within galleries. The 'Code of Ethics for Museums' states that museums should 'recognise the public purpose of museums. Put the public interest before other interests' (Museums Association 2002: 9).

The power of the stakeholder in the decision-making process was particularly obvious in one area of biological collection redisplay; gallery themes and stories.

8.5.1 Gallery themes

All three museums take different approaches to the redisplay of their biology collections, but they all have the same goal; to provide visitors with an enhanced visitor experience.

In doing so, visitors, as stakeholders, play a large role in the selection of themes and stories for gallery spaces. Of the three, Kelvingrove conducted the largest consultation programme and allowed audiences to choose stories and themes for inclusion. Sue Latimer (pers. comm. 14.5.2008) said

> 'I think the key thing to note is that [the themes] were consulted very heavily on. That wasn't to say that such-and-such a theme got chucked out because the visitor said "Oh no! I'm not interested in that" but that we had a sense of which were going to be popular and which not, and again, for the stories as well.'

Although the GNM project team and the RAMM project team consulted with audiences, it wasn't on the scale of the Kelvingrove programme. Resultantly, visitors have not had a direct impact on the kinds of stories and themes included in the galleries as they have at Kelvingrove.

Jessica Marsh (pers. comm. 15.11.2007) noted that museums 'nowadays are more willing to tackle more controversial issues'. For example, biological collections can tell stories about hunting (Kelvingrove Art Gallery and Museum), extinction (Oxford University Museum of Natural History) and creationism (Leeds City Museum). But, rather pointedly, Jeanne Robinson talks of a certain monotony amongst themes for biological collection redisplays. These recurring themes, she believes, are as a result of the limited companies of specialist museum designers:

> 'I think because it's only a finite pool of people who do the designing, that's actually quite an interesting part of it, you see recurring themes. Also, there are only so many ways to skin a cat! Which also becomes apparent, there are a lot of things that we share in common and there's only a finite number of reasonable ways in which to display those, in which meets both the publics and the conservation needs' (J. Robinson pers. comm. 13.5.2008).

As stakeholders, designers also have power over the style, expression and appearance of the new displays of biology. Katherine Skellon (pers. comm. 15.7.2008) revealed that as a design company, RAA had input on the gallery themes: 'It's a mixture of all sorts, generating a brief for the themes of the galleries. We have a large part in determining that as well'. As much as the designers can have a say in the theme/s for the gallery, they are also led by their client. Esther Dugdale (pers. comm. 5.9.2008) explained that the Kelvingrove team knew the content for their galleries and that it was their job, as a design company, to interpret that content:

> 'Glasgow knew what they wanted, not from a design point of view but from a content and what they wanted to tell and we were able to influence it a little bit but not as much…there's one or two instances in there where I think it would have been better if we had gone down the route we recommended but then there are other things where they were spot-on. We have other clients who don't know what the hell they want, they come to us literally saying 'er, building, collection, what do we do?' whereas Glasgow were like 'right in that room we're having that, that, that and that. This is what the story is about and this is what we want to say and with the objects we're going to say it.'

Alternatively, the team at the Great North Museum didn't have a sound content outline for the designers but they had determined the concept for the gallery when they went to the designers with their ideas. Steve McLean (pers. comm. 8.1.2008), project manager for the GNM project, talked about the process of deciding upon a concept

> 'It's a two-way process really. We didn't sit down and say 'right we've got all these collections. What kind of story can they support?' We did actually come up with the concept first to be quite honest with you.' He later mentioned 'The biology gallery is the first thing you see when you come into the museum and that's deliberate because we want that gallery to be, the designer's hate me using this term, the 'wow factor' because it is this huge display of animals and plants and so on'.

8.5.2 Conclusions

One of the research questions for this study was: What factors are initiating and shaping contemporary redisplays of biological collections in British museums?

From the research results presented above, key stakeholders in these redisplay projects have been identified. Subsequently, their influences on the designs of these redisplays of biology have been discussed. The contemporary redisplay renaissance sweeping British museums has been driven by various factors. Considering this research question, three different stakeholder groups can be discerned from the research results. They are:

1. Initiators
2. Drivers and
3. Users

These three groups occur at different stages of the redevelopment project process with some stakeholder groups being repeated across groups. For instance, 'Curators' occur as stakeholder 'Initiators', 'Drivers' and 'Users' (Figure 8.8).

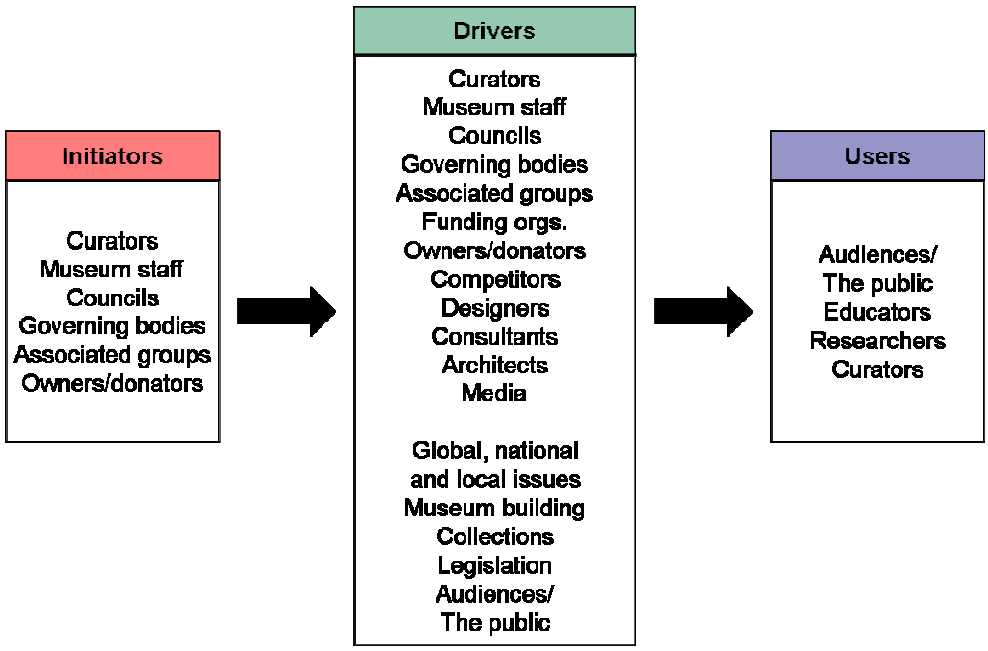

Figure 8.8 Stakeholder groups identified during process of biological collection redisplay. Paddon ©

The 'Initiators' of the redisplay projects include the curators, museums managers, and other museum staff plus the museum's governing body and their local or regional council. Associated groups, in particular societies, are consulted about the initial redevelopment proposals as in the case of the GNM where the collections are still under the ownership of the Natural History Society of Northumbria. These initiators work together to submit an initial application to the major funder, the HLF, according to stage A of the RIBA Plan of Work (Appendix 1).

As the redevelopment project progresses, these initiators transform into drivers. The drivers move from the appraisal stage (RIBA stage A) to the outline proposals stage (RIBA stage C) and beyond. The lengthy process from initial concepts to final proposals sees the addition of further drivers in the redisplay of the biological collections.

Further funding is acquired by the projects and, therefore, funder's messages are incorporated. Audiences participate in lengthy consultation processes leading to decision-making for project design, interactives, themes and stories. Designers are commissioned to interpret project team concepts and ideas and museum staff visit newly-opened redisplays of

biology to size up their competition – inspiration is taken and lessons learnt and accordingly applied within the context of their redisplays. Many more drivers come to act upon the designs for the new galleries as the project moves through the developmental stages (Figure 8.8 above).

Stakeholders, work together throughout the redisplay process, being consulted, volunteering their expertise and time and donating money. This is all in the effort to produce new interpretations of the museum's biological collections in order to appeal to their identified audience groups. And to this extent, each stakeholder has a share in the finished product; the display.

Whilst the stakeholders may be seen to work harmonious together, they all possess ulterior motives and personal agendas. Some are focused on the collections; their preservation, conservation and/or display. Others wish to put a specific message across – conservation, climate change, etc. And museum staff? Their motives can be personal but they put these aside for the sake of the redisplay. They can maintain their right to fight their corner in redisplay meetings and stand up for their beliefs, but personal agendas have to dissolve in a museum which is attempting to recreate itself.

So are museums playing it safe? Are they simply keeping their stakeholders happy? In order for any of these projects to come to fruition, museums have had to welcome in external funding, external expertise and recognise that the contemporary redisplay of collections has changed. The process in which they achieve the redisplays has also changed and this is due, entirely, to the number of stakeholders now involved in redevelopment projects and the motivations they bring to the projects.

Keeping stakeholders happy is an inevitability of the massive redevelopment projects the three case study museums are undergoing and have been through. The increase in the number of stakeholders does not necessarily mean that it's a bad thing for the museum, or the collections of biology. But museum decision-makers do need to recognise, however, that not all stakeholders have the needs of the museum, or its audiences, at heart and that they may cause a conflict of interest. These conflicts of interest are, again, inevitable due to the large scale of the redevelopments

and the increased number of stakeholders involved in the projects. The conflicts of interest involving all stakeholders will be discussed in the following section titled 'Conflicting interests'.

8.6 Conflicting Interests

In the course of this research, conflicting interests became apparent as interviewees spoke about relationships with designers, funders, other partners and with members of the project team. Personal agendas were also highlighted as a cause of conflict within the team (Genoways and Ireland 2003: 67-70). These conflicts not only cause changes in the team dynamic but also have ramifications for decision-making.

This section will explore the relationships between the internal team members and external partners (designers, architects, etc.) and the implications for biological collections.

The projects have many stakeholders (as discussed in previous sections) but the GNM project manager must juggle a tripartite working relationship between the Natural History Society of Northumbria, Newcastle University and Tyne and Wear Museums. This has caused conflicts of interest on many levels. Firstly, the changing of the museum name was highly contentious as Gillian Mason (pers. comm. 26.6.2007), Interpretation Coordinator for the project, explained:

> 'I'll be political here and just say that there have been hard times and, of course, this is the issue with the name. You know, the working title was the Great North Museum project [and] there's one camp that wants to just keep it as the Hancock (and the fact that it has the Hancock engraved right across the front there, in the sandstone). But you know a lot of people say, "well now it's not the Hancock and it's not going to be the Hancock anymore; it's the Roman museum, it's the Greek museum". I mean it has to be resolved in the next 2 or 3 months but whatever the outcome is, certain people are not going to be happy. It's unfortunate but things move on. And that's the situation as it is now. I mean, there are arguments for both. There are arguments for keeping it as the Hancock because people know it but there's also an argument to say people might think it's just the old Hancock.'

Ultimately, the final decision to rename the museum was made by the project management team. All data from stakeholder group consultation was used to make an informed decision. Julien Parsons (pers. comm. 10.7.2007), Collections and Interpretation Officer for the RAMM redevelopment, spoke about the importance of conflict resolution within the project and his awareness of the shift in curatorial power:

> 'My role is [to] act as the intermediary, the buffer, between the curators and the designers. Because I come from a curatorial background, I think I understand what the curators are saying and I suppose I can broker that relationship. I suppose if you just had all the curators, flat level curators, working with designers that might be problematic.'

Genoways and Ireland (2003: 67-8) state that 'despite the best of intentions and group processes, conflict in the museum is inevitable.' They continue 'conflict left unaddressed can lead to a seriously impaired working environment for both those directly involved and those on the sidelines' (Ibid 2003: 68). It is the job of the project manager to manage personal agendas, conflicts within the team and enforce the mission and goals of the project. Anthony McReavy (pers. comm. 6.8.2008) discussed his job as project manager for the Kelvingrove redevelopment and the importance of conflict resolution:

> 'What happened was the curators selected things for open display and the conservators selected them independently of the curators, and then they commented on each other's selections so a conservator might say "it can be displayed on open display because it's not sensitive organically" but then the curator might come back and say "well yes it's not but it's the only one in the world and therefore I'd quite like it to be in a case" so we balanced those things out. Similarly they might come back and say "well these are the reasons why I think it should be mounted in a particular way" and in some instances the curators were involved in stressing the lines with the conservation team.'

Other stakeholder conflicts have arisen over the course of the GNM redevelopment project, as Steve McLean pointed out. Working with the Natural History Society of Northumbria, McLean explained that the relationship was changeable and, at some points, a challenge to manage. Whilst the Society

supported the project, they also had societal goals, which were not always in line with those of the project:

> 'We've got a great relationship with the society and they've been very supportive on this project but as you would expect they've got slightly different views in terms of how things should be displayed. It's entirely understandable, they like the more academic approach and more [inaudible] and different animals and systematics, classification and so on and so forth, whereas, of course, we've got to try and balance that between the visitor appeal. It's not a museum just for the Society's members so it can be a difficult juggle perhaps to get that right' (S. McLean pers. comm. 8.1.2008).

Gillian Mason intimated that the decision-making process needed to take into account group objectives or risk losing them as stakeholders in the project: 'that's another interesting element because you've got the two private societies who want the best for their collections. It's been an interesting journey to go on, keeping everybody onboard' (G. Mason pers. comm. 26.6.2007). The management of stakeholders and personal agendas is key in redevelopment projects. It is Frost (2001: 111) who points out the need for stakeholders to compromise on redevelopment projects: 'to stay within budget and meet the various needs of the collections, the designers, the public, the curators and the educators, compromises often need to be made.' Although Frost talks about compromises in order to stay within budget, compromises need to be made to satisfy, more importantly, the goals of the redevelopment projects. In satisfying stakeholders and their goals, project teams may be compromising their own goals, collections and interpretations.

To this effect, stakeholders also hold personal agendas, which again do not always fit with the goals of the project. Julien Parsons (pers. comm. 10.7.2007) explained 'People get hobby-horses. They want their lesser-spotted woodpecker in the display come what may!' Jessica Marsh (pers. comm. 15.11.2007), Assistant Curator of Biology at the RAMM, admitted 'I am interested in insects and invertebrates so I've tried to get as many invertebrates on display throughout the natural history displays'. Other team members may also take advantage of the lack of direction to pursue personal agendas. Jon Williams, Senior Designer for the GNM Project, said that the lack in direction 'allowed us to drive [the design] to suit ourselves so we might have been interested in the

visual aspect of it so because they weren't resolved in their thinking we could actually bend their thinking a little bit because we had a good design idea'. He admitted however, 'you probably shouldn't do it like that' (J. Williams pers. comm. 15.7.2008).

The importance of a strong project manager, or project management team, and clear project goals, is imperative if personal agendas are not to drive projects and their outcomes. Sue Latimer (pers. comm. 14.5.2008), Education and Access Curator for the Kelvingrove project offered, 'If there were really tricky issues then they would come to the project team for a final decision as to what the way forward was, if there was a conflict in an approach or whatever. Sometimes there were things where other people were overruled but the project team measured everything against the wider context of the project.'

The findings of this research illustrate how imperative early stage project development is if the project is to be driven by its own goals. The overriding emphasis of decision-making comes from the audience and the collections and should be championed by the project manager, or project management team. These decision-making components should fundamentally drive the redisplay of biological collections.

8.6.1 Working with designers

For all of the redevelopment project teams, working with external design companies is a new way of interpreting, designing and redisplaying biological collections. The scale of these redevelopments is unprecedented (at least for the individuals concerned) and therefore brings about new challenges for the museum teams and designers alike. 'I think this is the first time we've done a whole museum. It doesn't happen very often!' (J. Williams pers. comm. 15.7.2008).

In the first instance, being able to say 'no' to designers and design ideas was crucial for the museum team members. It enabled them to take ownership of their projects, not simply pass the design element over to the design company. Jeanne Robinson (pers. comm. 13.5.2008) explained 'There were trade offs… we would say "oh that's a gorgeous design idea but in practice it's not going to work because of this constraint with the object or because we just can't physically display it like that", so it was a two-way process'.

For some, the idea of working with external design companies was unfavourable: 'This is the first time I've worked with outside designers at all. I think I'd say that I'd prefer to work exclusively in-house if that was possible but I think that it's probably beyond the abilities and capabilities of the people we have here, in-house designers, especially the sort of money that's being used' (D. Bolton pers. comm. 15.11.2007). Bolton realises that the acceptance of vast amounts of money from funders like the HLF will necessitate the employment of external exhibition design companies. Bolton acknowledges the change in museum redisplay processes but is not entirely convincing about his acceptance of the shift away from in-house design.

Direct conflict can arise between curators and designers in terms of display approaches. Esther Dugdale (pers. comm. 5.9.2008), Senior Designer for the Kelvingrove project, said 'we absolutely understand all the issues around conservation and we know everything has got to be supported properly but there are imaginative ways of doing it and dreary ways of doing it'. Sue Latimer (pers. comm. 14.5.2008), Senior Education and Access curator for the project judged the conflicts in design, between the designers and the curators, impartially. Her reflections sum up the perceived conflicts between designers and curators across all three projects:

> '[The designers] are used to doing the interpretation whereas we [were] coming along and saying "no, we've done the interpretation. This is what we're after. We want you to bring your designs skills to it". So there was that slight tension to begin with and not infrequently. It kind of amuses me because from where I was I could see that we were saying "No" to Event [designers] on a lot of things. "No. Sorry, no that's not fitting what we're trying to do, no!" but equally the curators were also getting told "No, what Event [designers] has come up with is good. We understand what you're saying but no, we're going with Events vision" so the curators I think sometimes think that it wasn't fair. It wasn't their vision. It wasn't what they wanted and that kind of thing… Some people used the phrase, not necessarily the natural history curators, I can't remember, but you know 'it's design-led' but there in the heart of it you could see that it wasn't. It was about us always trying to take that view of "never mind what everyone else [says], what is Kelvingrove trying to achieve?"'

The relatively unbiased view, provided by Sue Latimer, resonates with all of the case study projects. Many curators, working on the three projects, felt ignored or that their opinions were not valued as Richard Sutcliffe (pers. comm. 13.5.2008) explained:

> 'because most of the people on the project team have a relatively small amount of museum experience then, I mean, they had experience but not necessarily museum experience, they weren't necessarily coming up with the right decisions. And the experienced people who were saying "you should do this" were being ignored.'

For other curators, they feel that their powers of decision-making have been stripped away rather than made equal to those on the team. But this is not the case. The project management teams and project managers take onboard the opinions of team members and make decisions based on the museum's redevelopment goals. This disempowerment, or perceived disempowerment, is discussed in further detail in the next section 'shifting power: curators'.

In working with the designers, there seems to be an 'us and them' scenario when decisions go against either side. Personal agendas, again, come into play but this is inherent in museum redisplay projects (Frost 2001: 111). However conflict does not always weaken or shatter a project. As Genoways and Ireland (2003: 68) discuss a 'certain amount of conflict, managed effectively, can actually increase organisational effectiveness' or, in this case, redisplay effectiveness.

8.6.2 Sidelining and undervaluing biological collections

Other conflicts are occurring within museums. This does not affect biological collections alone but curatorial staff feel that their collections are undervalued and sidelined for collections which are perceived as more important. The inability for museums to place a price on their collections of biology as opposed to collections of art, archaeology, ethnography, etc., may be part of the reasoning. Here personal agendas are at play again.

Preferential treatment is mentioned in museological texts but in all cases, it refers broadly to the treatment of people i.e. trustees or donators who are given preferential treatment and inequality in the workforce (Alloway 1996: 161; Dubin 2006: 488; Haas 2007: 71; Moses 2008: 48) but none mention the preferential

treatment reserved for specific collections in museums. With museum collections competing for space, money and, often, the ardour of the museum manager, biological collections have tended to be undervalued and sidelined. Jessica Marsh (pers. comm. 15.11.2007) made the point of the cyclical appeal of natural history to museum directors

> 'I think [natural history] went through a stage, I'm not sure if this is still the case, where natural history galleries were seen by management, generally not members of the public, as being unfashionable and out-of-touch.'

Perhaps another reason is that biological collections are not measured by their economic value but, as Pettitt (1997) states, by their cultural, historical, educational, medicinal, artistic and commercial values.

In giving preferential treatment to other collections, and other museum facilities, Julien Parsons (pers. comm. 22.7.2008), Collections and Interpretation Officer for the RAMM project, gave details of the shrinking natural history galleries at their museum; in the past '[the curator] had to sacrifice his 'Wildlife of Devon Gallery'. Certainly natural history did suffer quite badly. You were just left with one gallery that was a bit of an eclectic mix of the most popular specimens really.' The gallery was removed and replaced by a café – a move which was economically driven but also seen as a benefit to the museum visitor. Dave Bolton, Curator of Natural History at the museum, explained how the galleries of natural history were 'squeezed into smaller and smaller spaces' and in some cases, whole galleries were sacrificed:

> 'We lost a space which was the 'Devon Gallery' which concerned, essentially, fauna of Devon; there were some photographs of plants. It was going to be replaced by a gallery called 'Wild City' which was a historical timeline from the last Ice Age to the present showing the development. Basically the loss of certain wildlife, animals such as the bears, wolves and wild boar, the aurochs and stuff like that in prehistoric times to some of the ones in more recent times like the red squirrel, the pine marten, and so on' (D. Bolton pers. comm. 15.11.2007).

But this gallery idea was scrapped. Bolton explained the rationale for its removal:

> ‘That, unfortunately, was sidelined so that the room could be used as another way of trying to broaden the museums involvement in the community… Then there was actually government funding for it. Because there was funding available and because all it required was some space to do it, that was chosen in preference to ‘Wild City’ (Ibid pers. comm. 15.11.2007).

A similar scenario was heeded at Kelvingrove Art Gallery and Museum when interviewing the research manager for natural sciences, Richard Sutcliffe. He spoke about the removal of the bird gallery at the museum with resentment. This decision had obviously caused some conflict amongst the museum team:

> ‘We had [a designated ‘Bird Gallery’ in] the early 1990s, at which point the bird gallery became our restaurant. The reasoning behind that was because that was the gallery that got more sunshine rather than the other end of the building, which was the same size and the same shape, but wasn’t so nice to sit in. Therefore people wouldn’t stay so long, they wouldn’t buy so much coffee, they wouldn’t go for a second cup whereas in the nice warm, sunny room they might do so we lost our Bird Gallery. We were promised we were going to get a new bird gallery but the funding fell through and then there were plans to redo the whole of Kelvingrove so… But there was uproar because the local bird watchers used it quite a lot’ (R. Sutcliffe pers. comm. 13.5.2008).

These examples illustrate how natural history collections were being sidelined in museums in exchange for audience-based facilities. Esther Dugdale (pers. comm. 5.9.2008), Senior Designer for the Kelvingrove redevelopment, said the displays of biological specimens were ‘tucked under colonnades… the animals in general weren’t a big element of the old display’. This sidelining is not a new phenomenon. For many years, natural history curators have felt that the public and other museum professional have failed to appreciate the value of their collections and work. Charles Pettitt (1997: 94) asks ‘why society considers spending several million pounds for a painting is a public benefit, while a few thousand pounds to maintain a natural history collection is seen as a drain on the public purse?’

That said, the redevelopment projects have at least addressed the value of natural history collections, raising and acknowledging their value by designating

display space to them. The conflict between curators and management teams, in terms of justifying collections of biology within the museum and on display, has lessened. Instead of viewing collections as crusty, old and having no value, these redevelopments have brought biological collections to the fore of museum displays. Taking Jessica Marsh's point that natural history collections were perceived as unfashionable and out-of-touch, the redisplays and reinterpretations have shown how relevant biological collections are to today's audience benefitting society in many different respects (Pettitt 1997).

8.6.3 Conclusions

This research confirmed that conflicts arise during redevelopment projects. They can occur between individual members of museum teams and within biological collections departments. Conflict can also arise from differences in opinion, ideas and concepts between team members and external stakeholders. As shown, conflict can ensue between exhibition designers and museum team members.

In all cases, the key to reconciling differing interests is to manage any potential or real conflict through resolution. Schellenberg identifies five types of resolution:

1. 'disappearance of the object of conflict
2. victory for one of the parties
3. compromise
4. conciliation and
5. irreconcilability' (Simmel 1955 cited by Schellenberg 1996: 66)

The first resolution is not necessarily under the influence of the project manager, or the team or stakeholders, although Schellenberg (1996: 66) does state that 'issues of dispute sometimes do go away by changes of one or the other party, or even by accident'. This is perhaps wishful thinking. During the redevelopment process, project managers use a combination of the last four resolutions to resolve conflicts across all stages. Each of the final four resolution types differs. Table 8.3 illustrates the characteristics for each resolution type.

Resolution type	Characteristics
1. Disappearance of the object of conflict	Dissolved by changes to project team, objectives, individual agendas, etc.
2. Victory for one of the parties	Willingness to back down or superiority of team players, argument and objectives.
3. Compromise	Available to use when 'there is some way to quantify and divide the objects of conflict'. Acceptable results for both parties.
4. Conciliation	'parties move from enmity to forgiveness to acceptance'
5. Irreconcilability	Issues are unresolved and hostilities escalated.

Table 8.3 Conflict resolution types. Adapted from Schellenberg (1996: 66-67)

Conflicts which saw biological collections pitted against other museum collections have come some way to being resolved. The changing acceptance of biological material as valuable to the visitor, museum and the wider society, has meant that the collections have become an integral part of civic redisplays. In redisplaying the biological collections at the RAMM, the curator of natural history, Dave Bolton said 'I suppose what will show is that museum collections [of biology] have a use, have a value' (pers. comm. 15.11.2007).

This section has identified the potential, and real, conflicts within the museums during their redevelopment programs but has also sought to investigate how conflicts are resolved. Also, a change in the value of biological collections has been drawn out by comparing past perceptions of collections with their present reinterpretations.

8.7 Shifting Power: Curators of Biology in the Museum

One of the objectives set at the beginning of this research was to investigate the role of the curator in the process of redisplay. As a key member of any redisplay team, the curator has certain responsibilities but are those responsibilities the same as those of the past? Do curators have the same power to command a redisplay now as they used to? In order to research the topic, questions within the semi-structured interview schedules probed the beliefs of the team members. This was further backed by an exploration of museological literature. The results, which are presented here, unearthed the former conceptions of

biological curators and their role in displays and compared it with the role of the curator today.

8.7.1 The changing role of the biological curator in collection's redisplay

Museological texts, in the recent past, have been quick to surmise that the curator has power over the museum, its exhibitions and its visitors. Witcomb speaks of the nineteenth century curator as controller of the visitor and purveyor of knowledge:

> 'a positivist epistemology, together with an evolutionary view of history, provide the framework for an authoritative claim to knowledge, a claim which situates the curator as a rational subject in a position of control over a homogeneous, mass museum public' (Witcomb 2003: 108).

The curator has always had the 'authoritative claim to knowledge' and therefore, has had the authoritative claim to displays. Julien Parsons spoke about the power of the curator to dictate gallery displays in the past:

> 'if you were the curator you [would] just decide what [you] would want to put on display and somebody would probably say "well you can get so many cases in" and that's about it. It probably was the other way round, you decided on the cases and then how you fill the cases rather than the way we're doing it' (J. Parsons pers. comm. 22.7.2008).

A stronger assault on the power of the curator is provided by Julian Spalding (1999: 32) who speaks of curators as 'mini-directors' who 'sit over their part of the collection like a hen over a brood and dictate what's to be done with it'. Spalding continues with the brash, but fairly accurate, metaphor of a curatorially-driven, directorially-superfluous museum as a 'spider with a brain in each leg, each wanting to go in a different direction' (Ibid 1999: 32). Miles (1994: 256) further backs Spalding's claims of curatorial power declaring museum curators as 'power brokers' who are 'able to decree what objects are selected for display, how they are shown and what is said about them'.

As well as deciding on the objects and cases, the curator had sole responsibility for information within the gallery; labels, text panels and interactives (if any). Miles (1994: 256) explains how the curator found this difficult; the curator was more likely to provide interpretation which would suit their colleagues as opposed to the museum's visitors: '[curators] tend to be concerned with looking

good in the eyes of their fellow specialists rather than with the public's needs, and they act as though the public visits their exhibits to pass judgment on their scholarship'.

However, this began to change in the 1990s as 'the movement toward theme-based information display and away from pure object display also contributed to loosening of curatorial control of exhibitions' (C. P. Lee 2007: 184).

Although the above arguments represent curators of the past, and still represent curatorial characteristics in many smaller civic museums, curators employed within museums undertaking multi-million pound redevelopment projects have realised that their role has changed and with it, their approach to redisplay. They have become equal components 'working as [part of] a larger machine' to decide upon key aspects of biological collection display (J. Robinson pers. comm. 22.8.2007).

For many curators, this change in the redisplay approach was unexpected. Anthony McReavy, project manager for the Kelvingrove redevelopment, spoke about the assumptions made by curators on the project team. He felt that the curators believed the project would run as previous projects had done, curatorially-directed, but the vast amounts of money at stake and the once-in-a-lifetime opportunity meant that the museum changed tack:

> 'I think there was a feeling that we would run this project as we have run other projects in the past, which was effectively the curators in charge; they would select their objects and write their text in a timetable according to themselves and they would deliver it… We had to say "this is £25 million, it's 10,000 square metres. We've got 22 galleries and 8,000 objects, that's not the way we're going to work and so you'll be involved as and when. We will listen to everybody but we might not agree" and that was quite a difficult lesson for people to understand that difference' (A. McReavy pers. comm. 6.8.2008).

These redevelopment projects have changed the role of the biological curator inescapably from someone who is responsible for the entire redisplay of a gallery to a person who needs to be able to work in a team, communicate well with their peers and accept decisions that are made by other team members,

even if the decision goes against their beliefs. The curator has needed to evolve, or adapt, to the change in approach – but this has not been easy.

Jessica Marsh (pers. comm. 15.11.2007) expresses her role in the project as 'project managing' on a micro-scale. Dan Gordon (pers. comm. 26.6.2007) describes his experience, as a curator (for the GNM project), as developing over the course of the project: 'I think as the project has progressed the role has been less about actually being a curator and more about coordinating all the things that are happening in the gallery'. This coordinating can certainly be seen as the micro-managing role which Marsh alludes to.

Key to the change in the curator's role and their power are the lines of communication, team-work and decision-making and strict deadlines. These are two aspects of the project, one of which Miles (1994: 260) argues curators are not wholly at ease with, 'Unhappily, matters tend to be worse with curators, for, unlike designers, deadlines are rarely part of the broader practice in their profession, and traditionally they have been encouraged to spend a lifetime exploring their chosen field of scholarship, often with no very definite end in sight.'

McNicholas (pers. comm. 10.1.2008) explained how her role as curator meant working to the strict deadlines for the project as well as working with her colleagues: '[my role] really entails writing briefs and getting information from other people and making sure that if I need help from the other members of the team, that they deliver what is needed on time so we can meet the deadlines from designers and for the project managers.'

8.7.2 Working within a team

In identifying team roles and recognising that the curatorial role has changed significantly in the redisplay of biology, the structure of teams was vital to lines of communication, decision-making powers and teamwork channels. All three museum case studies provided team structures which placed curators at the base of complex hierarchies of power (see Figures 5.5; 5.6; 5.17; 5.30). McLean (2004: 201) charts, in the 1980s, a shift away from the linear 'curator-driven model' towards a team approach to redisplay (Figure 8.9). Interestingly, McLean also notes that although this team approach meant that team members gained

'mutual appreciation' for one another, there was 'no discernable improvement in the quality of exhibitions developed by teams' (Ibid 2004: 201).

Figure 8.9 Curator-driven model. Miles 1994: 252

This team approach and the structuring of teams into significant hierarchies – with the curator at the base – affected the power held by the curators. This was felt keenly at the Kelvingrove Art Gallery and Museum as Anthony McReavy (pers. comm. 6.8.2008) explained

> 'We went from being largely dominated by curators, in terms of numbers, and having one education member seconded from the education service, to having, I think, 40 on the Education and Access team, a research team, increased curatorial team, increased information team. The Education and Access team were specifically called curators on the same grade to make sure that there was parity within the service. It was very much an attempt to say to the curators, "you are now one of a number of professions and you have to work with your colleagues on delivering an exhibition which is not simply an expression of your own individuality or personality. It's got to be far more than that; reflective areas, disciplines and actually visitor-focused, not peer-focused."'

8.7.3 Working with designers

As explained in the previous section, for those curators who were used to working solely in-house, working with external design companies was a major change. Anthony McReavy (pers. comm. 6.8.2008) acknowledged that the two parties had very distinct roles within their redevelopment project 'the designers were in charge of the design and the curators were in charge of the object selection'. Although this may seem obvious, and not much of a change, it was in fact a considerable change for the curators. Part of redisplaying collections in the past was the opportunity to redesign the galleries; select the casings,

materials and overall look of the gallery. Now the curator is expected to hand over this creative process to the designers – renounce their former design ownership.

All case study museums monitored, and even forbade, direct contact between designer and curator; almost making a bad situation (in the curators' eyes) worse. Project teams stipulated the lines of communication and from the hierarchies, communication was not direct between designers and curators but tended to go through a conduit; either the project manager or the project management team. In doing so, the conduits were able to filter information, as Julien Parsons (RAMM Collections and Interpretation Officer) explained 'I'm essentially the contact between the curatorial team, who I manage, and the exhibition designers and the architects. So I'm the filter and focus through which the exhibition design needs to go both ways' (J. Parsons pers. comm. 22.7.2008). This filtering meant that some of the curatorial comments and wishes were filtered out as Richard Sutcliffe explained that curatorial comments would be collected about designs, interpretation and specimen mounting, etc., and passed onto Sue Latimer.

> 'She then collected those with any conservation and other issues and they were then put to the project management team who would then say what was important and what wasn't. Those comments would then be passed back to Event [designers] so quite often comments that curators made, because they had to go through two or three stages, didn't get to the designers and that was a major problem. And quite often we would come back to the next meeting with the designers and say 'but you haven't done that' 'but you didn't tell us about that', it had been cut out in one of the stages going through' (R. Sutcliffe pers. comm. 13.5.2008).

Similarly, the curators did not have direct contact with the designers for much of the RAMM redevelopment project. Julien Parsons (pers. comm. 10.7.2007) explained

> 'Basically my role is to do exactly that: to filter information from the curators and pass it on to the design team and vice versa. When the designers come back with layouts of galleries, I distribute them and get comments back and then feed the comments back to the designers. It's really important for a project like this that you've got a single point of

> contact because if not you get lots of different people with lots of different ideas, the designers get confused and staff get confused. It's actually really important.'

Anthony McReavy (pers. comm. 6.8.2008) confirms that this control of contact between the curators and designers is important explaining '[Curators] didn't have necessarily direct access to the designers, otherwise we wouldn't have been able to control what was happening.'

8.7.4 Conclusions

The shift away from the curator as dictator of biological collection redisplay has become a necessity, in these three case study museums, as redevelopment projects with vast investment from external stakeholders demand high quality goods delivered on-time and in-budget. Displays and exhibitions, in the past, have been within the remit of curatorial positions (Horie 1986: 268). In fact, the onus of bringing more visitors into the museum has been laid at the curator's door. But the museum profession has come to realise that a team approach can, indeed, raise creativity, productivity, and produce all-round better displays for the visitor.

This team approach has impacted upon the curator. Once taking complete ownership of displays of biology, 'on the whole, curators are used to taking all the big decisions and see exhibitions as primarily a showcase for their learning, so have the most to lose' (Miles 1994: 260), they have become components of a larger machine. Curators are now expected to work more closely with project managers, designers and education and access officers to produce cohesive, well-thought-out displays which will appeal to identified target audiences (Lord and Lord 2001: 2). This move sees curators losing sole ownership of the displays of biology, instead it has become a shared ownership; shared between a number of stakeholders. But this ownership is not shared equally. Decisions which affect the redisplay of biology are made by someone, or a group of people, and so ownership is disparate.

The next section considers the experiences and practices of the redisplay process for the different team members interviewed. This is accompanied by museological literature and project documents allowing for triangulation of the primary data collected.

8.8 Experiencing the Redisplay Process

The redisplay of biological collections in British museums has, in the past, been piecemeal. In single-discipline museums galleries have been refurbished and interpretation updated when possible. In multi-disciplinary museums, biological curators have had to compete with other discipline curators for money to redisplay their collections. For all of the museums in this study, the last (and possibly, only) large-scale interpretation of biology was undertaken at the inception of the museum.

The opportunity to redisplay the galleries in their entirety has meant that all team members are part of momentous projects which, quite possibly, will not be experienced again in these museums for many years to come. Julien Parsons (pers. comm. 22.7.2008), Collections and Interpretation Officer for the RAMM project, exclaimed 'I can't see us having another pot of money like this to spend on redoing all the galleries on the same scale for another few decades at least!' Likewise, Senior Designer, Jon Williams (pers. comm. 15.7.2008) (GNM project) said 'this is the first time [the Casson Mann team] have done a whole museum… it doesn't happen very often!', and Esther Dugdale (pers. comm. 5.9.2008), Senior Designer for the Kelvingrove project, echoed 'I don't know whether it's going to be the only time in my life that I get to design an entire museum of that scale? Usually you do individual galleries but to have an opportunity to do the whole thing in one go, it's just amazing.'

The exceptionality of these projects is clear. The vast investment in the sector by the Heritage Lottery Fund has afforded the museum professionals the opportunity to make museum displays more relevant to audiences and draw out the best of their collections.

Large investments in redevelopment projects coupled with the underpinning concepts of the 'new museology' have signified a change in the approach to redisplays. As examined in the previous section, 'Shifting power: curators of biology in the museum', the contemporary redisplay of collections has transferred from a 'curator-driven model' to a team-based approach (McLean 2004: 201).

This section will consider the redisplay process and the experiences of the team members involved in the redisplay of biological collections.

8.8.1 Lacking experience

Asking interviewees about their experience of redisplays drew a mixture of responses; they can be classified into two groups. The first contains those that had never been involved in the redisplay of biology. For example, none of the designers had been involved in biological collections redisplay:

> Jon Williams (pers. comm. 15.7.2008): 'Not interpretation. No not really. I mean we did some dinosaur galleries at the Natural History Museum, a temporary gallery, so no. That was the first time really that we'd done natural history.'
>
> Katherine Skellon (pers. comm. 15.7.2008): 'I haven't done a natural history gallery before.'
>
> Esther Dugdale (pers. comm. 5.9.2008): 'Before Kelvingrove? Me personally? Bits and pieces rather than a whole gallery's worth; integrated into other things.'

The fact that none of the designers had been involved in the redisplay of natural history or biological collections was interesting. In the recent past, museum design companies have been involved in designing new exhibitions and galleries within national, or large civic, museums. This must be attributed to cost. The consultation and subsequent work with museum design companies was only afforded by the larger, well-funded museums. This suggests that the reason for museum designers lacking experience in redisplaying biological collections is down to cost. The small- and medium-sized civic museums across Britain could not afford to out-source design companies and so were forced to work in-house on new exhibitions.

Some of the other members of the project teams also lacked experience in redisplaying biological collections. Kate Osborne (pers. comm. 22.8.2008), Access Officer for the RAMM redevelopment, explained that her lack of redisplay experience was due to the lack of opportunity. She said 'I've been here 6 years. There was no major redisplay because we had been working up to this big project all the time so we didn't have the opportunity.'

Julien Parsons (pers. comm. 22.7.2008), Collections and Interpretation Officer for the same project, also lacked experience in redisplaying biological collections

but felt that this was an advantage to him and the rest of the team as he explained:

> 'I haven't [any redisplay experience], no. No… You have to learn it quickly and so those galleries have been more of a challenge for me but in a way that's quite nice because I didn't have any preconceptions about how they ought to be. So I may have suggested things or may have taken things down the route that someone with a natural history background may not have done.'

This lack of experience was therefore attributed to two main factors; a short employment in curatorial work, for example Dan Gordon (Curator of Biology at the GNM) had only worked as a curator for nine months and had no redisplay experience. But more tellingly, a lack of opportunity for redisplays, due generally to a lack of funding which meant that museum team members lacked experience.

The second group of interviewees did have experience in redisplaying biological collections but this tended to be in temporary exhibitions rather than permanent gallery redisplays. Nicola McNicholas (pers. comm. 10.1.2008), Assistant Curator of Biology, spoke of her involvement with displays of biology at the Hancock Museum prior to its closure:

> 'I've been involved with temporary exhibitions quite a bit. So the Hancock had a really big temporary display gallery which had blockbuster exhibitions so I was really quite heavily involved with helping those redisplays. I think there were probably at least two really big ones a year so I was involved with that quite a bit yes.'

Steve McLean (pers. comm. 8.1.2008), Project Manager for the GNM project, described how he used his previously honed skills to produce popular temporary exhibitions at the museum:

> 'I have a huge amount of experience in the display of temporary exhibitions… That experience of what makes a temporary exhibition popular I bring with me to this project.'

Those who did possess experience in permanent redisplays of biology had lengthy careers as curators:

> ‘Well when I first came [to Kelvingrove] in 1979 we were designing the ‘Natural History of Scotland’ display so I was involved, not so much in the design because most of that had been done, but I was involved in actually putting things into the displays and writing the labels and that sort of thing. So it was a very different process to the one used for this redisplay. It was done in-house entirely. It was also done 99% by natural history staff. We just had the designers produce what we asked them to produce’ (R. Sutcliffe pers. comm. 13.5.2008).

Experience is gained through practice and time. For the newer curators, a lack of experience in redisplay is palpable. All members of the projects talk about the opportunity to learn and gain that experience through their involvement in the redevelopments. Gillian Mason (pers. comm. 10.1.2008) spoke about the skills she had acquired in learning how to read architectural and designers plans ‘it’s a whole range of skills that we’re having to learn to reach the stages that we’re reaching’ and later in the interview she admitted ‘I’ve learnt an awful lot, working on this project’. She also acknowledged that she struggled with the intense redisplay process, ‘It’s very difficult because you learn as you go along really’ (G. Mason pers. comm. 10.1.2008).

A lack of experience in large-scale redisplays is unavoidable with most contemporary museum professionals due to the past lack of opportunity. It is therefore essential that museum professionals work closely with external agencies such as designers, architects and project management companies, in order to be able to call on experienced specialists. Julien Parsons (pers. comm. 22.7.2008) talked about the importance of using the expertise of those involved in the project:

> ‘As museum people most of us would never have been through anything like this before. These things come along once in a blue moon… obviously your designers, your architects and your project managers have all been through this process before so they’ve got a head-start on you, in terms of the way everything works.’

Taking into account the general lack of redisplay experience across the project teams, it was fundamental that all team members understood the process being implemented to carry out their redevelopment projects. Timetables, deadlines

and lines of communication were important, as were decision-making powers, the change in philosophical approach and the team-work between members.

For many of the team members the process has been a steep learning curve, as Gillian Mason (pers. comm. 10.1.2008) explained 'you've got deadlines to meet. It's very difficult because you learn as you go along'. This process of 'learning as you go along' puts undue pressure upon teams and can cause conflict. It also means that errors can be made, which could lead to the need for costly corrections. Once again, guidance is solicited from those with more experience; the designers, the architects, the project managers, the quantity surveyors, etc. but this is often to the detriment of decisions made about the gallery designs. Julien Parsons (pers. comm. 22.7.2008) revealed

> 'we keep on coming back to the cost checking because obviously it is all about budgets at the end of the day… in a sense what you find happens is that you go through a design process and things get bigger and more ambitious and then you get to the cost, looking at the cost and finding you're over budget and then everything gets trimmed back and you start again.'

Similarly, Gillian Mason (26.6.2007) described the decision-making involved in keeping within budget with the biology galleries:

> '93% of the world's biomass is invertebrates so how can we not have invertebrates? There are two side displays… Originally they were going to go across the whole width of the walls but because all the galleries have come out way over budget, and we really had to make some cuts, we've chopped them in half, which is a shame but it will probably free up a bit of space for people just getting round either side. It's just compromises. I mean I think this one came out at £170,000 over budget! So it was a case of reviewing it and looking at where things could be cut or trimmed down!'

Museum teams are under pressure to make decisions, not just based on audience evaluation, team opinions, collections display or wider stakeholder interests but also on budget. The above statements, taken from interview data with participants, indicate that the budget was a major consideration in the redisplay of the collections, and indeed a major constraint. It had a great impact

on the decisions made to display specimens and involved cutting back or 'trimming down' ideas, specimen inclusion and design elements.

It is important to remember that cut backs to redisplays have always needed to be made. As well as budgetary motives, curatorial decisions of the past would have considered, primarily, the impact on cuts on the number of specimens on display or the number of cases within a gallery. In today's redevelopments, decisions are also being made to improve the visitor experience. The motivations of the two distinct decision-making authorities, the curator and the project manager (or project team), vary considerably.

The process adopted for the redevelopment of these three case study museums was entirely new. One of two main aims for this research was to understand the process that is undertaken by museums redisplaying their collections of biology. But how did the process differ from that of former redisplay?

8.8.2 The new process

The research results concluded that the new process of redisplay at each of the three case study museums varied significantly from that of previous redisplay processes. It was clear to all involved that these large-scale redevelopment projects could not be handled by internal teams alone. This, coupled with the lack of experience in redisplay from many of the team members, meant that the new process needed to be dynamic but structured and incorporated a new process approach; the team approach.

Key elements of the new process came to light whilst probing participants about the practices and practicalities of project development. These were developed into codes within the research results and amalgamated under the heading 'experiencing the redisplay process'. These will now be explored in more detail.

One of the most obvious distinctions between the old and new processes was the structure of the process. Prior to the redevelopment and the use of external museum design companies, these civic museums followed a simplified process such as the development, design and implementation phases, suggested by Lord and Lord (2001: 4). But with the advent of the HLF and with the cue from museum design companies, projects now follow the Royal Institute of British

Architects (RIBA) Plan of Work stages (see Appendix 1). The stages of the process have been adopted by the HLF (2009b: 4-5), acting as a way to monitor development of projects (see Table 8.5).

All projects	Building projects (broad equivalent)
Looking at your initial idea	RIBA work stage A
Send us your pre-application enquiry form	
Basic proposals	RIBA work stage B
Send us your first-round application	
Outline proposals – further development of basic proposals	RIBA work stage C
Send us regular progress reports	
Detailed proposals – developing further your outline proposals	RIBA work stage D
Send us your second-round application	
Apply for permission to start your project as set out in *Managing your grant*	
Final proposals (not all parts of your detailed proposals will need further work)	RIBA work stage E
Delivering the project	RIBA work stage F-K
Send us regular progress reports	
Evaluating the project	RIBA work stage L

Table 8.5 RIBA work stages adopted by HLF for project monitoring. Taken from HLF (2009b: 4-5)

The RAMM and GNM redevelopments both followed the RIBA stages. Katherine Skellon and Jon Williams, senior designers for each of the respective projects, explained, 'we follow the architectural RIBA stages which equate to A, B, C, D, E all the way through to about J or K… and that takes you from concept right the way through to completion of a site' (K. Skellon pers. comm. 3.10.2007). However, the Kelvingrove redevelopment was slightly different. A change in designers partway through the project meant that Event Communications, the eventual designers, had less time to work through the process. They also had the added pressure of completing the project on-time, and so in order to do so the design company took drastic measures. Esther Dugdale (pers. comm. 5.9.2008), Senior Designer explained:

> 'When [the project team] asked us to take it on to that same opening date we said "we can and we can get it open but we can't go through the normal design stages" so we spent a month with them working out

> how we would do it. We looked at the risks involved with tendering stuff before we finally knew what we wanted to do and so all the budgets were quite carefully allocated contingencies and stuff like that so it was an exercise in taking all our experience, my experience in particular, and throwing the rule book out.'

The case at Kelvingrove is isolated. It is very rare that design companies are switched during the redisplay process but, with agreement from the HLF, the project could only continue if Event Communications were brought onboard and managed the project in their own way.

The introduction of the RIBA stages to museum projects meant that the projects had a structure and teams were working to deadlines. The teams were also aware of the levels of work needed at each stage and could look to the designers for guidance. The stages of development provided stability to projects and short-term goals, in what is essentially a long-term project.

Working with the designers and with new design strategies meant, inevitably, learning a new terminology to accompany the new process. At each museum, specific terminologies were identified. For example, the teams working on the Great North Museum project talk in terms of the 'organisational principles' for the galleries (G. Mason pers. comm. 10.1.2008). This is a system of thinking about stories, themes and larger concepts to interpret the collections. The designers, Casson Mann, use the 'organisational principles' as an interpretive framework to guide museum teams in building up and structuring stories and a gallery theme. This structure is used throughout the museum to provide a sense of consistency and familiarity for visitors. An example of the 'organisational principle' interpretive framework is shown in Figure 8.10.

Whilst Gillian Mason (pers. comm. 10.1.2008) said of the interpretive framework 'I think helpfully Casson Mann gave us this framework to work to where we had to think "what is the key message?"'. But Jon Williams explained that the interpretive framework and the process of development; generating stories, narrowing down concepts and overarching themes, was difficult. He said

'we've been working with the client to tease out what aspects of the subject they want to cover because it's a massive subject (biodiversity)…you take a polar bear, there are 50 things you can say about a polar bear. We spent a lot of time… trying to focus and narrow it down… it was quite painful actually, a painful process' (J. Williams pers. comm. 15.7.2008).

Casson Mann 8-step Interpretive framework

Step 1: Choose a topic - This is the subject matter that should, in an object-based exhibition, be supported by the collections – i.e. if only 10% of the topic can be supported by the collections, is it the right topic?
Step 2: Agree a theme - the key message
Step 3: Points - Individual pieces of information
Step 4: Groups - points into groups (max 7)
Step 5: Story - The editorial standpoint, angle, emphasis. exhibition.
Step 6: Communication in the gallery
Step 7: Interconnecting stories
Step 8: Museum-wide narrative threads

Figure 8.10 Casson Mann 8-step interpretive framework. Adapted from Casson Mann 2006b

Although many projects go through the 'painful process' of selection, cutting back and trimming down, it seems that in the case of the GNM project, it can be ascribed to the fact that the GNM had not worked, initially from the collections. Steve McLean (pers. comm. 8.1.2008) explained honestly 'we didn't sit down and say "right, we've got all these collections. What kind of story can they support?" We did actually come up with the concept first to be quite honest with you'.

Rather honestly, once again, Dan Gordon (pers. comm. 10.1.2008), Curator of Biology for the GNM project, told me about the problems that occurred as a result of selecting the concept before considering the collections:

'it was certainly a very influential factor in the actual gross design because we do have a large collection of animals so we knew that we probably would be able to fit stuff around it. Subsequently problems turned up. There are areas like the desert section which is very small because we really don't have a large collection of desert creatures. That was something that came to light slightly later in the process, after

> we had already decided that we wanted to do a desert section. Obviously we've had to try and supplement that with acquisitions.'

This admission that the gallery had developed initially from a concept as opposed to the collections, raised two important issues. Firstly, that the collections were not consulted at the beginning of the development process – other factors were influencing the displays and secondly, that there seemed to be two distinct models emerging from the three case study museums.

All interviewees, when pressed about how the designs had developed and ideas were generated, talked about a 'two-way process'. This two-way process involved considering the collections and the concepts or themes for the gallery. Dan Gordon (pers. comm. 10.1.2008) talked about how he felt considering the collections and identifying a concept married well, 'those two processes can work simultaneously'. But this two-way process either begins with the collections or has a strong design concept.

It is important to make clear, at this juncture, that the Kelvingrove redevelopment project and the RAMM redevelopment project both had initial concepts but these were not design-led. The Kelvingrove concept was to take a narrative, multidisciplinary approach to display which ultimately led to the development of flexible gallery furniture and interchangeable stories. For the RAMM, their approach embraced their Victorian foundations, thinking about object stories and the connections with the local area.

For the GNM, the approach was to create a gallery which would 'wow' the visitor (S. McLean pers. comm. 8.1.2008). The approach was heavily influenced by visits to other galleries of biology and the personal agendas of some of the team members.

> 'To be honest a lot of this focus and direction did come from me. It was based on my feelings towards places like Leiden and Paris and the London Natural History Museum who do this sort of thing which I quite liked. And I was keen to bring out this large exhibit of diversity and showcase our big animals and then within that integrate all the complexity within it somehow.' (S. McLean pers. comm. 8.1.2008)

The RAMM took a different approach at the beginning of their redisplay process. Julien Parsons (pers. comm. 22.7.2008), Collections and Interpretation Manager, set the curatorial team a task to identify potential themes and stories from the collections themselves. 'It was a collections audit that we did to work out the main themes. We went through a narrative of the main themes we would want and whether they matched up'. This is inline with directions from Graham Black, a consultant for the RAMM project, who says in his text, *The Engaging Museum*, 'each collection needs to be assessed through a collections audit and its individual strengths highlighted' (2005: 220). This, he says, will draw out the collections 'significance' and 'stories' (Ibid 2005: 220). Similarly, Anthony McReavy (pers. comm. 6.8.2008) described the task assigned to the curatorial team at Kelvingrove: 'the first challenge was the curators were asked to look at the collections and identify what we had in our collections that would make good stories'. But both museum project teams recognised that the strengths of the collections were not enough to produce a good display. Julien Parsons (pers. comm. 22.7.2008) explained further 'if you just run with your collections then you tell a story that's incomplete and patchy and if you write the storylines then you might be telling stories but you can't back them up or show evidence of them through your collections'.

In this respect, the collections audit and theme development are essential as part of the two-way process associated with the initial stages of gallery redisplay development.

Two-way process models evolved as a result of the findings from the interviews (Figure 8.11). They helped to understand the process involved in the initial stages of decision-making for the project. They will be developed further in these results chapters.

Julien Parsons (pers. comm. 22.7.2008) makes the observation 'if you end up relying on getting in loans or making replicas or relying on lots of interactives you think, "well have we got the right theme?" because if we can't tell the theme through our collections and we're a museum where the heart of it is the collections, you sort of feel you're doing the wrong thing.'

Collections are, for all museums, their *raison d'être*. The move to consider a concept before the collections impacts on the way in which collections are

displayed – this has been illustrated by the GNM example. But this is not necessarily a negative for museum collections of biology. The move towards a concept-driven gallery is marked by a visual, aesthetic appreciation of the specimens. For other galleries, such as the Kelvingrove and RAMM projects, the collections are the mainstay of the galleries and it is their stories which form the initial notions for the gallery designs and themes.

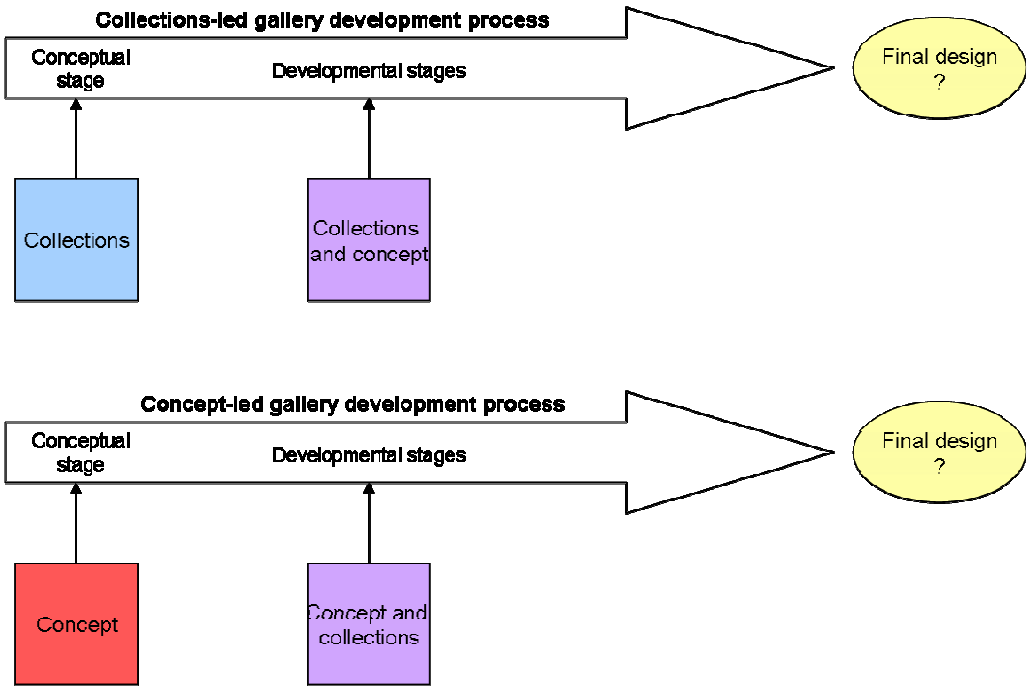

Figure 8.11 Two-way process in gallery development process. Paddon ©

Defining their approach was necessary, not just to establish the overarching museum concept, but also to allow for its incorporation into the design briefs for the new galleries.

One of the most important elements in the new process is the creation of a clear, concise design brief. This should be produced at the conceptual stage of the project. A design brief is essential, for two reasons. Firstly, it will set out the objectives and goals of the redisplay projects for the winning design company to interpret. And secondly, it will also act as a checking aid for museum teams from which 'to evaluate any design proposals against' (Black 2005: 254).

Mayrand (2001: 412) sets out the parameters for the ideal design brief including the scope and limitations of the display. He states:

> ‘this document provides the designer with a description of the proposed content of the exhibition, and should include an evocation of the intended visitor experience, the extent and limitations of the gallery space, the exhibitions production budget, a list of the artefacts, works of art or specimens to be displayed, the themes and objectives of the exhibition as a whole and of each of its components, and the proposed means of expression for each component.’

All interview participants were asked about the design brief for their biological galleries. The interviewees struggled to remember the briefs given the longevity of the projects. Katherine Skellon (pers. comm. 15.7.2008), Senior Designer for the RAMM redevelopment, said she did not remember the design brief: ‘we were told there was this collection of fantastic birds and insects. No, it was probably too long ago really. All I know is that we had to design new housing, a new display for them. There wasn’t much detail that I’m aware of.’ I surmised that the brief was quite scant. Skellon (pers. comm. 15.7.2008) reiterated ‘No, it’s probably because it was such a long time ago and I wasn’t around. I haven’t really read the brief because the project was much more developed by then. There would have been a brief.’

If the design brief is scant, does not provide enough detail, the designers are given *carte blanche* in terms of design and interpretation. Jon Williams (pers. comm. 15.7.2008), Senior designer for the GNM project, honestly admitted there was no design brief for the ‘Biodiversity Gallery’ (now the ‘Living Planet Gallery’) at the GNM:

> ‘I think the client wasn’t particularly clear is my honest answer. I don’t think there was even a brief written down. Certainly when we pitched the project we didn’t know which building we were working in. It was very open.’

He went on to say,

> ‘in some ways it allowed us to drive it to suit ourselves, so we might have been interested in the visual aspect of it but because [the project team] weren’t resolved in their thinking we could actually bend their thinking a little bit because we had a good design idea.’

This is backed by Curator of Biology, Dan Gordon, who joined the project partway through the redisplay process. He spoke about those responsible for constructing the brief and the designer's influence on the gallery:

> 'I think before I came in it was… Steve Mclean… and the senior curators at that time [who wrote the design brief] but also I think Casson Mann, the museum designers, had quite a lot of input at that stage because they had concepts. In fact, it was quite interesting, this was quite a long way into the project, but they showed us the original drawing that had inspired them in terms of the gallery. It was some obscure Hungarian illustrators Christmas card, or something from a children's book! Sounds bizarre but it was a drawing of lots of animals poking their heads through a wall' (D. Gordon pers. comm. 10.1.2008).

Conversely, the Kelvingrove designers (Event Communications) had a well defined brief, due in part to joining the project partway through the process. Esther Dugdale (pers. comm. 5.9.2008), Senior Designer explained:

> 'Because [the museum project team] had been working on the content, as I said earlier, they had a very clear idea… We were given an overarching brief but we were also given specific… each of the stories for each gallery. We managed to convince them to move a couple of stories, you know take it out of that gallery and swap it with that one, but apart from that they said "the overall theme for this is Scottish wildlife and these are the six stories we want to tell, now you design how we do it."'

The highly-structured brief provided by the project team at the Kelvingrove project meant that the designers were allowed less creative freedom but had well-defined objectives and goals to fulfil – the client knew what they wanted.

Researching the design briefs for these projects highlighted the major differences between the projects. For those with a thoroughly-constructed brief, the designers were interpreting and developing ideas **with** the project teams.

For those without a well-developed brief it meant that the designers were interpreting and developing ideas **for** the project team. In this instance, designers are given creative freedom – they can try out new design ideas,

technologies and materials. It may also lead to a design-led aesthetic gallery as opposed to the narrative-based gallery.

This finding led to the production of a simple model which illustrates the difference between projects with and without design briefs (Figure 8.12).

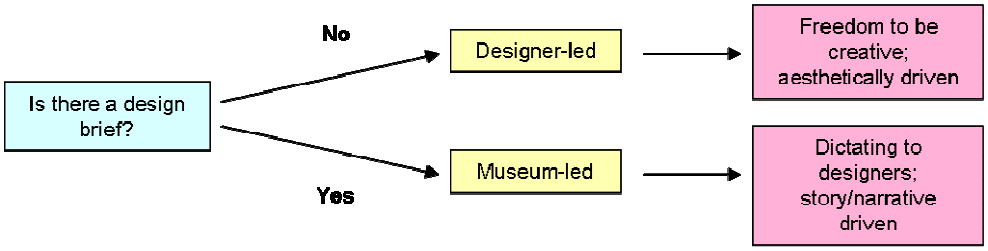

Figure 8.12 Redisplaying with or without a design brief: implications for displays. Paddon ©

8.8.3 Staff turnover through a project

The redevelopments being undertaken at each of the case study museums were monumental and because of their complexity, occurred over a number of years. Many redisplay projects of this magnitude take over five years to complete. Understandably project members may change across the project period. The implications for impacts upon the project when staff leave and join a project are considerable. Morris *et al.* (2009: 216) explain that 'when experienced personnel leave, they take institutional memory with them, and stakeholder relationships suffer setbacks – all at a time when the institution is attempting to find a solid, operating foundation'. Further to this, Stoehr (2002: 72) says that 'if the individual leaving is a key team member, this event can disrupt [the] project significantly'.

In some instances, team members joined the project late in the process and therefore had little opportunity to make an impact. Dan Gordon (pers. comm. 10.1.2008) talked about his experience of joining the team partway through the project. He said he was responsible for 'refining [the designs] and coming up with lists of objects and working on objects'. Of the themes and stories, he said 'those ideas had been finalised' before he had joined the project.

The impact of a person joining or leaving a team will alter the team dynamic and, quite possibly, upset the status quo. It can be particularly difficult when the project manager leaves as they are the lynch-pin for the project. They should be

aware of the project in its entirety and the decisions that have been made. They should also have encouraged productive teamwork and ensured good communication between team members. They are also the conduit between the designers and the museum team members. When someone as important as the project manager leaves the project partway through, Stoehr (2002: 72) suggests that there are three components to a back-up solution:

1. 'selection of a back-up person
2. identification of a replacement and
3. definition of hand-over procedures'

Whilst project managers may not last the entire duration of the project, the GNM project struggled to maintain its project managers. Steve McLean (pers. comm. 8.1.2008) explained

> 'I have only been working for a year [as project manager] actually because up to that point Linda McGill was the project manager. There have been about five project managers on this job. It's changed. It's gone through a number of different people because it chews you up and spits you out a quivering wreck!'

He continued to explain that he was a natural choice for the project manager position as he had worked on the project at the conceptual stage,

> 'right back five years ago I was working on the project and helping with the bids and so on, and of course, my knowledge of the museum and its collections is quite responsible so I was a natural choice' (Ibid pers. comm. 8.1.2008).

As difficult as it is for a team to function when a member leaves, it is also difficult for a new team member to settle into a project. The new team member needs to be informed about the project aims and objectives, the practices and processes involved and the decisions that have been made. They also need to be made aware of their role and how they fit within the team structure (Knutson and Bitz 1991: 185). At the same time, they are trying to find their voice amongst established team members and getting to know the team and how it works.

One particular example of the impact of team departures and arrivals was of the number of people working on one storyline within the Kelvingrove project. Richard Sutcliffe (pers. comm. 13.5.2008) explained:

> ‘In one case I started a story; we had a project curator take it on. He changed his position before we finished so it was taken on by a research assistant, who then left for a new job so I finished it off!’

Staff turnover undoubtedly affects a redevelopment project, and can impact heavily on decision-making, teamwork and communication functions. These, in turn, can have an impact on the design outcomes, deadlines for project stages and the team dynamic. This will be examined more closely in the next chapter.

8.8.4 Re/structuring the team for the new process

Much has already been mentioned about the curator-driven model (Figure 8.9 in the section: ‘Shifting power: the curator of biology in the museum’). The model developed as a result of the modernist museum movement whereby curators ‘provided the authorship and representation of collections to audiences’ (Russo and Watkins 2004: 23). The model details the linear progression of the display process and the responsibilities of the team members involved. The curator is the driver of the redisplay (Macdonald 2002: 109). In hierarchical terms, he/she is placed at the top, taking command of biological collections exhibition.

The movement away from the curator-driven model occurred as a result of the new museology when a move towards the team approach was adopted by museums. For many civic museums, the team approach was used when developing temporary exhibitions but in this case, the team approach has been adopted for the multi-million pound redevelopments.

The structures from all three case study museums (Figures 5.5; 5.6; 5.17; 5.30) show that the flow of information is transferred in a single direction, from curator to team member, but, in fact, multidirectional (between all team members) as team members work together, communicate and decision-make throughout all stages of the process. Figure 8.13 compares the traditional, linear curator-driven model with a new team approach structure.

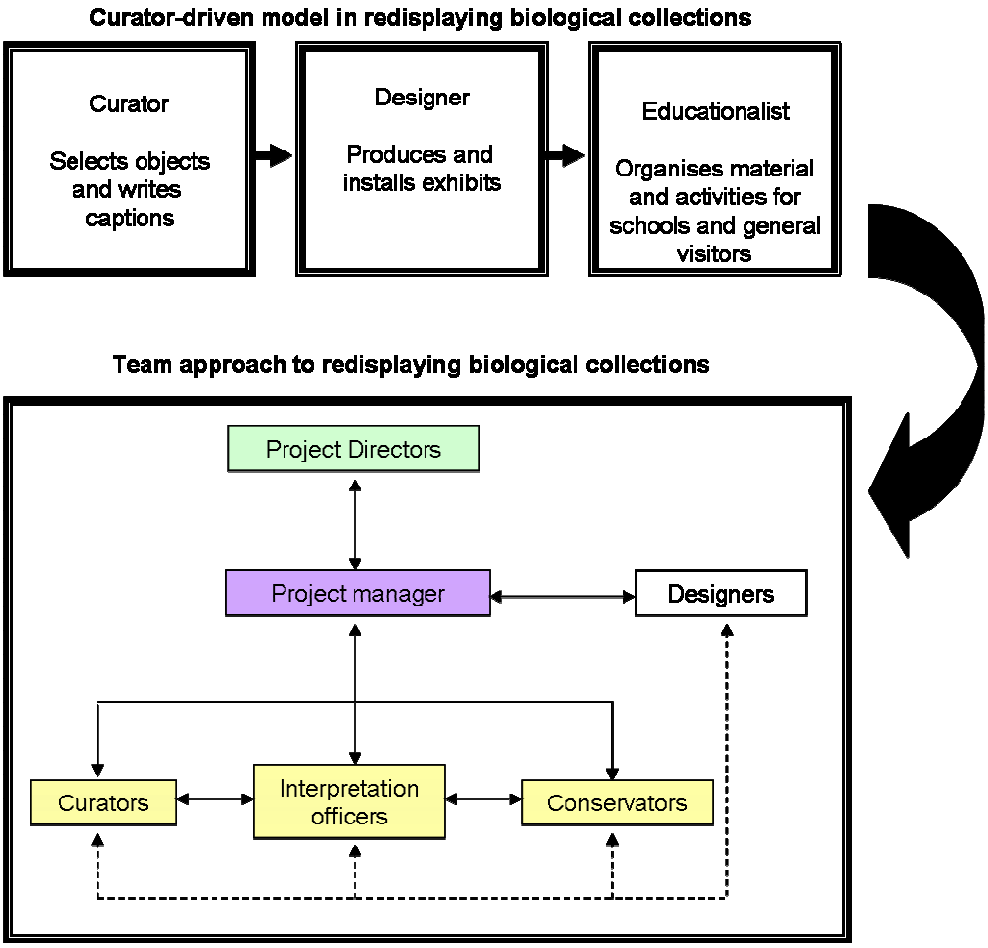

Figure 8.13 Transition from curator-driven model to the team approach adopted for the redisplay of biological collections at the three case study museums. Curator-driven model taken from Miles 1994: 252. Team approach model: Paddon ©

The team approach model shown in Figure 8.13 shows how curators, interpretation officers (or equivalent) and conservators are placed at the same level of the hierarchy and have communication with the project manager. Communication lines also occur between the groups as they work together to produce the displays. The dashed line between the three types of team members and the designers shows that the communication between them is rare but does occur. This is generally under pressured conditions, where quick decisions are made and at the beginning of the projects, when they are discussing concepts and collections ideas. The placement of the designers, on the same level as the project manager, is not necessarily representative of their power within the projects. In fact, their placement and communication with individuals and groups alters throughout the course of the projects.

The project manager acts as the conduit between the curatorial, educational and conservation teams and relays decisions made to the designers and project directors. Likewise, lines of communication work in reverse with project directors communicating decisions, generally budgetary, to project managers and designers filtering project plans, ideas and changes to project managers for dissemination.

Anthony McReavy (pers. comm. 6.8.2008) explained that the restructure of the Kelvingrove team during the project, borne out of a best value review, was to ensure equality amongst project team members: 'the education and access officers were specifically called curators on the same grade (as curators) to make sure that there was parity within the service'. This parity-giving through the restructuring of museum teams, as Elaine Heumann Gurian discusses, is symptomatic of the team approach. Heumann Gurian (2006: 163) states that 'three equal advocacy positions – content, design and audience – needed voice within the exhibitions process from the onset'. Furthermore, she observes that this move was politically motivated and, as Anthony McReavy alludes, was done in order to 'break the then closely held monopoly of curators and designers over exhibition creation' (Ibid 2006: 164).

Genoways and Ireland (2003: 43) assert that 'this team structure can result in more effective exhibitions… that combine curatorial, educational and design elements'. The team approach has become accepted as the norm in the contemporary redisplay process. Heumann Gurian (2006:163) goes as far as to say 'museums now using the team approach have modified the structure or the nomenclature slightly to fit the traditions of their own institutions. But the major component – a three-pronged advocacy – remains essential and consistent.'

8.8.5 Conclusions

The redisplay process for museums has changed irrevocably. The team approach, which was keenly adopted by all three case study museums involved in this research, has sought to increase equality across team members. In doing so, the power balance in the museum has shifted also. Additionally, the redisplay process has changed the progression of the redevelopments. RIBA work stages have been introduced by the HLF and design companies to firm up the initial, developmental and completion stages of the projects. Thus, the monitoring of projects has become more straightforward and comparable. It also

breaks the projects into manageable segments with achievable deadlines and future goals.

However, the changes to the process do throw up some questions. For instance, will museums stick with the team approach to redisplaying in the future? There may be many factors acting upon the continued use of the team model but the main instigator of change could be in future funding.

The HLF has played an enormous role in catalysing these projects. And it has been this vast investment in projects that has allowed museum teams to out-source expertise – in this instance, the designers. The designers have an integral role in the team approach. They develop the design aspects of the displays – which museum professionals are not trained for. The loss of large funding sources such as the HLF could potentially jeopardise this new approach to redisplays. Whilst the team model would remain unchanged in terms of the curatorial, educational and conservation (internal) teams, the designers; their knowledge, innovations and ideas, would be lost. The designers would be factored out of the team model.

But one factor that will not change across all types of museum display using the team approach model is the uniqueness a team brings to each new display project. Sue Latimer (pers. comm. 14.5.2008) explained why there would never be another Kelvingrove:

> 'if we went back and started again, I'm sure it would be a completely different thing. Things move on… if you're faithful to the process you won't get another Kelvingrove, nobody will get another Kelvingrove because it's all about the collections and ideas and the stories and the designers that were working on it at the time and all those individuals who made the decisions and the visitors profile… so it would be different.'

8.9 Wanting to Succeed

From the outset, project teams have wanted these large-scale redevelopment projects to be a success. All team members have wanted to provide visitors with a better museum experience and ensure that biological displays were exciting, innovative and engaging.

Many factors ensure the success, or failure, of a project; competition, personal agendas, good communication, motivations, etc. This section investigates these factors and the roles they play in making, or breaking, the redisplay projects. Consideration is also given to the measurement of success – how do we know that a redisplay has been successful?

8.9.1 Competition and the borrowing of ideas

Competition, for museums, is fierce. Not only are they competing for valuable resources, they are also competing for the general public – drawing in visitors.

McLean (1996: 71) breaks competition into two distinct groups: direct and indirect. The direct competition, McLean argues, is from 'other museums and attractions' and the indirect from 'other activities that may occupy a person's time' (Ibid 1996: 71). Here, I use the results from this research study to break competition into two different groups: internal and external. Internal competition is concerned with competition between museum collections, within the same museum, and their curators (see sections titled 'Conflicting Interests' and 'Shifting power: curators of biology in the museum'). Also encompassed by the heading 'internal competition', is the competition between museums. They are seen as competing within the museums sector and I therefore consider them to be 'internal' competitors.

External competition is defined by museums having to compete with leisure activities, such as zoological gardens, wildlife parks, television, outdoor pursuits and shopping centres, etc. (Black 2005: 37; Morton 1988: 134-137). External competition, Morton argues (1988: 136), has both positive and negative connotations. Positively, museums are forced to 'up their game' as competitors seek to provide better visitor services. Negatively, displays and the museums *raison d'être* may suffer as Morton explains, 'the greater the success of these malls and theme parks, the greater the pressure on museums to emulate these in various ways; to mount spectacular and expensive displays (to compete with, say, the Disney organisation's EPCOT in Florida) or even to place a museum 'shop' in a prominent site' (Ibid 1988: 136). This competition is observed most explicitly at the GNM where the concept was one of 'spectacle' (D. Gordon pers. comm. 10.1.2008) to create a 'wow factor (S. McLean pers. comm. 8.1.2008). However, Nicola McNicholas (pers. comm. 10.1.2008), Assistant Curator of Biology for the same project, stated that the pressure for museums to compete

meant that galleries needed to be innovative, fun, challenging and engaging but that they also needed to be 'a bit more wowee' to attract visitors.

Added pressures are felt within two of the museums studied as part of this research. As both museums sit within a larger organisation, a Museums service, they are competing for resources; knowledge, research, interpretation skills and expertise as well as resources such as personnel and money. Kelvingrove is competing against 12 other museums (within the Glasgow Museums organisation) and the GNM is competing against 10 other museums within the region (under the umbrella organisation, Tyne and Wear Museums service). In effect, all of the museums within these museum services are competing with each other as well as other local and regional museums. However, they do have the advantage of having more expertise within their organisations and are marketed more widely as a result of their incorporation into larger Museums services.

Alongside leisure activities, natural history collections in museums are also competing with media, for example, the rise in interest in wildlife programmes such as the BBC's 'Springwatch' series and other wildlife documentaries. There are, now, television stations dedicated to wildlife - Discovery channel - so museums are competing on another level. One of the interviewees commented that 'it's difficult, natural history, because you can't compete with the natural world and everything that we do is visual, so you know forget it!! You can't compete with the BBC wildlife programmes… but the difference is you can get your nose close up to these' (J. Williams pers. comm. 15.7.2008). And this is the difference that museums need to capitalise on.

As human beings, we compare ourselves to other people, what they have and what we aspire to. In the 1950s, this comparison amongst humans was developed as social comparison theory by Leon Festinger. The theory states that individuals often assess how well they are doing by comparing themselves with others around them (Festinger 1954, Festinger *et al*. 1989). In the same manner, museum project team members were recorded making comparisons with other HLF projects and recent redisplays of biology in museums around the world. Festinger's theory can be applied in a museological context to understand the comparison of redevelopment projects. Some of the comparisons drawn with other museum projects emerged as a result of the

pictorial 'ice-breaker' at the beginning of each semi-structured interview (see Appendix 5). Interviewees were encouraged to talk about each display. Although they spoke about the technicalities of the display, how the audience would react to the display, and whether they liked them or not, they also freely commented about the displays in comparison with their own redevelopment projects and, in the cases where they recognised the displays, they commented about their desires for similar displays. The following array of statements is lifted directly from the interview data. They illustrate the kinds of responses gained from the ice-breaker pictures (see Appendix 5 for all images).

Image 2: 'What on Earth!' gallery, Weston Park Museum

'It's that integration with the live and preserved which is something we're doing a lot of in the new museum… I think what we're doing, we think visitors will get even more of a surprise because we're really integrating the live animal displays with the exhibits.' (S. McLean pers. comm. 8.1.2008)

'I would absolutely give my hind teeth to have something like that here.' (J. Robinson pers. comm. 13.5.2008)

Image 5: 'Nature' gallery, Royal Cornwall Museum

'Oh! The encyclopaedic display. Yes, we're definitely moving away from this sort of thing.'
(S. McLean pers. comm. 8.1.2008)

Image 8: Le Grande Galerie de L'Evolution

'That's very beautiful! That's the approach that our designers, RAA, would like to go for! In fact that's sort of the idea of the 'Birds gallery', where the specimens almost float. It's sort of like a peripheral nature that's brought right out and the specimens are allowed to work on the back of that.'
(J. Parsons pers. comm. 22.7.2008).

'They must have had a budget the size of the Olympics but boy they've spent it well… Oh yeah. I'm so jealous!' (K. Osborne pers. comm. 22.8.2008)

'Paris my favourite! well this is just an exhibition designers dream basically. It's just exquisitely designed and developed in terms of display, the objects and the lighting and the way that people move through it. Just the whole architectural thought and development, it's just, the relationship within the architecture, it's just a real joy so I have lots of good things to say about this.'
(K. Skellon pers. comm. 15.7.2008)

Ultimately, the research participants all wanted a gallery similar to Image 8 (Le Grande Galerie de L'Evolution). Museum project teams should distinguish however, that this is a national museum of natural history and had a substantially large budget in comparison to those that they had. Also, it is a national museum – on a par with the Natural History Museum in London and the Smithsonian Institution in Washington. Civic museums cannot compete with them. They do not have the variety in their collections or the floor space to designate to biological collections. But they can take elements from these successful displays. They can consider their approaches, they can consider their design ideas and they can consider their collections. Moreover, they have to consider what the visitor wants and whether that is deliverable within the constraints of their projects.

So, taking Festinger's social comparison theory and applying it to the findings of the interview data from this research, it is clear that museum project teams compare their new displays with those of other museums.

Comparisons and competition between museums can push museum teams to produce high-quality displays. They may borrow ideas from other museums, where the ideas have proved a success with visitors or innovative in the way they communicate messages.

8.9.2 Project success

With the changes in the museum redisplay process and the investment of millions of pounds in redisplay projects, museum teams are under immense pressure to deliver successful projects to their stakeholders.

According to Verzuh (2005: 19), a project can be judged a success when it is delivered on time, in budget and to a high quality. These three components, all being equal, will allow for project success but if the equilibrium shifts there will be ramifications,

> 'if the amounts of time and money available for a project are reduced, this will almost certainly limit the quality of the product. Similarly, to deliver the same quality in a shorter period will cost more' (Ibid 2005: 19).

It is this equilibrium which the project manager must manage effectively to ensure project success. The pressure to deliver the project within the budget is intense. Julien Parsons (pers. comm. 22.7.2008), Collections and Interpretation Officer for the RAMM redevelopment project, explained

> 'we keep coming back to the cost checking because obviously it is all about budgets at the end of the day… in a sense what you find happens in that you go through a design process and things get bigger and more ambitious and then you get to the cost, looking at the cost, and finding you're over budget and then everything gets trimmed back and you start again'.

The pressures of budgeting correspond directly, in this case, to the quality of the product, or the ability to include all selected design features.

Similarly, at Kelvingrove, the design approach was one of flexibility but also one of open display. Open display was argued as opening up access to the collections but there was an ulterior motive: keeping within the budget. Anthony McReavy (pers. comm. 6.8.2008) explained 'I think our open display, again, it wasn't really a design principle, it was more to do with, firstly, budget and secondly, a desire to make our collections as accessible and as immediate as possible. If we'd had to put them in cases then the objects wouldn't be there because we couldn't afford the cases'.

8.9.3 Measuring success

One measure of success, although by no means definitive, is visitor numbers. Figures are generally banded around by museum managers as a result of competition with external agencies and other museums. But can these figures be regarded as a true measure of success?

At the point of data collection, Kelvingrove Art Gallery and Museum had been open to the public for a little over one year and the visitor figures far exceeded predicted estimations. Richard Sutcliffe (pers. comm. 13.5.2008), Research Manager at the museum noted 'we had 1.2 million [visitors] before we closed and we were aiming to get 1.6 million and I think we got something like 2.2 million so we were well over.' This overwhelming influx of visitors to the museum can be explained by a number of factors. The museum had outstanding visitor attendance figures before its closure for redevelopment in 2003. It had also

maintained contact with its audience throughout its closure – building anticipation with press releases, community talks and audience involvement (A. McReavy pers. comm. 6.8.2008).

Redevelopment projects, such as those selected for this study, inevitably mean the closure of the museum for a prolonged period of time to enable decanting of the existing exhibitions, then restoration of the building and its services, followed by eventual fit-out of the new displays. These closures are generally the longest periods of time that the museums have been closed to the public since the museums inception, barring World War II. This closure, for some communities and visitors, renders the cultural hub of their city latent whilst the redevelopment work continues. It is therefore important that museum teams keep local communities informed about the project and its progress.

The Kelvingrove team maintained a close connection with the local population by presenting talks throughout all stages of the projects development, keeping local interest and garnering further support. Project manager for Kelvingrove, Anthony McReavy (pers. comm. 6.8.2008) said,

> 'we always agreed to give talks. If someone contacted us and said 'we'd like a talk' it didn't matter who they were, it didn't matter where it was going to be or what the numbers were to be, women's groups, church groups, rotary clubs, adult education classes, it didn't matter. We did that throughout the life of the project.'

Similarly, at the Royal Albert Memorial Museum as well as keeping the public informed about the general project, they also wanted to be kept abreast of details of their beloved 'Gerald the Giraffe'. Marketing manager Ruth Randall (pers. comm. 22.7.2008) spoke about the importance of informing the public of Gerald's movements,

> 'you talk to anybody about the redevelopment one of the first questions they ask you about it is "what's happening to Gerald?" I'm not being funny. We've got a whole webpage about it because everyone was asking about him.'

By keeping the local community involved with redisplay projects new bonds can be forged and generate growing interest whilst continued contact with loyal visitors may also generate new interest and further visitors. These audiences,

both returning and potential, can also be enlisted for consultation purposes (see 'Shifting power: the audience in the museum'). Visitor figures, as is charted in numerous museum texts, have a tendency to increase after the reopening of a museum. The novelty of the museum reopening draws many previous visitors whilst attracting new audiences.

Interestingly, this research showed that although past museum projects, and funds for projects, had been granted with the sole purpose of increasing visitor attendance figures, current investment was being awarded for a very different reason. Julien Parsons (pers. comm. 22.7.2008) explained that the RAMM redevelopment project was not predicated on the promise of increased visitor figures. Instead it was redeveloping the museum for a better visitor experience, 'the whole point of this project is about increasing the quality of this experience, not increasing the number of visitors and the HLF have always understood that'. In the case of the Kelvingrove project, the key aims were to reinterpret the collections and develop a new display philosophy, echoing the ideals of the RAMM project, 'the imperative for the project was never really to increase numbers it was more about improving the quality of the visit' (A. McReavy 2008: pers. comm. 6.8.2008).

In the museum sector, the success of redisplays is usually measured by employing a quantitative method of audience evaluation – in the past visitor numbers have been used as the indicator for project success/failure. This tendency to simplify summative evaluation by counting visitors is no longer acceptable. The HLF expects to receive a thorough report from each completed project, detailing the quantitative and qualitative approaches used to measure the outcomes of the redisplay process (HLF 2006: 20). Steve McLean (pers. comm. 8.1.2008), Project Manager for the GNM project, told me 'oh, yes, there's an evaluation budget. The museum has to be evaluated over one or two years after it opens in terms of monitoring its performance and what we've achieved.'

Other funders require detailed evaluation of projects as Sue Latimer (pers. comm. 14.5.2008), Senior Access and Education Curator explained:

> 'a piece of research that I led on was looking in more detail at ten displays with visitors and getting four different visitor groups to look at each of the ten displays and to give their views on it and a fair number of them were in this area because it was partly to address Scottish

> Natural Heritage's evaluation… Famous Scottish Wildlife scored very highly.'

In the past, an exhibition's success was judged solely on the amount of visitors it attracted. All three museum projects admitted that their projects were not funded on the premise of increasing visitor numbers but on the assertion that the redisplays would enhance the visitor experience (see 'Visitor-centred goals for biology galleries').

Nevertheless, the Kelvingrove project has attracted a record-breaking amount of visitors and the enthusiasm with which this information was imparted shows that although museums are keen to measure success using qualitative methods, they still pride themselves on the increased popularity of their museum, through improved museum visitor figures.

Of course, visitor figures provide museums and their stakeholders with a quantified measure of the success. Falk and Sheppard (2006: 30) discuss the importance placed upon visitor figures

> 'Today everything begins and ends with visitor numbers. In the current business models of museums, attendance drives budgets… Given that the yardstick of success is visitors numbers, annual growth in attendance figures indicates success; declines or even steady state suggest failure.'

But this rather black-and-white approach to the measurement of the display success or failure is not the approach necessary to make judgements about display success in museums. Eilean Hooper-Greenhill (1994: 55) suggests that a multi-method approach to data gathering will provide a more holistic picture of the museum experience rather than a simple count of bodies: 'both quantitative and qualitative information should be used by managers on a regular basis to monitor successes and failures and to improve targeting of provision.' This multi-method approach to evaluation can generate in-depth, rich data measuring the museum experience and thus would tell the museum team much more about a project's success than the infuriation gathered by counting the total number of museum visitors.

8.9.4 Conclusions

Wanting success for the project is tied into personal feelings of wanting to succeed, wanting the collections to be shown at their best, wanting the visitors to enjoy their museum experience, and wanting to push the boundaries of museum display design and interpretation.

All of the team members involved had underlying agendas, whether they were inline with the team approach or furthered their own needs. Decision-making, communication and teamwork played a large role in allaying or satisfying personal agendas. The ramifications of this will be explored in the next chapter of this thesis.

All of the case study museums looked to other redisplays of biology for inspiration. Best practice and innovative approaches were borrowed but equally elements of designs that did not function properly or engage the visitor were heeded as warnings to the redisplay teams. Comparisons were also made with other projects to compare the process of redisplay – working with designers, decision-making, the role of the curator, etc.

Pride was taken in showing the collections to their best. Museum teams were aware of the aesthetic appeal of their specimens and used the abstract, contextual design to show them off.

Wanting to succeed is linked heavily to motivation; personal, team or institutional. Team members were motivated to complete their projects on-time, within the budget and to a high quality. They wanted to produce galleries of which they could be proud and, in turn, museum audiences would value.

8.10 Displaying Biology in the 21st Century Museum

Chapter two of this thesis sets out the historical changes in biological collection display from the earliest recorded in the Greco-Roman period to the present day. This section of the first results chapter builds on the historical changes by considering how collections of biology are being displayed today, with reference to the three case study museums.

The piecemeal nature of former redisplays of biology have left museums feeling disjointed and lacking coherence. A lack in budget can also cause the piecemeal

development of individual displays and cases within galleries (K. Osborne pers. comm. 22.8.2008). Julien Parsons (pers. comm. 22.7.2008) explained that this was observed in the previous biology gallery at the RAMM 'the collections had been developed piecemeal so you just get to the stage where you end up with a case of shells next to a case of local birds, next to insects, next to turtles. It was just left with a residue of past projects.' These forced gradual redisplays cause confusion to the visitors who cannot decipher messages, themes or stories. Kate Osborne (pers. comm. 22.8.2008), as Access Officer for the RAMM said

> 'There were a couple of cases where I had to ask the curator what the theme was... I couldn't work out what it was. Apparently it was animals from India or something but I couldn't work out why there was a bear and a chicken in the same case?!'

Asking participants about their biology displays before the closure of their museums garnered similar comments to those made by Parsons and Osborne.

The biology displays were also described as being 'traditional', 'a bit tatty' 'taxonomic' 'diorama' 'systematic' 'old-fashioned' (J. Robinson pers. comm. 13.5.2008; K. Skellon pers. comm. 15.7.2008; R. Sutcliffe pers. comm. 13.5.2008; S. McLean pers. comm. 8.1.2008). Ruth Randall (pers. comm. 22.7.2008) exclaimed that the RAMMs biology gallery was 'if I'm honest, it was probably the worst displayed collection possibly because it is harder to do it. You can put objects in a case a lot easier than you can plonk an animal.'

A major aspect of the three redevelopment projects was the adoption of new approaches, or philosophies, in the way the biological collections were to be displayed. For the RAMM project, they didn't want to stray from their former ethos of the typical Victorian museum. Julien Parsons (pers. comm. 22.7.2008) explained

> 'I don't want to use the word old-fashioned and I don't want to use the word traditional but… we're not ashamed of being a museum and a lot of people like us for that… we know our history and we know our strengths and we're trying to play to those rather than trying to reinvent ourselves for the 21st century. In a comfortable way, it'll be an obvious development rather than a new direction.'

This confidence about the museums display philosophy and not wanting to change the direction of the museum to suit contemporary trends, reflects the values held by the museum staff and their visitors. The museum team do not feel the need to redisplay the collections in a completely different manner. They are 'being true to [their] roots' (Ibid pers. comm. 22.7.2008).

On the other hand, the Kelvingrove project sought to redisplay the collections of biology at the museum by integrating them with other collections around the museum. This integration would create a dynamic, flexible, narrative display philosophy as opposed to the single-discipline galleries of the past (O'Neill 2006: 1). However, Jeanne Robinson (pers. comm. 13.5.2008) does allude to the fact that 'the visual impact of [the displays] was very key to the project management team'. And in making that visual impact, Sue Latimer (pers. comm. 14.5.2008) believes the collections were sacrificed 'there is a big push to make it very family friendly and very dramatic in that sense, but sometimes at the expense of the actual objects themselves'.

Finally, the GNM didn't lay out a new philosophy as such, more of a concept for their first gallery – creating a spectacle using the biological collections.

> 'The biology gallery is the first thing you see when you come into the museum and that's deliberate because we want that gallery to be, designer's hate me using this term, the 'wow factor' because it is this huge display of animals and plants and so on. The first thing you'll see is this massive wall of nature essentially… So it should be quite a dramatic entrance to the museum so we're using that as the frontispiece to the museum essentially' (S. McLean pers. comm. 8.1.2008).

The lack of a strong philosophic approach to the redisplays at the GNM left the project with little direction. However, the museum team was adamant that they wanted to create a spectacular first gallery with the biological collections – an aesthetically-driven display.

These variances in approaches to redisplay philosophies meant that the galleries of biology were either more design-led and aesthetic or museum-led and focussed on the collections; a point which will be investigated further into this section.

Recognising that museums and their galleries have needed to change their approach to redisplays, in both the manner in which redisplays are conducted and the methods that are applied to the redisplay process, the interview participants noted a change in the recent redisplay of biology. Jessica Marsh (pers. comm. 15.11.2007), Assistant Curator of Biology at the RAMM suggested 'there has been an effort to move away from the traditional style of natural history galleries which is a good and bad thing'. Although Marsh doesn't elaborate on this point Ruth Randall (pers. comm. 22.7.2008) goes some way to offering an explanation 'it went from being really old-fashioned and everything being in lines and rows, to everything being bells and whistles and now it's starting to settle down in the middle.' Painfully aware of the 'bells and whistles' approach of the last few decades, Kate Osborne (pers. 22.8.2008) professed 'I think it got a bit designery… all very clean and nice and the animals are being conserved but we've lost the storyline'. This 'bells and whistles' approach is also recognised by Jon Williams (pers. comm. 15.7.2008), Senior designer for the GNM project, who exclaimed 'sometimes it's an overload of activity or interactivity and you don't teach people anything like how to look at the objects; that would be nice if we got a bit of that back.' Randall, Osborne and Williams point out the extreme trends in biological collection display from the early systematic, taxonomic displays to the more contemporary interactive, design-led galleries. They recognise that there is a need to balance the gallery in its design and interpretation; a point which Steve McLean (pers. comm. 8.1.2008) recognises and further backs in his statement:

> 'There has been a meeting between the two… in terms of interpretation. It is definitely getting more minimalistic and that is based on a lot of the research that's taking place; that visitors don't dwell, they don't read labels, they don't read graphic panels'.

He continued to warn

> 'we need to be careful that we don't go so far back to just objects, that we go back to that cycle again of Victorian displays, systematic displays and then we'll have to go back through that cycle of interpretation' (Ibid pers. comm. 8.1.2008).

For Dan Gordon (pers. comm. 10.1.2008), Curator of Biology for the GNM project, the move towards minimal interpretation and a design-led look has impacted on the specimens. He explained 'it's very, very object-poor in a way and it's much more about big interactives, big objects, big spectacles'. Richard

Sutcliffe (pers. comm. 13.5.2008) concurred when he mentioned that new galleries seemed to have 'less objects' in them.

Contemporary museum display practice has recognised the need for a balance between over-zealous, encyclopaedic interpretation and minimalistic, partial interpretation. The museum cannot stray too far down the 'design' path, limiting the number of objects on display and associated interpretation. This move in the past led to accusations of 'dumbing down' in the museum – something which all museums wish to avoid. But likewise, museum displays of biology cannot tell the visitor everything about everything, the encyclopaedic approach (Nyhart 2009: 256). The museum should aim to tell interesting stories with the collections available in an innovative, multi-layered, multi-media way.

This balancing act between the power of the object on display, its interpretation and the designs for new galleries was highlighted by many of the research interviewees. Gillian Mason (pers. comm. 10.1.2008) admitted 'we've got to look at getting a balance between the visual aesthetics of the gallery but also not impairing the actual stuff that's in the cases too much'. Figure 8.14 shows the final structure for the 'Living Planet' gallery 'bio-wall' following the reopening of the museum.

Dan Gordon declared

> 'If I'd come in at the start of the project, I might not have decided to turn the gallery into a wall because I think it's given us a lot of problems. However, I don't think you can deny that it will be quite a dramatic structure and no, I don't think the boxes detract too much. I think what concerns me more is the height of some of the objects in the display.'

Figure 8.14 New 'Living Planet' gallery showing specimens distributed throughout the 'bio-wall' at the Great North Museum. Paddon ©

Although Gordon believes the structure will be dramatic, and fulfil the want to create a spectacle, he does accept that the structure might distract from the specimens on display. In fact, he raises the issue of viewing specimens. The two-storey structure creates problems for museum audiences to view the specimens close-up, to investigate the animals at the front of the structure above average sightlines. The specimens placed along these sightlines were sitting within the 'sacrificial layer' (G. Mason pers. comm. 10.1.2008; S. McLean pers. comm. 8.1.2008) and suggest that the design won out over the specimens.

Kate Osborne (pers. comm. 22.8.2008), similarly, wanted the new displays at the RAMM to balance the design elements with the collections, not to compromise and detract from collections,

> 'There was no doubt about it, we needed to redo it. What I hope and what I can't tell at the moment, we haven't got any answers to the questions or models or anything, is whether the new glass cases and the design approach will have that heavy handed, rather like the mass

animals in the huge glass case photograph. I desperately hope we don't create that effect.'

The extent to which the designers can affect the final designs of the galleries varies depending on a number of factors:

1. the rigidity of the design brief supplied by the client team
2. how well ideas are received by the client team
3. the concepts for the galleries
4. the make-up of museum project team members
5. the cost
6. the flexibility/practicability of the displays and/or furniture
7. the confidence/commitment of the designers in pursuing a design
8. personal agendas
9. lack of content

Any one of the above identified factors can affect how design-led the galleries of biology can be. For example, at the GNM project, the loose brief enabled the designers to drive the display aesthetically, as admitted by Jon Williams (pers. comm. 15.7.2008):

'[the lack of a structured design brief] allowed us to drive it to suit ourselves so we might have been interested in the visual aspect of it but because [the project team] weren't resolved in their thinking we could actually bend their thinking a little bit because we had a good design idea which is alright as a way of doing it, it's probably not, you probably shouldn't do it like that. The danger is that it could become too design-led and we were very wary of that but in places there was such a void in terms of content that we had to start the ball rolling so we pushed design ideas around and then showed them how you could tack on content and that allowed the thing to move.'

Whereas at Kelvingrove the design was nearly complete when Event Communications took over from the original designers,

'Because they had been working on the content, as I said earlier they had a very clear idea. Mark O'Neill had been working with the curatorial team for a long time building up this long list of stories so they had a whole idea about what they wanted to do and also because the other company worked for a year and a half by the time they decided to part

> with them they had got even further with sorting out what they wanted to display and where. We were given an overarching brief but we were also given specifics, each of the stories for each gallery' (E. Dugdale pers. comm. 5.9.2008).

The new approach to the design and interpretation of the biological collections at each of the respective museums was met with some disapproval. One of the main arguments focussed on the use of diorama as a method for displaying specimens. For many, the out-dated, Victorian dioramas were happily discarded and, in the case of Kelvingrove, strictly prohibited. Richard Sutcliffe (pers. comm. 22.8.2007) explained '[the designers] were adamant that they weren't going to have any dioramas… and the project management team agreed with them because they thought dioramas were old-fashioned.' Jeanne Robinson (pers. comm. 22.8.2007), Curator of Entomology for the same project, backed Sutcliffe's comments about the movement away from dioramas at Kelvingrove: 'there was a total anti-diorama move. You know, you couldn't even say the word, it wasn't to be done.' Robinson continued to say that she felt diorama was the most accessible form of biological display because it can explain about the animal's lifestyle, habitat or behaviour in a non-textual manner; it is implied through the diorama. She also mentions that the shift toward contemporary modes of display, away from the diorama, has made accessibility more difficult:

> 'you had to try and relay the information that would have been relayed by the context [of the diorama] in text while the text limits were much more restricted… So that was the trade off' (Ibid pers. comm. 22.8.2007).

Studies (Asma 2001: 240-276; Peart and Kool 1988; Tunnicliffe 2007: 10; Wonders 1993) of the importance of the diorama as a display medium for biological collections have been conducted with results showing that dioramas 'can be accessed and interpreted in different ways according to the highly variable scientific knowledge, interests and experiences of the visitors and thereby may be used for developing biological understanding and inquiry processes and skills' (Tunnicliffe and Scheersoi 2007: 1). So why would the dioramic mode of display be omitted from museum redisplay schedules if they are a proven mode of display for interpretation, accessibility and skill development?

Ruth Randall (pers. comm. 22.7.2008) exclaimed 'I think sometimes [dioramas] work really well if they are done well. But if they're not done well, they look appalling.' The possibility of dioramas looking tatty and being poorly executed outweigh the benefits of education and learning – who wants to look at the specimen which is popping apart at the seams? Esther Dugdale (pers. comm. 5.9.2008), Senior designer for the Kelvingrove project, also made clear her motives for their exclusion 'the thing is with dioramas, you have to do them really, really well otherwise they just, within a couple of years, they look really tired and we didn't have the kind of money to do that.' Perhaps, for many of the museum team members, particularly the project managers and decision-makers, the cost of displaying the biological collections in this manner was the real reason for their omission as a form of display?

I believe that all of the museum team members were being honest. The cost of these types of display is huge in comparison with placing specimens in an abstract, open display. They also take a tremendous amount of time to prepare and complete. The flexibility within galleries of biology, which all of the museums craved (see section 'Designing flexible displays for indeterminate longevity'), would not be accomplished if the museum teams choose to incorporate dioramas into their displays.

8.10.1 Material Influencing Design

Collections of biology are varied and wide-ranging. They can contain different forms of animals and plants, from elephants to squid and seeds to bird's nests. Material may also take different formats of display, for example, skeletal, pinned, taxidermied and dried. Biological material may also hold great scientific interest as 'type' or 'voucher' specimens, for their associated data or in terms of who, where and when they were collected. They may also be examples of early preservation techniques or new forms of display (e.g. taxidermies and dioramas). Some long-standing specimens have made connections with the generations of visitors who have visited the museums.

Many factors influence the design of the new galleries, and subsequently the interpretation, but here, I will explore the nature of the material within the case study museums and how this influenced decisions made about display.

One of the first observations made by the interviewees was the type of material within the collections and how that influenced display and interpretation. Jessica Marsh (pers. comm. 15.11.2007) explained, 'With my own example, going back to the 'Insects' gallery, the specimens chosen have very much led what the design is going to look like'. Marsh talked about the need to provide interpretation which would be adequate for visitors to view the collections, for example, with the 'Insects' gallery the designers have included microscopes and magnifiers for up-close inspection (Figure 8.15). The gallery is expected to be much more intimate and investigative because of the nature and size of the material on display. Had there been a lack of interpretative elements such as the magnifiers and microscopes, the displays would prove to be more aesthetic. Visitors are being encouraged to engage in investigation, spot similarities and differences between specimens as well as appreciate their appearance.

Figure 8.15 Proposed design for the 'Insects' gallery at the RAMM showing magnifiers to examine butterflies. RAA ©

Continuing the importance of the size of specimens, Dave Bolton, Curator of Biology at the RAMM, and Dan Gordon, Curator of Biology at the GNM, talked about the impact of large taxidermies in the museum. Dave Bolton (pers. comm. 15.11.2007) said:

> 'Obviously the size of it is going to influence [the designs]. The giraffe and the African elephant, they couldn't think of anything else we could do with them… Size has got to influence that but hopefully with the design we'll be able to use different sorts of media too, so large

> mammals, small shells, very small beetles, and each will convey their own story.'

The fact that museums tend to have large mammals within their collections poses difficulties in terms of display and storage. Storage facilities within museums are often unable to cope with large taxidermies and so display spaces are forced to accommodate them – these objects then have to be worked into the theme of the gallery.

Gordon took the issue of specimen size further and drew distinctions between the display and interpretation of smaller and larger objects. He (pers. comm. 10.1.2008) said:

> 'I think maybe with larger objects there's a tendency just to let the objects speak for themselves but where you've got smaller things like invertebrates there's maybe more of an impulse to do something with them rather than just presenting them as you would say with large birds. So people tend to want to present butterflies in swarms rather than just have a nice kind of pinned selection of butterflies in a square. Or they want to give some sense of how many there are, or how much biomass is represented by beetles and then present like a great big pile of them.'

Here Gordon has hit upon the fact that there are different approaches to contemporary museum interpretation. They can be divided into aesthetic, investigative and narrative. The approach taken by an individual museum will vary depending on the collections at their disposal and the stories they want to tell. The RAMM has decided to dedicate one gallery to insects. In doing so, the insects are not used solely in aesthetically-pleasing arrays but are presented in investigative displays where visitors are encouraged to interact with specimens. Whereas the large, spectacle of biology at the GNM has taken a more aesthetic-narrative approach.

Dan Gordon also raised the issue of historical collections. The GNM holds collections which date back to the eighteenth century. For this reason, Gordon (pers. comm. 10.1.2008) argues, the mounts are not displayable, 'I think a lot of our material is old. It has historical importance and I think sometimes that doesn't really lend itself to display'. There is an omission of historical material

because of the aesthetic-narrative approach adopted in the new biology gallery. The spectacle that the GNM team members wanted to create would not have been supported by such specimens.

The type of biological material held within the museums also has the power to influence the themes of the galleries as Dave Bolton (pers. comm. 15.11.2007) explained 'I think if it was something like skeletal we'd try to theme it. Most of the time you'd say "right, skeletal stuff" you would try to emphasise the similarities and differences with other skeletal forms rather than having the skeleton, of whatever it was, next to it.'

Jon Williams (pers. comm. 15.7.2008) confirms that, as designers, Casson Mann were 'working with what they had.' Williams talks about the need 'to eliminate certain subjects and themes because they couldn't' support it. Having said that, they are buying quite a lot of material to supplement the collections; pushing the budget even further' (Ibid pers. comm. 15.7.2008). Jon Williams makes two points here. The first, that the museum had to omit themes and stories because they could not support them with the material from their collection but secondly, that they wanted to retain certain stories and themes and in order to do so, they have acquired new specimens.

Understandably, all museums need to acquire new specimens from time to time; those which have been over-handled, are extremely old, local specimens and those which are available legally on the market to complete a collection but Williams speaks about the GNM acquiring specimens for the sole purpose of 'populating' the new display (S. McLean pers. comm. 8.1.2008). As the concept was conceived before consulting with the collections and specimens available, the museum was left with 'gaps' in the 'bio-wall'. Dan Gordon (pers. comm. 10.1.2008) explained

> 'there are areas like the desert section which is a very small section because we don't really have a large collection of desert creatures and that was something that came to light slightly later in the process, after we had decided that we wanted to do a desert section. Obviously we've had to try and supplement that with acquisitions.'

This suggests that the concept was definitely the major factor in the redisplay of biology at the GNM and that the collections were consulted secondary to that. It

then caused problems for the staff as they attempted to acquire new specimens for the display.

It was interesting to learn whether the participants felt that there were any types of collection that didn't lend themselves to display. This ranged from 'I don't think there's anything that you can't display' (A. McReavy pers. comm. 6.8.2008) to, yes there are collections which cannot be displayed: 'anything which is delicate, fragile and has to be preserved in a way that isn't really showable' (R. Sutcliffe pers. comm. 13.5.2008). Some of the interviewees identified particular collections; the most common collections selected as 'undisplayable' were herbaria and spirit collections. The interviewees explained:

> 'There are things that are less easy to display and would require a lot more interpretation. The herbarium collection is one of them because herbarium sheets do tend to look like dried plants. They tend to be brown and they are very difficult to display. They're difficult to display and to get people interested at looking at them without a lot of interpretation, so that's certainly one. Another one is the spirit preserved specimens. We are going to have some on display but they also need a lot of interpretation because they look quite disgusting. Well some of them, some of them are very interesting!' (J. Marsh pers. comm. 15.11.2007)

> 'I think [botanical collections suffer] because [they are] preserved a certain way for longevity and for scientific use and the designers didn't seem that inspired by it' (J. Robinson pers. comm. 13.5.2008)

> 'Herbaria. The very fragile, the very light sensitive.' (K. Osborne pers. comm. 22.8.2008)

Admittedly, some biological collections and specimens are less easily displayed than others. Although it could be argued, and has been, that collections like herbaria are delicate and were initially preserved for uses other than display, this should not necessarily stop these collections from telling potentially interesting, alternative stories in the museum (Wolstenholme 2006).

As well as telling stories about specimens, museums are encouraging an interest in wildlife through the re-introduction of live animals in galleries. Two of

the three redevelopments are incorporating live animals into the galleries, and in the case of the GNM they are incorporating live animals into the gallery structure, 'we think visitors will get even more of a surprise because we're really integrating the live animal displays with the exhibits' (S. McLean pers. comm. 8.1.2008). This revival of vivaria within the museums, it is hoped, will add an extra element to the displays of static specimens.

8.10.2 Telling stories

Biological specimens have a tendency of being displayed with scientific information; their Latin name, their distributions, their behaviour and native habitats. But today's displays of biology have changed. The modern visitor, whilst interested in the traditional information found on a specimen label, wants to know more. Telling stories about the collections; their social history, their object histories is as interesting to the visitor, if not more so, as knowing where in the world it can be found. The galleries in this study chart an overwhelming move to give specimens a wider context. As Sachatello-Sawyer *et al*. write (2002: 12), there is a distinction between 'a logical, scientific approach to understanding the world and a narrative approach that establishes not truth, but meaning in people's lives'. This, Roberts (1997: 134) argues, is what can 'throw "traditional" museums to the wind' and provide museums with a way to engage their audiences in bringing to displays their own experiences and knowledge. Providing a narrative approach to the display of biological collections can create an environment where the visitors own experiences and knowledge are used to increase their experience of the museum and its objects. This move has been acknowledged as 'meaning-making' in museology (Falk and Dierking 2000; Silverman 2004).

Providing visitors with more than simple scientific information, the specimens become multi-faceted, their stories multi-layered and their meanings multitudinous. Anthony McReavy explained how at Kelvingrove, the narrative approach allowed for the integration of objects from different collections, providing interesting juxtapositions and new stories. Speaking about the Arms and Armoury gallery he talked about the need to include natural history specimens as they had heavily influenced the Renaissance designs in arms and armour 'so then to not show cockerels and armadillos and lobster just seemed bizarre' (A. McReavy pers. comm. 6.8.2008).

Similarly, multiple stories and layered information are intended for the galleries at the GNM and the RAMM redevelopment projects. Dan Gordon (pers. comm. 10.1.2008), Curator of Biology for the GNM project explained

> 'the idea is that the galleries aren't supposed to appeal to experts necessarily, they're not aimed at an academic audience but they should contain enough information, again this idea of layering the interpretation, that somebody who has come in and wants to understand more about say, the animal life of the polar region, should be able to get enough interesting information from it that they're not going to feel that it's a display for children because I really wouldn't want that and I don't think that anybody in the team really wants that.'

So, by providing multiple stories about their specimens, they are not only encouraging visitors to make meaning but they are also attempting to engage multiple audiences.

Julien Parsons (pers. comm. 22.7.2008), Collections and Interpretation Officer for the RAMM project, spoke about the 'multi-labels' they were planning to include in the biology galleries. He explained that these labels would be used to provide multiple interpretations for one object; a layering of information. Ruth Randall (pers. comm. 22.7.2008) concurred explaining 'I hope [the audience] find better stories not just seeing things completely cut off and devoid of their history and their stories'. She gave an example 'here's an Elk, but here's a story about a guy who went and brought home an Elk and this is why, and these are his contemporaries and you know… a better story' (Ibid pers. comm. 22.7.2008). By embracing the narrative approach at the RAMM, the team acknowledge that although specimens may be foreign, they will be able to speak about the connection with local area. Julien Parsons (pers. comm. 22.7.2008) explained:

> 'we want to keep the stories relevant, to have a local link whether that's through a person or through a place but when you start to loose that, that local link, and you start telling a story that's not local and not particularly related to the collections, you ask yourself "why are you telling that story?"'

In the case of the RAMM, the overarching local narrative to the galleries has been used as justification for the acceptance or rejection of stories.

Storytelling, however, is made more difficult in contemporary museums by the limiting of text in galleries. Working with strict hierarchies of text, often self-imposed, the museum staff are expected to detail stories and object information at different levels. Gillian Mason (pers. comm. 26.6.2007), Interpretation Officer for the GNM project, explained the level of detail allowed on a panel and caption label:

> 'I try to stick to 75 words for a main panel and about 30 for a group caption. But it's not rigid because I mean it depends on what you want to say. But we're trying not to overload people with words.'

Similarly, Julien Parsons (pers. comm. 10.7.2007) spoke about the hierarchy being employed at the RAMM:

> 'The big storylines are 'primary text' which are 50 words top level text, ST or 'secondary text' and the word limit for those are about 100-125 words, something like that, which is a sub-story from the primary story. Then there's tertiary text which is a sub-story of the sub-story. Those are 200-250 words perhaps. Down from that, and the final level, is the object label which is written by the curator and comes with quite a standard object.'

All of the case study museums recognised that too much information could put visitors off reading text. Instead of spreading information across two levels: the display panel and the object label, they have all implemented wider-ranging hierarchies with increased levels of interpretation. This, it is hoped, will appeal to a wider audience demographic.

Curators spoke about the difficulties in limiting text in the galleries, particularly when trying to explain biological concepts:

> 'there's an awful lot of quite complex information which is difficult to render in simple language within a word limit so, if you want to simplify things sometimes you can take twice as many words to say them.' (D. Gordon pers. comm. 10.1.2008)

Likewise, Richard Sutcliffe (pers. comm. 13.5.2008) explained 'The problem comes when you might have a difficult technical term so for example, if you wanted to talk about a geological term you might spend 25 of your 30 words explaining what an igneous rock was.'

Curators in the past have, anecdotally, struggled to produce concise text for their displays in museums. Many take the 'book on the wall' approach because they consider every fact about the object to be important. Richard Sutcliffe (pers. comm. 13.5.2008) spoke about the difficulty of writing precise text and his reservations about the museums new approach:

> 'We went through the text and basically we were given a brief that individual object labels should be no more than 30 words. The main text panels were normally 150 words maximum so that limited it and it really concentrates the mind and in most cases it works. I didn't think it would but when you're trying to get a piece of information over and you've only got that number of words it really makes you think, what are you trying to say and you cut out all the irrelevant words and you've got something that's easy to read and gives over the facts'.

This new approach is essential as much museological research has proven that visitors don't read every piece of information presented to them – they are selective. Museum learning has also shown that visitors struggle with 'museum fatigue' and that few people read all of the information in a gallery (Bitgood 2002; Gilman 1916; Melton 1936). By limiting the text in their redisplays, curators are being forced to rethink the information they provide to the visitor.

An interesting point was raised by Gillian Mason (pers. comm. 10.1.2008). She noted the differences between hierarchies of information for different collections drawing comparisons from the levels of information given about natural sciences collections in the museum with those of archaeology. She said

> 'I've worked with Casson Mann to try to map out these levels of hierarchy and to see how they work as well. What we found is the natural science galleries work slightly differently to the archaeology ones.'

Mason enthusiastically continued,

> 'what we find for the natural history gallery is that you have what is your level one text, which is describing a big theme. Your level two text might then talk about a group within that theme. Your level three might then take you down to individual object level and you could have a 35-50 word story about a group of objects and then you just list them so 'fox', 'deer', 'badger' and that's fine because most people know what a fox, deer and badger are. But if you have Egypt say and your, what we

> call ‘tombstone’ information, which is what I call your label about your object, and you just have ‘Stone Statue of Bess’, what on earth does that mean to anybody? Memphis? Most people are going to think of Elvis Presley! So I started to think, “hang on”. I think in the archaeology galleries you are going to have a smaller story on level one and two but a bigger object caption label’ (Ibid pers. comm. 10.1.2008).

The team has worked alongside the design company to produce a hierarchy of interpretation but has also considered that these might vary according to the type of material on display. And, when it comes to writing gallery information at the various levels, museum teams have decided that it is best that all of the galleries have an ‘established tone’, Julien Parsons (pers. comm. 10.7.2007) explained ‘there’s a danger of having different voices rather than having one. I think for the object labels that’s fine but for the top level you need to establish a tone of voice that goes throughout the whole visit’. Steve McLean (pers. comm. 8.1.2008) admitted ‘we are considering getting a professional text writer onboard’.

The approach to limiting text in museum displays is not new, although to many of the project staff the concept is difficult to grasp initially. The project team members spoke about the difficulties of writing concisely but that the approach was, overall, possible and beneficial. It forced curators and educators to think about the messages they were projecting and the information they were transmitting. Curators have adapted to this process of concise text-writing.

Of course, working to the strict word limits set out within interpretative hierarchies could arguably lead to the loss of detailed information. For the expert audience, the level of information may no longer be available within the gallery of biology. In this case, the museums argue, they have provided independent learning spaces; study zones, environmental centres and learning suites where visitors are encouraged to research their own chosen topics. The concept of the study zone is discussed in section 8.11 of this chapter; ‘Offering different learning experiences’.

8.10.3 Mascots

Not only do biological collections influence the design of new galleries, so too, do specific specimens. Within the Kelvingrove Art Gallery and Museum and the Royal Albert Memorial Museum, there are two notable 'mascots'. Mascots, for the purpose of this research, are large animal taxidermies which have been anthropomorphised and placed on display within their museums for long periods of time. Sir Roger took pride of place in Kelvingrove prior to the redevelopment; he was a favourite with visitors. Within the new display, he was repositioned to draw visitors through the main hall into the 'Life' wing as Jeanne Robinson (pers. comm. 13.5.2008) explained 'If you're coming into the west court, Sir Roger and his menagerie are framed there and look quite striking' (Figure 8.16).

Figure 8.16 Sir Roger and the Spitfire in the 'Life' wing of Kelvingrove Art Gallery and Museum. Paddon ©

Prior to the redevelopment project at the RAMM, Gerald the giraffe dominated his own gallery on the ground floor (Figure 8.17). But the decision was taken at the beginning of the project to move him to the 'Introductory Gallery' on the first floor. This, Julien Parsons (pers. comm. 10.7.2007), explained was not only an aesthetic move but a sensible one 'you know you can be as design-y as you like but there is a pragmatic thing because there are only a certain number of places you can put a giraffe!' As well as it being a pragmatic decision, Parsons explains it wasn't one that was taken lightly 'the fact that we've actually moved him upstairs to a new gallery… I think is a bold statement on our part, and one that might trip us up but yes, I think it is significant' (Ibid pers. comm. 22.7.2008).

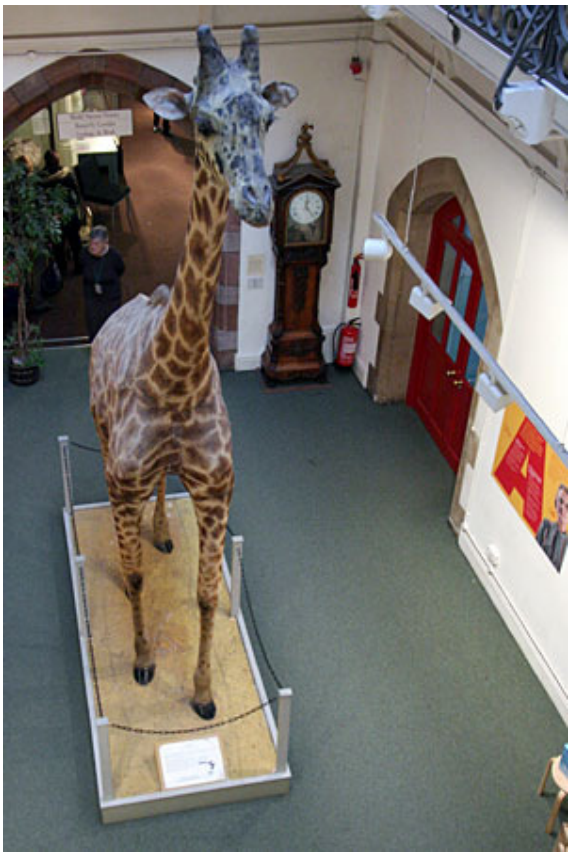

Figure 8.17 Gerald the Giraffe in his own gallery before the redevelopment. David Cornforth ©

Moving Gerald from his own gallery to the 'Introductory' gallery on the first floor was well documented by the local press. Ruth Randall (pers. comm. 22.7.2008) explained 'it's the only thing people ask us, well not the only thing, but in terms of media everyone is asking what's happening to Gerald. We told them we were moving him, craning him round the corner, that's the only thing they want to know about, "you mustn't let us miss you moving Gerald."'

His inclusion in the new displays at the RAMM was unchallenged. Gerald, Dave Bolton (pers. comm. 15.11.2007) explained, had become a much-loved character at the RAMM so his removal from display was not an option: 'The giraffe is such an iconic object that I don't think anybody would have been able to say "right let's not have the giraffe on display, we're tired of seeing it". There would have been an outcry!'

Aside from the difficulties associated with the storage of both Sir Roger and Gerald as large taxidermies, the public support for the return of their mascots following the redevelopment projects was overwhelming. These mascots create a sense of familiarity in museums where everything else may appear as new. Hein (1998: 161) suggests that people learn and feel safer in an environment where something is familiar, 'perhaps the easiest method for allowing visitors to make connections to museum exhibitions is to make sure that at least some aspect of the material on display is familiar to visitors'.

Other examples of mascots and their popularity in redisplays are found across Britain. Weston Park Museum, Sheffield formerly known as the City Museum and Mappin Art Gallery, underwent a £17 million redevelopment project, in 2003, partly funded by the Heritage Lottery Fund. Prior to the redisplay, a visitor survey was conducted in the museum to ascertain what object audiences would miss the most. Snowy the Polar Bear came top of the list (Anon 2008). As a result, a whole new gallery, called 'Arctic World', was designed and built around Snowy in the new museum. In an interview the chief executive of the Sheffield Museums and Galleries Trust, Nick Dodd, reported the reactions of the public following the front-end consultation; 'the focus groups told us in no uncertain terms that if we got rid of the polar bear, they wouldn't be coming back." (Dodd cited by Hickling 2008).

This brief look at mascots illustrates the impact that these popular taxidermies have on design and display decisions afforded to museums professionals and design companies.

8.10.4 Conclusions

The display of biology in museums over the course of the 21st century is bound to change. The tremendous investment of time and money in the early part of the century has rendered galleries of biology dramatically different in their designs. Exploring the changes in the three case study museums presented in this section, it is clear that biological collections are not only providing visitors with varied learning experiences but are also being appreciated for their aesthetic values as well. With all of the museums wanting to create a visual feast for their visitors, the galleries host spectacle designs ranging from a floor to ceiling wall of biodiversity to individual galleries showing off large bird collections and an open display of parading animals headed by the museum mascot.

With the change in design it may be anticipated that the themes in biological galleries will have changed dramatically. I do not think that this is the case. Museum teams are using the biological collections at hand, with some additional new material, to tell new, and perhaps more social, stories about the specimens within larger overarching themes. The themes encompass ideas of biodiversity and collections in museums. Perhaps it is unfair to think that because a museum is redisplaying their collection of biology, they will produce a display which incorporates a radical theme? Museums are more likely to produce radical

themes, or try out new display concepts, in temporary gallery spaces than risk producing permanent galleries which will not be redisplayed for undetermined length of time. However, questions arise about the risks museum professionals are willing to take to produce a display which is truly individual and unique. Building in flexibility might allow for this renewal of gallery themes in the future.

The themes that the museums are tackling range from global to local. All of the museums present narratives based on a range of global, regional and local topics in combination. For the Kelvingrove team, global topics such as conservation and endangered wildlife (R. Sutcliffe pers. comm. 13.8.2008) are considered in the 'Life' galleries. Conversely, the team present local issues, such as invasive species, in the Scottish Wildlife gallery. Similarly, the GNM recreates different local environments using native species of animals and plants in their 'Natural Northumbria' gallery (N. McNicholas pers. comm. 10.1.2008). At the other end of the spectrum, the spectacular gallery 'Living Planet' presents a wall of animals found across the four climatic regions of the world. Finally, the RAMM combines local and global issues in their dedicated 'Bird' and 'Insects' galleries by considering themes such as alien species and evolution in isolation (J. Marsh pers. comm. 15.11.2007). In other multidisciplinary galleries, the team combine animals collected from across the world to tell stories about the collectors who donated to their Victorian museums collections.

In terms of display format the research has highlighted the plight of the biological diorama. A format of naturalistic display, the diorama has been removed without trace from all of the case study museums. For many of the team members, the Victorian display format has lost its charm and presents a falsified, naturalistic context of the specimens it employs (A. McReavy pers. comm. 6.8.2008; E. Dugdale pers. comm. 5.9.2008). Adversely, curators and some designers and education staff believe it is a valuable tool for teaching in the museum and that dioramas can act as an accessible form of display requiring only moderate interpretation from museum staff (J. Robinson pers. comm. 13.5.2008; J. Williams pers. comm. 15.7.2008; S. McLean pers. comm. 8.1.2008).

One of the biggest effects on the redisplay of biology has been the audience. The audience factors into every decision made by the museum project team whether they are considering the heights at which to place the specimens,

whether the specimens can go on open display, whether the story is suitable for the visitor, how the specimen will be received; all decisions are made with the audience member in mind. And this is not necessarily a bad thing, but museum teams will need to balance the power between the audience and the redevelopment project team. In this section, the comment made by Anthony McReavy (pers. comm. 6.8.2008) really brought home the importance of balancing the two parties. Talking about the decision to include or omit stories from the galleries at Kelvingrove he said there were three criteria:

> 'what we had and what the strengths of the collection were; what the public were interested in seeing, so there are a couple of examples of stories where we haven't really got great collections but the public were just so keen; and the third one which was the opposite of that, what we felt it was important to show.'

Whilst the redisplay projects are about balancing the needs of the stakeholders, or factors, many have been quick to anecdotally prophesise the death of the curator. Maybe it is not a death but a morphosis? The curator has been forced to develop and change his or her role in the redisplay because of a change in the factors of display; the audience, the funding, the approach, etc. To some extent this is true; the curator's role in the redisplay of biology in this context has been changed evermore. Equally their impact on the design of biology galleries has been somewhat diluted (see section 8.6).

Clearly, there are many aspects and factors involved in the redisplay of biological collections in museums: the collections, the approach, the narratives, the stakeholders, etc. Additionally, it is the overarching decision-making, teamwork and communication framework which shapes the outcomes of these museum redevelopments. This will be examined in the next chapter of the thesis.

The next section of this chapter considers how the case study museums are offering different learning and social experiences through the multi-layered interpretation of mediums, collections study centres and new technologies.

8.11 Offering Different Social and Learning Experiences

Whilst some contemporary museum experiences are varied, immersive, multi-layered and promote independent learning, many still provide visitors with a

highly-prescriptive, dictatorial experience. All of the case study museums selected for this research have sought to enhance the experiences of visitors entering the galleries by interpreting collections through different mediums and layering interpretation. They are also seeking to provide different learning and social opportunities in the galleries with the transformation of small museum spaces into collections study centres and hands-on discovery rooms.

The results of the research at all three museums point towards the need to better understand the museum visitor in order to provide new opportunities for increased learning and to fulfil the visitor's agenda. By thinking about the museum visitor, the interpretation of collections is increased and learning experiences enhanced.

In this section, the results of the data collection analysis are used to explore the visitor experience in all three museums. In particular, aspects of the visitors experience are examined to illustrate how each museum is embracing new media and mediums for interpretation in an effort to improve both learning and social experiences for visitors.

8.11.1 The visitor experience

As Hooper-Greenhill (1999b: 67) reveals, 'in recent years the museum world has begun to accept that visitors are not a passive, homogeneous mass of people', they are in fact, individuals who possess different learning needs and bring with them different agendas in which to experience the museum.

In the past, the museum visitor was perceived as a passive learner. Didactic displays were used to 'instruct and educate' the museum visitor (Belcher 1991: 62). But with the advent of the New Museology and research into visitor learning in the museum, the model of museum experience has become much more complex (Black 2005: Hein 1998; Vergo 1989). Kotler and Kotler (2000: 280) produced a museum-going experience model (Figure 8.17) which captured three dimensions of the museum-going visitor experience:

1. 'range of visitor experiences', from visual and sensory to enchantment (horizontal axis)
2. 'the level of intensity' of the visit, for example, immersion or narrative-centred visits (vertical axis), and

3. the ‘degree of services’ available to the visitor (circling the axes). For instance, information and hospitality (Kotler and Kotler 2000: 279).

Backing the museum-going experience model, Fraser talks about the need for a varied and exciting visit to the museum which provides visitors with a multi-dimensional experience as opposed to the uniform experience of the past. She says visitors ‘value a far wider range of experiences than the acquisition of cognitive knowledge or even the aesthetic satisfaction of viewing art and artefacts’ (Fraser 2007: 293).

The model (Figure 8.18) is highly informative when examining the responses from the interviewees and will be used to consider data collected from the case study museums.

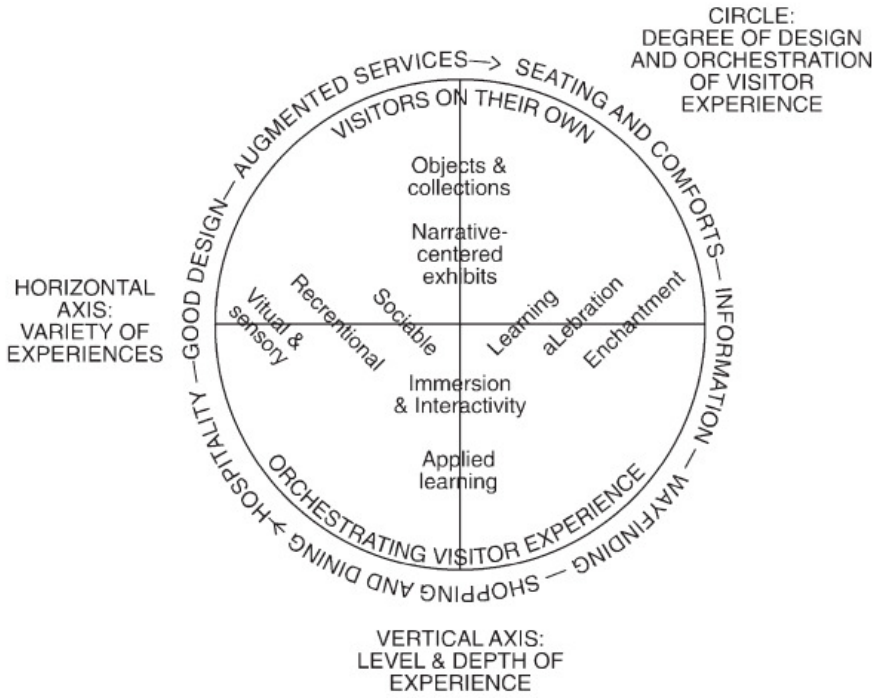

Figure 8.18 Museum-going experience. Taken from Kotler and Kotler 2000: 208

8.11.2 Interpreting through different media

The case study museums wanted to enhance the visitor experience in the museum in a number of ways. These can be ascribed to categories following those of Kotler and Kotler (2000: 280).

1. the range of visitor experiences at displays of biology

2. the intensity of display experiences involving biological collections and
3. the degree of services in the museum

The three case study museums have attempted to engage two or more experiences in their biology galleries, or galleries which include biological specimens.

Kelvingrove Art Gallery and Museum

At Kelvingrove, the galleries promote enchantment and learning, whilst providing social spaces for learning and knowledge development. Anthony McReavy (pers. comm. 6.8.2008) admitted the museum had presented a monotonous museum experience before its closure in June 2003. The displays exhibited concepts, collections and specimens using traditional, didactic approaches and there was no awareness that visitors learnt in different ways:

> 'we didn't really cater for different learning styles so it was very much on a level… there was no recognition of people who learnt socially, or learnt through study or learnt contemplatively, or learnt through interaction with objects' (Ibid pers. comm. 6.8.2008)

But this one-level approach to collections display was banished from the museum in favour of new mixed interpretation approaches including the 'Object Cinema', 'Environmental Discovery Centre' and interactive exhibits within the galleries (Glasgow Museums 2001b). Within the galleries, visitors are encouraged to engage with objects, some in the more traditional learning sense of simply reading an individual specimen label, others to observe a working beehive and in the discovery centre, visitors can interrogate the collections. The juxtaposition of objects in the galleries at Kelvingrove presents new narratives and subsequently encourage questions and deeper thinking.

The galleries which heavily feature the biological collections range in their intensity from the applied learning to the object/collections approach indicated by Kotler and Kotler (2000: 280). Richard Sutcliffe explained how the evaluation of interpretive approaches was very important in deciding on the format for displays 'we were trying all the different ways of interpreting to see what worked and what didn't'. Audiences were involved in deciding the level and depth of the museum experience that was produced during the redevelopment. Maybe this explains the popularity and the high numbers of repeat visitors to the museum.

One of the key objectives for the Kelvingrove redevelopment was the improvement of visitor facilities within the museum. McReavy (pers. comm. 6.8.2008) admitted that the visitor services provided in the museum were not up-to-scratch before the redevelopment, 'we didn't have an education suite, our café wasn't very good, we didn't have enough toilets' but this has been rectified following the development of a new restaurant and separate café within the museum, accessible toilet facilities on each floor, wayfinding materials throughout the museum (signage and leaflets), and the opportunity to purchase a reminder of your Kelvingrove visit at one of the museums shops.

Undoubtedly, the combination of the three dimensions of museum experience have been recognised and dealt with in the redevelopment of Kelvingrove Art Gallery and Museum. The project team realised the need to provide an enhanced visitor experience through essential facilities, a range of interpretive approaches and an appropriate intensity of experiences also.

Great North Museum

The main gallery of biology within the Great North Museum, 'Living Planet' is the first gallery visitors are likely to encounter on their journey through the museum. For this reason, the rationale for this gallery was set to 'enchant' the visitor. The team wanted to give the display of biology the 'wow factor' (J. Williams pers. comm. 15.7.2008; S. McLean pers. comm. 8.1.2008) and so interpretation throughout the museum is encountered at different levels, depths and ranges. Lighting and soundscapes provide ambience and change the interpretations of the animals on display (S. McLean pers. comm. 8.1.2008). The gallery provides visitors with opportunities to socialise and discuss objects on the ground and first floor levels. The main interpretation for the gallery is through 'interpretive benches' rather than object labels and so visitors are encouraged to 'interrogate the wall' to identify specimens, read about interesting facts and watch video clips showing the animal's behaviour (Figure 8.19). Gordon (pers. comm. 10.1.2008) says 'the way that this gallery is interpreted is unusual in that most of the information is going to be presented interactively.'

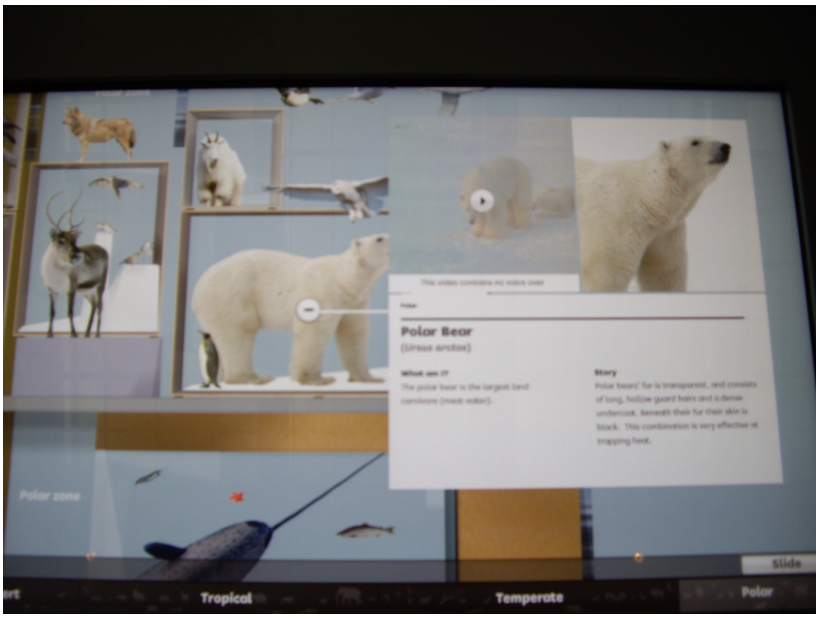

Figure 8.19 Polar bear information from interpretive bench at the GNM. Paddon ©

In doing so, visitors are challenged to engage with ICT in order to interpret the collections, a point which will be revisited later in this section.

Jon Williams (pers. comm. 15.7.2008), designer for the GNM project, talks about the importance in creating variety throughout a museum. The use of one interpretive approach and the failure to create variety renders the museum, and its collections, boring. This understanding of the visitor and their need for a range of museum experiences is essential for any biological collection redisplay.

Royal Albert Memorial Museum

Within this museum, the biological collections are located in a number of galleries. There are two designated biology galleries, one of which focuses on the display of birds, and the other, insects. Biological specimens can also be found in multidisciplinary galleries such as the 'Introductory gallery' and the 'Discovering our World' gallery. With this in mind, the museum interpretation of biology is varied and wide-ranging. The museum team have not been reliant on one approach to collections interpretation. In fact, they are using mixtures of visual and sensory through to enchantment but Kate Osborne (pers. comm. 22.8.2008), Access Officer for the project, is worried about the lack of social spaces in the galleries: 'I do worry, looking at the plans, that we have not created enough social spaces in those galleries, seating, gathering, group stuff.'

However, this lack of social space within each of the smaller galleries will be addressed in the 'Collections Study Centre' and 'Handling Gallery'. Individuals and groups are encouraged to get up-close with specimens and objects from the museums collections providing another approach to learning in the museum and a more rounded museum experience (RAA 2006: 38-39).

Within these three case study museums, collections of biology have been presented at different levels and depths across the range of interpretive approaches available to museums. And these are all encompassed by the general museum visit experience, the facilities available to the visitor whilst in the museum.

8.11.3 Interactives and technology in the museum

Adding to the museum experience, technology has had a large role to play in the change in collection display and interpretation over the last few decades (Griffiths 1999: 1). Museum teams looking to incorporate scientific concepts or ideas, which are not easily explained in the minimal word-count ascribed in gallery text panels, are now offered the opportunity of presenting them in different formats. Falk and Dierking (1992: 137) however, rightly observe that the use of technology 'is effective only when its use is well thought out and the integrity of the content of an exhibit is retained.'

For this reason, and that of cost, the case study museums have been selective in their use of interactives. Julien Parsons (pers. comm. 22.7.2008) explained that the museum team were reticent to incorporate too many interactives because of the risk of malfunction,

> 'we've been really wary about over-committing to interactives… we've developed our storylines so if there is a storyline that we can't tell through objects or text, or something that we can't tell that way, then that's one instance where we would use an interactive but we're not to get sold down the road to interactives.'

One project, which has been particularly selective about its interactives; how many to include, where and why is the RAMM. Katherine Skellon (pers. comm. 15.7.2008), senior designer for the project, talked about the decision to include interactives within a gallery: 'it is a balance between how best to tell the story or about a particular theme or whatever it is, whether it's a good place to use it or if

it's the best way to bring it alive.' But Julien Parsons (pers. comm. 22.7.2008) explained that the decision-making exercise was actually a little more complex:

> 'I went through a really complicated process with our consultant, Sandra Bicknell. We worked out this concept called 'interpretative pallets'. The idea is to map your interpretative content for each gallery and to try and balance it for each gallery so that each gallery has a certain amount of text, certain amount of image, certain amount of interactivity.'

He continued

> 'We found that the two galleries who had the greatest interactivity were the 'Bird Gallery' and the 'Insects Gallery' because they are small galleries but they are packed full of manual interactives and some software as well.'

Although, all of the case study museums concurred with the point that there needs to be balanced approach to interactives in the museum, the RAMM had the only project team which attempted to undertake a detailed process of decision-making about interactive inclusion, and gallery make-ups.

Part of the decision-making process was heeded by the frequency of interactive malfunctions. With the developments in technology, museums are right to take advantage of the use of technology in portraying difficult concepts and ideas to the museum visitor and getting visitors to engage in new learning styles. However, the resounding comment made by interviewees during the course of the in-depth data collection was about the reliability, or lack thereof, of computer-based interactives and the difficulties breakdowns in technology can cause in the museum gallery. 'There is a maintenance issue' proclaimed Richard Sutcliffe 'you have too many and they all break down, it looks bad' (pers. comm. 13.5.2008).

Whilst Steve McLean (pers. comm. 8.1.2008) admitted 'there's nothing worse than going around a museum and finding the interactives aren't working', the 'Living Planet' gallery at the GNM is reliant on the computer-based 'interpretive benches' to provide visitors with all the information and interpretations about the specimens within the 'bio-wall'. This is worrying, and something that the other case study museums have seriously contemplated when deciding about

interactive installations within their galleries. Julien Parsons (pers. comm. 22.7.2008) mentioned,

> 'you have to be really brave if it's just done through touchscreen and you don't have to have any labels because you always get audiences who are less comfortable with IT than others, put it that way. You don't want to put all your eggs in one basket. And there's this awful thing about IT that it does occasionally break down!'

Gillian Mason (pers. comm. 10.1.2008) expressed the teams fear about the reliance on computer-based interpretation in the museum:

> 'we worry that we've got too many ICT interactives because it's easy to do that in a way… we keep reviewing them, we keep having meetings, going through all the interactives, trying to change them to physical hands-on which isn't necessarily cheaper but just to give that different learning style because not everybody is comfortable with touchscreens.'

The Kelvingrove project team took a strong stance against too many computer-based interactives. In fact Jeanne Robinson (pers. comm. 13.5.2008) says 'there was actually a deliberate policy for it not to be just a house for computers… what you will see are low-tech and interpretation-oriented and that was part of the strategy. We only really wanted things that added value to the displays'.

It is interesting, however, to note the differentiation that Kotler and Kotler make about visitor experiences in museums. They say 'audience research reveals that, for the majority of visitors, social and recreational experiences are as important or more important than educational and intellectual ones' (Kotler and Kotler 2000: 276).

8.11.4 Conclusions

What is clear from the research is that all three of the case study museums have thought carefully about the visitor experience and how they can provide different social and learning experiences in their museum. As Kotler and Kotler (2000: 276) phrase it 'not all museum offerings have to be intense and immersion-like; what is needed is variety and balance in offerings along with scope and range.'

These museum teams have been afforded the opportunity to redisplay their biology collection within contexts that are appealing, exciting and multi-layered in their interpretations. They can use visitor feedback to provide a range of gallery experiences through textual and non-textual interpretation. They can provide different depths and levels to the experience by introducing narrative approaches, interactive approaches or applied learning approaches. And they can ensure that their museum is brought into the twenty-first century by providing excellent visitor facilities (Goulding 2000; Swarbrooke 2002: 137).

8.12 Designing Flexible Galleries for Indeterminate Longevity

One thing is certain in British museums: funding is hard to come by regardless of whether you are a national, civic, university or private institution or you store and display single or multidisciplinary collections within that institution (Hooper-Greenhill 1999: 132; Kotler and Kotler 1998: 46).

In this study, a number of criteria were stipulated during the selection of the final case study museums. One of them focused on the way in which redevelopment projects were being funded. The museums selected would need to fulfil the criteria of being part-funded by the HLF. This criterion provided a commonality across the museums but what was the impact of funding received, from the HLF, on these museums? Questioning the interviewees about the importance, if any, of the HLF part-funding these projects there was agreement. Gillian Mason (pers. comm. 10.1.2008) stated 'without the HLF it wouldn't have started the whole process, that was a core bit of funding that was needed to kick start the whole thing and helped us to get match funding'. To this end, Dave Bolton (pers. comm. 15.11.2007), Curator of Biology at the RAMM, concluded that the HLF has been a 'catalyst' for these large-scale redevelopment projects and in concurrence with Mason, he explained that the acknowledgement from the HLF, that the project was worthy and viable, helped in gaining valuable funding from other organisations (see section 8.4 of this chapter).

The significance of these large-scale redevelopments of ageing museums, their buildings, collections and displays, has not been overlooked. Fitzgerald (2005: 136) discusses the funding which has allowed the delivery of 'long-overdue capital projects' in museums – something which has not been afforded in many museums since their inception. But he also warns that opportunity to start afresh

in permanent galleries within these civic museums can lead museum project teams to make the mistakes of previous piecemeal redisplays:

> 'the problem is that many of these permanent displays end up literally being just that, with inflexibility built into not just the display architecture but the display themes and rationale' (Ibid 2005: 136).

This is possibly a throw back from earlier periods of display history where 'museum exhibition halls were designed as more or less permanent architectural entities with a strong character of their own' (Lord and Lord 2001: 75).

The research conducted into the redisplay of the biological collections revealed that the philosophies, themes and displays embraced flexibility at different points along a scale of flexibility. At one extreme Kelvingrove sits as an example of a new, flexible, underlying philosophy. This concept was proposed because of the uncertainty of continued museum funding, a lesson learnt from past experiences. Anthony McReavy (pers. comm. 6.8.2008) explained 'we wanted to move away from a redisplay of the museum predicated on that 25 year capital investment cycle. Previously we would redo it and then we'd wait 20 years and change it again; we wanted to have a more flexible approach'. Richard Sutcliffe (pers. comm. 13.5.2008) concurred 'the whole ethos of Kelvingrove was that the display spaces should be adaptable'.

The overarching 'flexible' philosophy allowed for substitutions of themes, stories and specimens within the galleries. Any stories within a gallery could effectively be replaced by a different story as long as it fitted with the general theme of the gallery (S. Latimer pers. comm. 14.5.2008). The flexibility in the themes and stories demanded that the design elements of the galleries were also flexible. Consequently, the display furniture, object labels, text panels, interactives and audio and lighting presentations allowed for the physical changes in the galleries to take place (Fitzgerald 2005: 141).

The senior designer for the project, Esther Dugdale (pers. comm. 5.9.2008), focused one particular discussion on the impact of 'flexibility' upon the display furniture, 'With the budget constraints and this brief, [the museum team] wanted 80% of the displays to be flexible displays so we designed a set of modules and then we combined them in different ways to create different sorts of spaces.' This would provide museum staff with the ability to reach redisplay targets they

had set themselves in the years following the museum reopening 'about 70% of the display elements are flexible and… we aim to change 10% every year but that would be based on evaluation so over a ten year period we could change the whole museum' (A. McReavy pers. comm. 6.8.2008).

A less flexible approach was adopted at the RAMM and the GNM. Focussing firstly on the RAMM, the museum team wanted to allow for a certain amount of flexibility in order to refresh galleries and rotate specimens on display. Julien Parsons (pers. comm. 22.7.2008) explained

> 'We've always said that flexibility is a really important thing. We want the flexibility to be able to change things so not have design that fossilises your galleries, so that you can actually change interpretation quite easily, so you can take out graphics and get them changed because they tend to date first.'

Parsons (pers. comm. 22.7.2008) describes this flexibility as a trend in 21st century museum redisplay. He also foresees a return to the piecemeal redisplay of biology collections as funding for major projects runs out:

> 'I can't see us having another pot of money like this to spend on redoing all the galleries on the same scale for another few decades at least so I would imagine that what would happen in the future is that galleries would reach their sell-by date and people would then look at them as discrete pockets.'

Whilst the GNM is providing flexibility in the form of a study zone and temporary exhibition gallery, the 'Living Planet' gallery is fairly static in its interpretation and display. Steve McLean (pers. comm. 8.1.2008) explained:

> 'the interpretation of stories is quite structured so you pull something out and the whole story can collapse because you pull that out. I suppose in some respects that might be a disadvantage to the way that we've approached interpretation.'

By producing displays that rely heavily on a structured narrative and interpretative framework, the museum team will not have the opportunity to change much in the gallery. The highly structured design of the gallery, the two-storey wall of 'boxes', also limits the flexibility of the space and therefore, the specimens, stories and themes which are changeable.

The flexibility of galleries and the design elements and stories within those galleries have been dictated to by the life cycle of the gallery, which is highly dependent on funding as mentioned above.

8.12.1 The life cycle of a gallery

In each instance, the project teams in these three case museums have worked for more than five years on the redevelopment projects which form the focus of this research. The galleries of biology, or galleries which feature biological specimens, are reopening to visitors who return after a lengthy closure of the museum to engage with the new displays. But the ideas and concepts for these new galleries have not been the work of rushed decision-making; they have been the subject of rigorous testing, evaluating, planning and design. When the visitors do return, some judge the efforts of the museum team against past displays, some against other museum displays, some don't judge, they simply enjoy the new displays. But the years wear on and little changes in the gallery because the design is inflexible or there is not enough money to invest in a redisplay.

Museums have garnered a reputation for their 'unchanging preserved displays', as Fitzgerald (2005: 136) acknowledges. This is due to a century of piecemeal redisplay and frugal investment. Thus the life cycle of a 'permanent' display of biology, although initially intended to last for a decade, often spans many decades with little or no change to its interpretation or the specimens it exhibits.

This new wave of large-scale investment, brought about by the HLF, has prompted a much-needed and overwhelming quantity of gallery redisplays.

The longevity of a gallery is further complicated by the different design elements, e.g. the casings, the graphics, the interactives, etc. and their differing estimated longevities. For instance,

> 'Things like the case obviously you would keep. You would expect your cases to last a lot longer than [10 years] because they are expensive bits of kit. Things like the interactives might only last four or five years especially if they are software based ones. The technology moves on so quickly and then the chances are they are going to be obsolete in five years, ten years time' (J. Parsons pers. comm. 22.7.2008).

Not only do displays become outdated in a fast-paced, evolving world but the museum's situation can also change. Gillian Mason (pers. comm. 10.1.2008) explained the possibility for changes in governance at the GNM and how that might impact on redisplay opportunities:

> 'I would think it will just depend on the circumstances of the museum, in terms of the business plan and funding and who is managing it in ten years time. It's Tyne and Wear Museums at the moment but that might change. Governments change, priorities change, cultural funding changes. The University, they are part funding it, they might change.'

Jeanne Robinson (pers. comm. 13.5.2008) talked about the advantages of having a flexible approach to help limit future funding uncertainties 'I think that was one of the wisest bits about the flexible system, in that getting pots more money for further redisplay when you've just had a massive one was going to be a challenge' but in developing a flexible display system, she admitted that the galleries lost their sense of uniqueness and individuality 'that's one thing about it being modular and flexible, those custom solutions were lost.'

8.12.2 Conclusions

All of the museum teams have realised that flexibility has a role to play in, and should be built into, the contemporary redisplay of biological collections. Reflecting on past displays of biology in their museums, the interviewees felt that redisplays occurred in a piecemeal fashion and at a slow rate. This was as a direct result of a lack of funding.

Although, in the past, museum staff, the audience and even the collections may have requested and required that biological collections in civic museums be redisplayed, the longevity of galleries was decided by funding organisations and governmental schemes (Caulton 1998: 139; Rentschler and Hede 2007: 92). As Nicola McNicholas (pers. comm. 10.1.2008) spoke about the lifespans of biology galleries, she linked them inextricably to the availability of funding:

> 'I think [the gallery is] supposed have about a ten year lifespan. But I think generally it depends on the money, doesn't it? Ten years or up! If it's still current you probably say it would last a bit longer. It's all down to money.'

In order for museums to present contemporary displays of biology to a rightfully demanding public, stakeholders need to be aware of the costs to redisplay these collections, the time needed to deliver a capital project and the importance of continued funding. The worry for all of these case study museums, and in fact for all museums across Britain, is the availability of funding in the next decade as policies, governance and priorities change. Will these contemporary redisplays remain in the museums for 25 years from now? And how will this impact on the redisplay process?

The flexibility built into two of the three case studies, the KNCP and the RAMM, will help to ensure dynamic presentations and changing displays of biological specimens in their galleries. The biology gallery at the GNM will remain fairly static with only a few specimens being substituted due to the structured nature of the interpretation framework.

Although not all museums should, or will, follow in the 'flexible' philosophy of Kelvingrove, the design of biological galleries would benefit from long-term plans for the refreshment of interpretations and replacement of gallery stories.

8.13 Chapter summary

One of two initial research questions set out in Chapter 1 of this thesis (see Chapter 1.3) focused on the need to identify what factors have been initiating and shaping contemporary redisplays of biological collections in British museums.

In order to investigate this question an appropriate methodology was needed. Deciding upon a grounded theory framework, three case study museums that had experienced or were experiencing the redisplay process were examined. The eleven sections presented above illustrate the interlocking factors that emerged as a result of initial grounded theory analysis of the interview data collected from key members of the museum project teams.

What is clear from the data, and this chapter, is the diverse nature of the factors involved in the redisplay of biological collections. In Chapter 6, two tables (see Tables 6.1 and 6.2) were produced to illustrate the emergent factors identified as a result of initial research (following the unstructured interviews and a brief review of the literature). Factors were grouped to determine those that were

internal i.e. pressures from within the museum, and those that were external, those outside of the institution.

These emergent factors, which ranged from the influence of the media to the influences from the collections, were combined with the emergent research threads to inform the final research design.

It appears that some factors, or drivers, are more influential on the redisplay of biological collections than others. Certainly, the HLF funding has been a major factor in catalysing all of the projects. The support of the HLF has meant that the project museums have been able to elicit match funding from local governments, development agencies, specialist organisations and the public. But the acquiring of multiple monetary stakeholders has also driven the ideas and concepts of the displays. Examples of monetary withdrawal were uncovered at Kelvingrove, and needless to say, museum project managers, and those involved in the project higher up within the hierarchy, were forced to make decisions based on the wants of those stakeholders. This is worrying. Should monetary stakeholders hold such weight in the decision-making for these projects? And if so, should not the museum team be prepared to defend its position? Museums have always been political but when galleries are being 'sponsored' are not we to expect that there are going to be sacrifices made on the museums part? That part of that decision-making power is handed over to the stakeholder?

In terms of power, two sections within this chapter address the changes in structure and hierarchy of control in the museums. The first observes the empowerment of the audience in the redisplay process and the second witnesses the removal of the curator as controller of the redisplay process to a role levelled by others within the design team; a marked shift in power.

Although museological literature shows the growing importance of the audience as stakeholders in the redisplay of collections over the past couple of decades, the case study museums have found it difficult to include the audience in its interpretation and display of the collections. With the onset of the redevelopment projects, the audience has played a considerable role in the decision-making elements of the process. Extensive programmes of evaluation have sought opinions, tested ideas and garnered support from loyal visitors and new audiences.

The change in the role of the curator in these redisplay projects has been monumental. I discuss the change as a morphosis in section 8.9. There is a shift in power through the approach taken to contemporary redisplays of biology. This is epitomised in the transfer from the curator-driven model to the team approach – where parity is levelled across the design team members rather than heeded by one dominate member.

The curator has been forced to adapt to the new process, working within new frameworks and management structures but perhaps the biggest change is noted in who has the power to make decisions. Although curators are still charged with selecting objects and developing stories, they are now doing this alongside education officers, designers, conservation officers and audiences. There is a sharing of responsibility in the redisplay of biological collections, and hopefully, in light of this, the galleries will go some way to satisfying all stakeholders.

These shifts in power, both in terms of the audience and the curator, have given rise to various reactions. The audience may not be aware of the responsibility it now takes in redisplaying collections in museums, although for the small proportion of members of the public involved in the evaluation stages they may be more aware of their influence. For the curator, a sense of undervaluing and even animosity may occur as a result of the demoting of their profession in the museum hierarchy.

However, for all stakeholders involved in the project, the opportunity to redisplay collections is met with both trepidation and excitement, and the notion of wanting to succeed. The success of the project relies on the culmination of factors, process and management to produce a high-quality redisplay, on-time and in-budget.

The projects have proven to be huge learning curves for those involved. Pressure has been exerted on team members who have never experienced redisplays on the scale being witnessed in contemporary museum redevelopments. The teams have worked with specialised, external design companies to fulfil the RIBA stages of work, which are laid down by the HLF for heritage grant projects.

The display of biology in 'museums' is an ancient art (see Chapter 2). In the Renaissance cabinets of curiosity some collectors placed their highly-prized specimens in no apparent order but one which was pleasing to the eye – this can be likened to the aesthetic displays of biology in museums today. At other points in museum history, collections have been regimentally exhibited in taxonomic ranks or thematically displayed. However biological specimens have been displayed, the history and wealth of knowledge about the audience has been drawn together on these projects to produce the biology galleries of the 21st century. The realisation is that flexibility in gallery design elements can allow museums to elongate the longevity of displays and help to maintain refreshed stories and themes in their galleries as they await the next wave of funding is essential.

This chapter has shown that there are a wide range of tangible and intangible factors at work on the redisplay of biological collections in museums today. They have emerged as a result of the initial research findings from unstructured interview data and museological literature and further examined during the initial stages of the analytical process of the final data collection. The next chapter takes the analysis onto the next stage, taking a more theoretical view of the data. Considering the eleven focused codes elaborated on in this chapter, Chapter 9 will amalgamate the aspects of these focused codes to generate theoretical codes.

Chapter 9

Decision-making, Communication and Teamwork: Key Elements in the Process of Biological Collection Redisplay

The first of the results chapters, Chapter 8, explored the development of the analytic process from the initial codes, generated from the raw data, to the focused coding stage, where initial codes were clustered together under new coding terms.

This chapter moves up the analytic pyramid (Figure 7.2) to discuss the theoretical codes that developed as a result of examining the eleven focused codes.

Figure 9.1 has been developed to show the observed movement from the eleven focused codes to the emergent theoretical codes; decision-making, communication and teamwork. The central segment of the Venn diagram, representing the three theoretical codes shows that each of the eleven focused codes were drawn together by the decision-making, communication and teamwork processes at work during the redisplay projects. This chapter will present the three theoretical codes separately for improved clarity, but it is important to note that by representing the theoretical codes as a Venn diagram it is acknowledged that all three overlap, interlock and are overarching to the focused and initial codes.

9.1 Introduction

Over the course of this research, the decision-making, communicatory and team working aspects of the projects emerged as key to the process of biological collection redisplay, indeed they are key aspects in general project management (Phillips *et al.* 2002; Smith 2004: 33). From the outset of all three projects, all three of these factors changed the ways in which the redisplays were accomplished. Due to the scale of the redevelopment projects, the involvement of more individuals and groups were necessary. They ranged from audience groups, design companies and societies to the education officer, project manager and curator of biology.

New attitudes towards communication, teamwork and decision-making were fostered with the three factors influencing the structure of project teams and the

responsibilities of each team member. It also signified a change in the powers held by team members

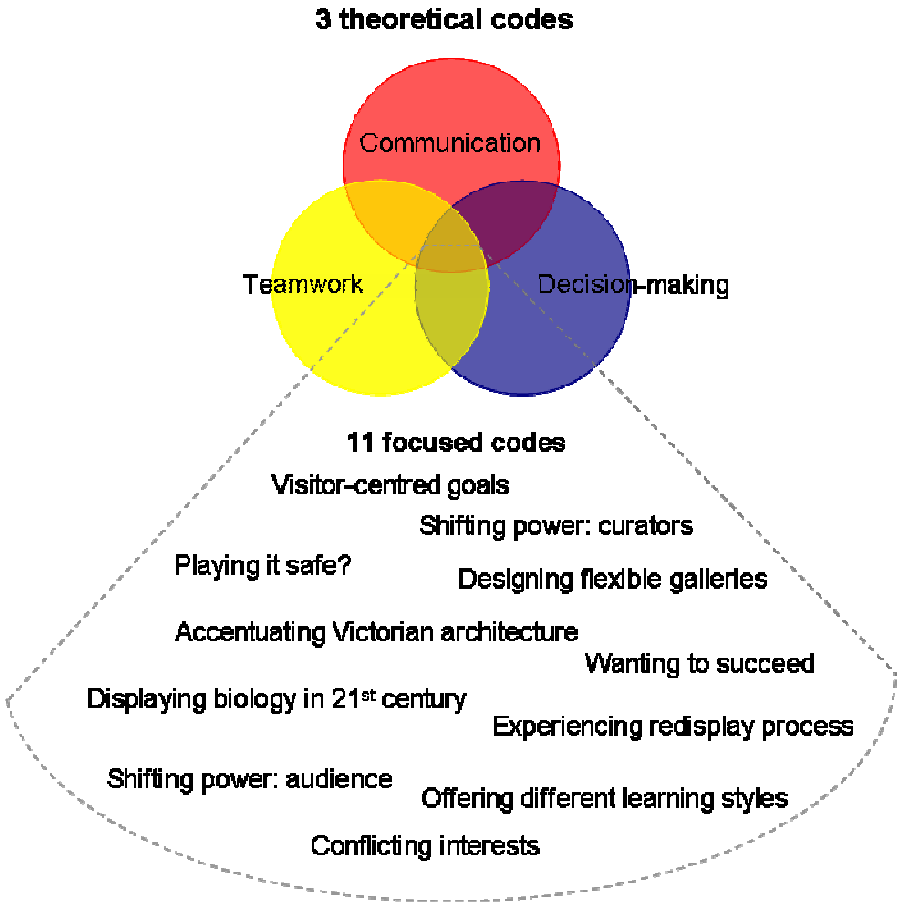

Figure 9.1 Theoretical codes: Decision-making, teamwork and communication drawing together the eleven focused codes. Paddon ©

9.2 Decision-making

To begin with, decision-making can be defined as 'using a systematic process to select one option among competing alternatives' (Kendrick 2004: 43). This is, without doubt, a simplistic definition which does not necessarily reflect the complexity of the process involved in decision-making (Hooper-Greenhill 2000: 124).

Decision-making emerged as one of three pivotal factors in the process of biological collection redisplay. Katherine Skellon (pers. comm. 15.7.2008) explained, 'there's a whole raft of decision-making going on at all levels throughout the time'. Whilst there are many levels of decision-making, including the top level of the project management hierarchy (see Figures 5.6,5.17 and 5.30), this study focuses on those closest to the collections, and aesthetic and

interpretive decisions about their display. Whether team members are responsible for the multi-million pound budget or are in charge of object selection and story development, any decision that is made during the course of a museum redisplay project shapes, to a greater or lesser extent, the final outcome. Decision-making also occurs throughout all project stages, from the conceptual phase where aims and objectives for the projects are decided and design briefs written, to the evaluative stages where museum teams decide how to consult with their audiences. Depending on the type of decision that needs to be made, i.e. a decision about a particular specimen or a decision about whether to omit a design element because of potential cost overruns, the decision maker may employ one of four modes of decision making: consensus, voting, delegating or autocratic (Verzuh 2005: 260-262).

As described above, the decision making process in these redisplay projects was complex and changeable. This combination, coupled with the unique team structures, team members, concepts, philosophies, collections and aims, meant that decision-making within each project was unique. The following sections of this chapter consider the decision-making process at Kelvingrove, the GNM and the RAMM separately.

9.2.1 Decision-making for the Kelvingrove New Century Project

The redisplay of Kelvingrove was mooted long before the final project was accepted by the HLF. The then director, Mark O'Neill, made one of the biggest decisions which was to become the driving force for the redisplays of biology, and the other collections held at the museum. O'Neill essentially 'set the vision' for a 'flexibility' philosophy (A. McReavy pers. comm. 6.8.2008). In a museological article reflecting on the vision for Kelvingrove, O'Neill (2006: 96) describes the flexible approach to collections display as a 'new epistemology of museums'. The vision for Kelvingrove was an approach which witnessed a 'new object-based, visitor-centred, storytelling epistemology', which would break down the 'fairly arbitrary divisions' or specialist disciplines i.e. biology, social history, costume and fine art, that once categorised its galleries (A. McReavy pers. comm. 6.8.2008). The interdisciplinary, flexible approach allows for the substitution of stories within themed galleries and, O'Neill argues, focuses on the objects allowing visitors to make their own meanings (Ibid 2006: 107). The decision to undertake such a radical epistemological change in the museum guided the project team in the decision-making process for the final museum

displays. The biological collections would no longer be found in designated galleries but scattered through the museum telling stories about hunting and nature's influence on design, etc (Figures 9.2 and 9.3) (J. Robinson pers. comm. 13.5.2008).

Figure 9.2 'Hunting' story combining trophy heads from the biological collections and guns from the armoury collections. Kelvingrove Art Gallery and Museum. Paddon ©

Figure 9.3 Armadillo and lobster used to illustrate articulation and nature's influence on the design of armour. Kelvingrove Art Gallery and Museum. Paddon ©

In addition to this epic display concept revolution, the museum also decided to mount a varied and intense programme of front-end and formative evaluation with museum and non-museum audiences (Economou 2004: 30). As a result, the audience became decision-makers selecting the display stories they wanted in their museum and feeding back information when testing prototype design elements (Economou 2004, R. Sutcliffe pers. comm. 13.5.2008). This move to include the local community in decision-making in its most radical form has been described as an idea of the postmodern museum. Marstine (2006: 19) declares that this kind of museum 'actively seeks to share power with the communities it serves, including source communities.' The Kelvingrove team may also be seen as embracing the Museums Association's *Code of Ethics for Museums* (2002: 12), which states that 'society can expect museums to; consult and involve communities, users and supporters' and 'promote a sense of shared ownership in the world of the museum'.

The only conceivable way to redisplay all 22 galleries in the museum with interdisciplinary display stories was to create a team which included curatorial,

conservation and education staff. A team structure was essential to define the relationships between project team members but it also enabled the project management team to define each team members decision making powers (Hill 2008: 217).

Anthony McReavy (pers. comm. 6.8.2008) explained how the team approach removed the curator from the prime decision-making role and produced equality in decision-making at the design level:

> 'We went from being largely dominated by curators, in terms of numbers, and having one education member seconded from the education service, to having, I think, 40 on the Education and Access team, a research team, increased curatorial team, increased information team. The Education and Access team were specifically called curators on the same grade to make sure that there was parity within the service. It was very much an attempt to say to the curators, 'you are now one of a number of professions and you have to work with your colleagues on delivering an exhibition which is not simply an expression of your own individuality or personality.'

This redistribution of decision-making power promoted a strong teamwork ethic and the need for excellent communication throughout the team. The redistribution also meant that information from curators was passed higher up the chain of command (the team hierarchy) to the project management team in order for decision-makers to make informed decisions. Richard Sutcliffe (pers. comm. 13.5.2008) explained 'curators would make comments; they were passed onto the research managers, who then passed them onto the project team who made the decisions.' Although this process seems simple enough, the research managers (middle management in effect) took decisions of their own. Sutcliffe continued 'some of those meetings the research managers were present and the designers were present then they could feed in, but more often than not it was just the project team that made the decisions.' In doing so, Sutcliffe (pers. comm. 13.5.2008) states that he felt ideas and opinions were often lost or filtered out. But that was only his opinion. Sue Latimer (pers. comm. 14.5.2008) talked about the same decision making process; comments made by the curators being passed through the research managers who acted as filters and advised the project management team on decisions. She says

> 'I think the project team was very clear and focused so [the decisions] tended not to be hugely difficult but again, it's something that I don't know if the story curators fully grasped, the degree to which every point they made was considered even though it might not go through in the end. It wasn't a sort of willy-nilly… although it wasn't as regimental as that but everything [the curators] said was taken into account but not everything that they asked for was implemented'.

The project team were also able to make decisions measured 'against the wider context of the project' (Ibid pers. comm. 14.5.2008) whereas the curatorial teams and research managers had a tendency to further their collections and story agendas; they were 'focused on their particular display but didn't have awareness of the bigger picture' (S. Latimer pers. comm. 14.5.2008).

Other decision-making pressures were brought about by the change in design company for the redisplay of the collections. Many of the decisions made after their commission (October 2003) were made under extreme pressure. Sutcliffe (pers. comm. 13.5.2008) explained how this impacted on the decision-making process for the project managers:

> 'the real problem was because of the huge amount of work involved the project management team didn't really have any time left for discussions. Sometimes they said "we've got to make a decision now, yes or no?" so some decisions were definitely wrong decisions but they didn't have time to discuss them. And they had to make a decision there and then because we were running out of time.'

The decision-making process at Kelvingrove was virtually unique, in British museum terms, because of the large scale of the project. Anthony McReavy estimated that 300 people worked on the project, with approximately 40 curatorial team members alone. The management and responsibility of decisions was centralised in the form of a project management team who were able to make informed decisions by gathering information from the relevant curatorial, conservation, education and design teams.

9.2.2 Decision-making for the Great North Museum

From the outset, the GNM project team decided that the major gallery of biology ('Living Planet') needed to have 'the wow factor' (D. Gordon pers. comm.

26.6.2007; S. McLean pers. comm. 8.1.2008). The gallery needed to make an impact and they were going to achieve this by creating a spectacle of animals much akin to those of the Muséum national d'Histoire naturelle, Paris and Naturalis in Leiden (G. Mason pers. comm. 10.1.2008). Steve McLean (pers. comm. 8.1.2008), project manager, admitted:

> 'To be honest a lot of this focus and direction did come from me. It was based on my feelings towards places like Leiden and Paris and the London Natural History Museum who do this sort of thing which I quite liked. And I was keen to bring out this large exhibit of diversity and showcase our big animals and then within that integrate all the complexity within it somehow. So it became a showpiece if you like.'

So the decision was made in the initial stages to produce a biology gallery which would act as the frontispiece for the museum. However, it was also acknowledged that this concept for placing the aesthetics of design first and using the collections to 'populate' the galleries could backfire, 'there's a risk there as well… it might not work, it might not be perfect. Not everybody will go "ooouuu" and will like this' (S. McLean pers. comm. 8.1.2008).

In fact, Dan Gordon (pers. comm. 26.6.2007), explained that the concept for a 'wall of biodiversity' would not have been his first choice for the redisplay of the biological collections:

> 'Probably if I'd come in at the start I might not have decided to turn the gallery into a wall because I think it's given us a lot of problems but I don't think you can deny that it will be quite a dramatic structure and yes, I don't think the boxes detract too much. I think what concerns me more is the height of some of the objects in the display… we want people to stand back from the wall because you need to appreciate the scale of it but it does mean that you don't get the chance to get up close to it.'

The decision to make the gallery a 'spectacle' for visitors to stand in awe of did not take into account the collections at the museum. The division of the 'wall' structure into four climatic zones caused problems; mainly the museum having to acquire specimens specifically to 'populate' the wall. Dan Gordon (pers. comm. 8.1.2008) spoke about the problem with the desert region quarter of the structure:

> ‘There are areas like the desert section which is a very small section because we really don’t have a large collection of desert creatures. That was something that came to light slightly later in the process, after we had already decided that we wanted to do a desert section. Obviously we’ve had to try and supplement that with acquisitions.’

For the GNM team, decisions were made through consensus. Nicola McNicholas (pers. comm. 10.1.2008) said ‘in the first year we all worked all of the time all together.’ And for design decisions, there were group meetings. These group meetings, which would involve the key members of the project team, allowed a consensus agreement be made. McNicholas (Ibid pers. comm. 10.1.2008) continued ‘we’d all talk together and would agree at the end of the day, we were going to leave something out or replace it with something else.’ Dan Gordon (26.6.2007) talks about working through ideas as a group and decisions being made as a team:

> ‘we did frequently have meetings where we could meet with the designers and Steve, the project manager, would be there and Gillian who’s been coordinating all the learning and interpretation, and we’d all thrash through the ideas and then maybe we’d make some changes like that, as a group, and then I would have to go away with those changes in mind and do a bit of research and come up with an alternative way of doing it and then I would come back to the group. So I think as we’ve progressed with the project, the way that we’ve worked has changed; the decisions are made a bit more collectively.’

Decision-making, during the developmental stages, was accomplished through gaining the consensus of the group. Team members were called to regular meetings to update progress and feedback opinions and ideas. But, as with any project, some decisions were contentious and at that point the decision-making responsibility was passed to the Steering Group (G. Mason pers. comm. 10.1.2008), who were charged with making informed, autocratic decisions based on the information presented by each of the team members. This was equivalent to the project management team for the Kelvingrove redevelopment project.

Talking about decision-making and the decisions made for the project, the GNM interviewees discussed the importance of sticking with decisions once they had been made. As Steve McLean (pers. comm. 8.1.2008) explained, the reverse of

a decision or the change to a design had 'cost implications, time implications' and so required him, as project manager, to remain firm in the decisions they had made as a team:

> 'One of the issues about this type of project is not changing your mind all the time. There's a time for that and then it gets to a point where there isn't time for that anymore. And you have to say you've got to make your decisions and stick with it.'

With the intensity and enormity of decision making, the fast pace and complexity of the project, it was imperative that all decisions, large or small, were recorded by the team (Lord and Lord 2001: 445). This allowed team members to refresh their memories of past decisions and prevented disagreements on decisions that had been made. Steve McLean (pers. comm. 8.1.2008) explained how imperative the recording process in decision-making was:

> 'What happens, and I'm guilty of this as well, is that in six months time you say "well I don't remember saying that". So recording it is important. We've recorded the decision making process which is what we do. Gillian records everything basically so she can go back to the minutes of the meetings and say "No, we did agree. Look we agreed there. That's the decision we made, we've got to stick to it"'.

These aspects of the decision-making process have been learnt as the process progressed. The project began with the concept decision and that subsequently had major implications on the design and interpretation of the biological collections. As the redisplay process progressed through the necessary stages, teamwork became increasingly important in order to make informed decisions and gain consensus on design ideas, storylines, themes and specimen selection.

9.2.3 Decision-making for the Royal Albert Memorial Museum

The external design company were briefed to create new galleries for the museum which would 'connect the collections to their original habitats, and/or to the people who owned, made or used the collections. They had to contextualise the interpretations within social, geographical and historical frameworks to encourage an understanding of diverse cultural and social viewpoints' (RAA 2003: 2). The decision to focus on this particular framework sprung forth from

the desire to maintain the museum's integrity. Julien Parsons (pers. comm. 22.7.2008) explained,

> 'We are unashamedly about the collections and the quality of the collections. We know our history and we know our strengths and we're trying to play to those rather than trying to reinvent ourselves for the 21st century. In a comfortable way it'll be an obvious development rather than a new direction.'

Having decided upon the framework, or concept, for the redisplay of the biological collections, the curators Dave Bolton and Jessica Marsh were set the task of auditing the collections to establish any particular collection strengths and/or stories of interest that fit within the social-geographic-historic framework (J. Parsons pers. comm. 22.7.2008). This placed the power of decision-making with the curators who best knew the collections and the merits within them. As with all three case studies, the curators were still given the power to decide upon objects, and stories and themes to some extent. The audit identified two collections within the natural history department which would be best displayed in designated galleries; the bird collection and insect collection. The remaining, diverse collection of biology was incorporated into galleries such as the 'Discovering our World Gallery' and the 'Devon and Exeter Gallery'. This conceptual framework placed the collections at the heart of the decision-making process, whilst audience consultation helped in guiding decisions further; the museums mantra was 'collections-led, audience-guided' (R. Randall pers. comm. 22.7.2008).

Moving through to the development stages of the redisplay project, the team, which was considerably smaller than the Kelvingrove team, more on a par with that of the GNM, were given the power to help in the decision-making process – the only person who could make autocratic decisions was the museum's project manager, Julien Parsons. But luckily, the decisions that needed to be made were never that contentious as Kate Osborne (pers. comm. 22.8.2008) explained 'I think most people come to a sensible consensus. Nothing's been that contentious'. So the vast majority of decisions were made with a whole host of subject specialists 'The exhibition design ends up with a group of people round a table and this group of people is deciding on how this budget is spent' (J. Parsons pers. comm. 22.7.2008). One of the lessons learnt, particularly by

the curators, was the consensus agreement needed for design decisions. As Dave Bolton (15.11.2007) explained,

> 'if you're the only person that thinks a particular thing is of value there comes a point, that like anything else, you can go on until you're blue in the face but it probably won't happen. You have to know when no is no!'

If team members cannot accept that decisions have been made, rifts and conflicts can arise (Lee 2007) but this does not seem to have occurred within the project team at the RAMM.

Whilst each museum has a unique concept, unique team make-up and final outcome, that they share some similarities in the decision-making process and in decision-making elements and modes is clear. The following sections will focus on those similarities, particularly the powers of decision-making and the evolution of the decision-making process, to present the closing arguments for the importance of decision-making in the redisplay of biological collections.

9.2.4 A model for decision-making

Although all three case study museums are undertaking redisplays of their biology collections within the guise of wider museum redevelopments, they also maintain differing decision-making processes because of the size of their teams, their overarching concept or framework and the powers held by individual and group stakeholders to make decisions. For these reasons, the decision-making process is extremely complex and difficult to elucidate.

One model (Figure 9.4) which does, however, help to simplify the process is that of Kor and Wijnen (2007: 104), who illustrate that the decisions made at the beginnings of projects (the 'initiation' stage in their model) are the largest decisions the project team need to make. In doing so, they have already begun to limit the alternatives of the next stage, and so on.

At each stage of project development, fewer choices are available and alternatives are 'dropped'. Also, in each instance of decision-making, the level, type and mode can and must change to fit the situation (Verzuh 2005: 260-262).

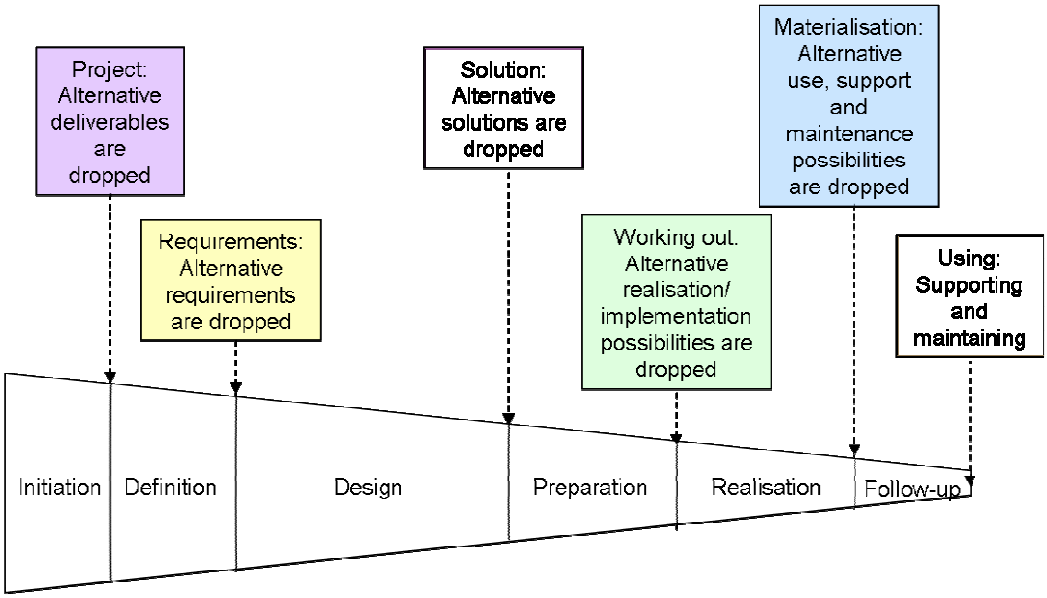

Figure 9.4 Decisions made at different stages of the project. NB: as the project phases progress decisions are not as high impact and fewer alternatives are required. Taken from Kor and Wijnen 2007: 104.

The process at each museum followed that of the Kor and Wijnen model and in addition the projects employed a combination of decision modes for varying levels and types of decision. For example, the consensus mode was employed in design decisions but if they became contentious – possibly because of monetary or space issues – the decisions were handed up to the project manager or project management team, who would make an autocratic decision which the team members would have to accept. Ultimately, as Kendrick (2003: 246) states, 'good decisions result from systematic group dialogue to reach agreement on one choice among a set of alternatives'. By ensuring that decisions are informed by all stakeholders, from curators to the audience from society members to funders, the aims and objectives of the original museum project will stand a better chance of being achieved.

9.2.5 The power to decide

Undoubtedly, the biggest factor to affect the decision-making process in the redisplay of biological collections has been the shift, or transfer, of power in the museum.

The results of this study have backed previously anecdotal evidence, which suggested that the curator's role in the redisplay of biological collections had

changed. Acting as the project manager, education officer and designer, the curator was the chief, and often sole, decision-maker in the redisplay of biological collections. But as Black (2005: 255) articulates, 'the days when the curator could make all the decisions on a new exhibition are passing.' In fact, I venture so far as to say they are gone. Black continues, 'It is impossible to see the development of a major new permanent exhibition, and unwise to view a major temporary exhibition, as other than a team effort' (Ibid 2005: 255).

As such, this research posits that the once all-encompassing, dictatorial role (see Figure 8.9) has been diluted and diffused in order to balance curatorial power with that of other project team members who sit on the same rung of the project team hierarchy (see Chapter 5 for project team structures).

Perhaps this 'redistribution of power' (Stam 2005: 55), a condition of the New Museology, best explains the decision-making power shift. Curatorial powers of decision-making are further redistributed to empower other stakeholders in the redisplay process. These include project team members, the audience, funders, the media, etc. The postmodern museum, which all three case study museums show the characteristics of, 'actively seeks to share power with the communities it serves' (Marstine 2006: 19). In doing so, the redisplay of biology has become a widened team effort – the extent of the team far outreaching the internal museum hierarchies. It now encompasses a wide variety of communities in the decision-making exercise to varying degrees.

To focus on the audience for a moment, as key decision-makers, the shift in decision-making power is borne through the commissioning of intense and rigorous programmes of front-end and formative evaluation. The programmes, which amongst other things, test storylines, themes, furniture, display texts, multi-media use and interactive elements, feed into the museum's decision-making exercises through audience representatives: the education officers (or equivalent).

Back within the museum project team, decision-making powers have also transferred upwards to a new but temporary member of the museum team: the project manager. Project managers, in all three cases, were seconded from their existing positions within their museums to carry out essential management of the projects. The most powerful management tool was the decision-making tool

and it was with this tool, that project managers could use to reject or accept team proposals. In some cases, rejection was construed as project managers being ignorant of individual's opinions but in reality it was a case of making a decision which 'ostensibly went against or in favour of one team, discipline, profession or opinion' (A. McReavy pers. comm. 6.8.2008). It was not a slight on the individual or specialist team. The project managers were charged with making decisions measured 'against the wider context of the project' in all three museums, casting their personal opinions and agendas aside (S. Latimer pers. comm. 14.5.2008).

9.2.6 Decision-making summary

To summarise, Gillian Mason (pers. comm. 10.1.2008) aptly explains the decision-making process as 'one of these things that evolves' and I agree. Decision-making, over the course of these redisplay projects, can be described as adaptable and modifiable within the modes, types and levels of decisions needing to be made.

Aside from the process of decision-making, the shift in powers to take decisions away from the curator, empowering other stakeholders, has initiated new lines of communication and reinforced the need to work as a team (emphasised by the Venn diagram; Figure 9.1). Conflict, however, is inevitable and it is the job of the project manager to make informed decisions and ensure that they are carried out by project team members.

Most importantly, this research has illustrated, using examples from the three case study museums, that decision-making is a critical aspect as a factor and part of the process of biological collection redisplay.

Having discussed the decision-making aspect of the redisplay projects, teamwork will now be explored.

9.3 Teamwork

For many years, museum professionals have been employed to work independently, or as independent entities, conducting various functions in the museum such as collections research, education programmes, collections redisplay, the conservation of specimens, the administration of museums, etc. With the advent of these large-scale, 21st century museum redevelopments,

museum managers have implemented a new approach to collections redisplay; the team approach. As teamwork literature suggests:

> 'when we work cooperatively we accomplish infinitely more than if we work individually. This is the principle of group synergy – that the contribution of the whole group is greater than the sum of its individual members' contribution' (West 2004: 7-8).

As such the transition to a team approach to collection redisplay has been long-overdue. Lindauer (2005: 41) notes that it is only in the last decade that the team approach has been embraced in museums. This is corroborated by Mark O'Neill (2006: 109), project champion for the Kelvingrove redevelopment, who notes that teamwork 'is a relatively new practice in museums'. The move towards the team approach, a complete turnaround from the curator-driven model, is also acknowledged as a finding of this research (see Figure 8.13).

O'Neill is also quick to relate that the team approach is 'the only way interdisciplinary working can be carried out and the only way in-depth expertise of museum content can be integrated with expertise about museum visitors' (Ibid 2005: 109). Whilst it is true that interdisciplinary collections display does require that teamwork is appropriated; all redisplays in museums, whether they embrace an interdisciplinary display philosophy or not, in fact, require teamwork. This team approach to museum redevelopment projects facilitates successful multi-layered interpretations which seemingly appeal to the multitude of stakeholders involved (The Gulbenkian Prize 2007: 1). However, in agreement with O'Neill, the opportunity to bring together specialisms in the museum, particularly those of the curator and the education officer, offers a better chance of ensuring that the visitor is considered from the outset of the redisplay process, not as an add on after completion.

Whereas curators, and other team members, once worked alone, the redevelopment projects suddenly thrust museum staff into a new situation: a project team. Working within a large group, which extended outside of the museum, required new skills to ensure harmonious work and working without conflict. Conflict is one of the negative aspects of team working. However, conflicts should be resolved by the project manager in order to enable teams and projects to progress. Project managers typically select from five different options to resolve conflict:

1. forcing
2. smoothing
3. compromising
4. problem solving and
5. withdrawal (Newell 2002: 124-127) (see Table 9.1 for definitions)

Resolution	Definition
Forcing	One party forces the other party to agree
Smoothing	Minimises disagreement by making differences seem less important
Compromising	Each of the parties renounce something
Problem solving	Proving or disproving a point; decision based on fact
Withdrawal	Retirement of one party, and subsequently resolution, can have negative effect

Table 9.1 Conflict resolutions. Taken from Newell 2002: 124-127.

Anthony McReavy (pers. comm. 6.8.2008) gave an explanation of the process adhered to at Kelvingrove when specialists had conflicting ideas about the redisplay,

> 'We couldn't do everything and [the project team] had to make a decision which ostensibly went against or in favour of one team, discipline, profession, or opinion. And so what we did was, we took them as a group and we fed back those decisions to the individual teams, so a conservator that had been seen to lose an argument could go back and say "look. I fought very hard for you. It wasn't my fault but this is the reason why we've taken this decision" and it meant that their relationship with their team was intact and they could continue to manage them and deliver the work.'

Within the Kelvingrove structure it was the middle managers who resolved conflict, whereas with the smaller teams at the GNM and the RAMM, it was the job of the project managers (K. Osborne pers. comm. 22.8.2008; S. McLean pers. comm. 10.1.2008).

Conflict resolution invariably links with the decision-making and communication constructs. Conflicts may have arisen as a result of poor communication, personal agendas influencing decision-making and/or from personal teamwork issues but the execution must always stay the same: resolve the issue quickly

without causing further conflict or angst within the team (Griffin 1987; Pritchett 1992: 2; also see Chapter 8.6).

In addition to conflict, project managers may also have to deal with 'point scoring' (Macdonald 2002; Roberts 1997) and the team becoming fractured. Within these case studies, this was not witnessed to the extent that it prevented project progress but some team members still seemingly harboured grudges:

> 'because most of the people on the project team have a relatively small amount of museum experience, then I mean, they had experience but not necessarily museum experience, they weren't necessarily coming up with the right decisions. And the experienced people who were saying "you should do this" were being ignored. Hence we ended up with displays with no interpretation and within days everyone had decided "we should put barriers up". You wouldn't be told, we told you that months ago!' (R. Sutcliffe pers. comm. 13.5.2008)

With the curatorial role in the redisplay of collections unchanged for more than a century, accepting the change from independent to team working on redisplay projects required the need for trust between team members (Costa 2003). Jessica Marsh (pers. comm. 15.11.2007) spoke of the importance of trust and of feeling valued when working within a team: 'people can put their point across and it will be listened to no matter whereabouts in the team they are.' Team meetings should promote a safe environment where members can feel free to express opinions. For Pritchett (1992: 2), communication is the key to the success of a team. He states 'no other factor plays such a precious role in building and preserving trust among teammates. Communication is the make-or-break issue' (Ibid 1992: 2). The overlaps, once again, in the constructs 'communication' and 'teamwork' are clear. As an important issue in its own right, communication will be discussed in the next section of this chapter (section 9.4).

9.4 Communication

As Farnell (1984: 153) comments 'when we use the word 'communication' in the museum context, it is all too often to talk about communication between the museum and the visitor – or, more accurately, between the museum staff and the visitor' (for examples, see Bicknell and Farmelo 1993; Hooper-Greenhill 1994; McManus 1991; Ravelli 2006). Farnell's comment is well-founded considering the large amount of museological literature dedicated to the

communication lines between museums and their audiences. This thesis is specifically concerned with the lines of communication between team members in the redisplay of biological collections.

Many of the interviewees struggled to detail the communicatory lines between team members during the projects. But perhaps, most aptly, explained that 'it was complicated and it evolved in slightly different ways at slightly different times' (S. Latimer pers. comm. 14.5.2008). All three constructs; communication, decision-making and teamwork, have needed to evolve with the progression of the project through its stages.

The next sections will consider the role of communication in the museum redisplay projects. Discussing specific aspects, for instance, the communication lines between the project manager and his/her team and the communications between designers and curators, the importance of clear communication and problems encountered will be highlighted.

9.4.1 Communication theory

The origins of communication theory lay with the mathematicians Shannon and Weaver who, in 1949, developed a model for communication between individuals (Heath and Bryant 2000: 63). Together, they constructed the linear model (Figure 9.5) to represent the:

> '(a) technical problem of achieving efficient transmission and reception; (b) the semantic problem of increasing the precision with which one person conveys a message to another by selecting the appropriate words; and (c) the effectiveness problem of understanding whether the meaning of the message affected the receiver's conduct in the manner the sender intended' (Ibid 2000:63).

Communication theory has been adopted by museologists to explain the transfer of information from the museum professional to the museum visitor. In this context, the model can be modified and used to explain the simplistic transmission of information from the museum project member to the visitor through the exhibition (Figure 9.6).

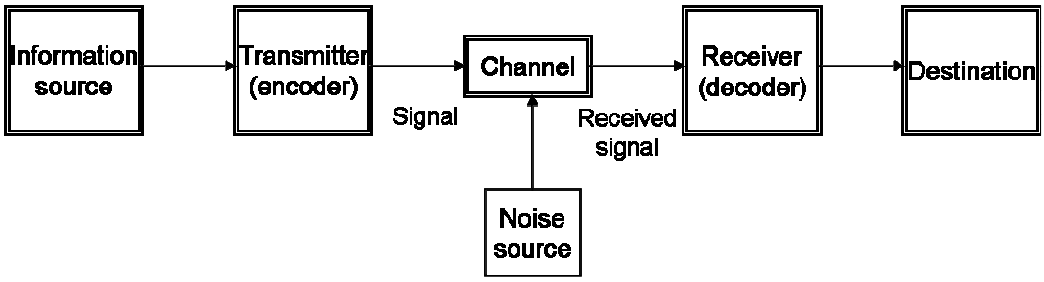

Figure 9.5 Transmission of Communication model. Shannon and Weaver 1949

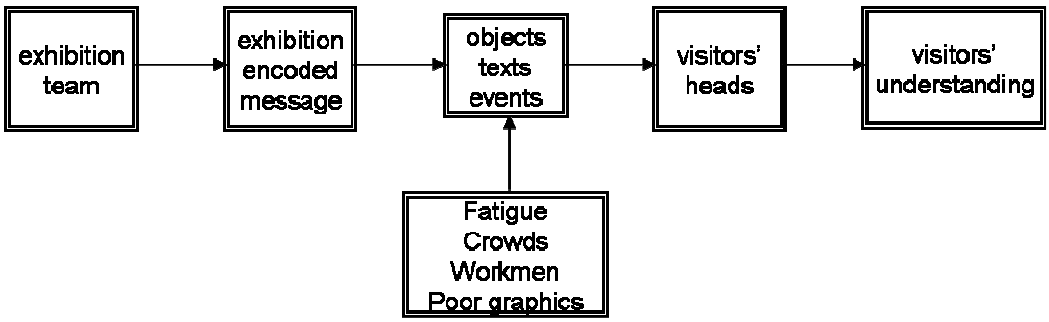

Figure 9.6 Transmission of information from museum professionals to museum visitor through exhibitions. Hooper-Greenhill 1999: 32

Here, the communication model can be adapted once more to illustrate the specific transmission of information from one project team member to another, as in the three case study museums (Figure 9.7).

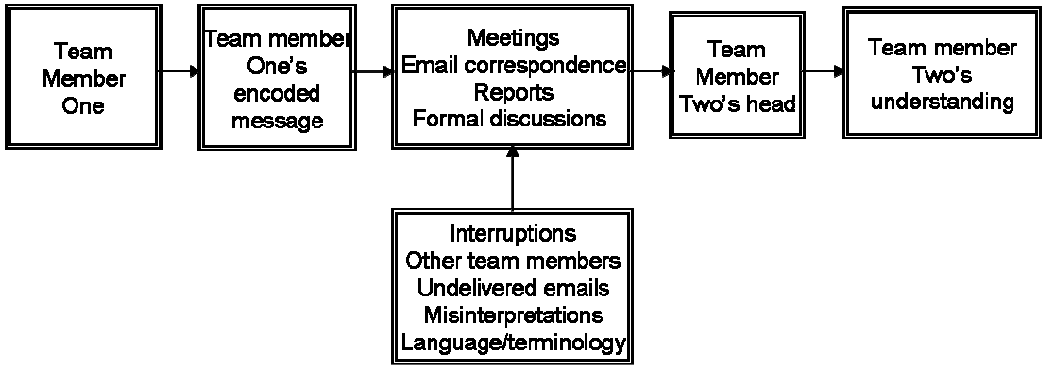

Figure 9.7 Transmission of Communication model: team members. Adapted from Shannon and Weaver 1949

Many factors can be attributed as 'noise' in the communicating of messages between one team member and another. Original messages are also interpreted in different ways between different team members, depending on the channels of communications (i.e. meetings, reports, emails, etc.) and the interpretations of the receiver (represented by 'team member two' in the model).

This, however, is a rather simplified version of communication between team members. It only represents communication between two team members rather than communication across the whole team or across more than two members. There is no feedback from the receiver; it is not shown as the two-way process it is. Perhaps more appropriate to the communication lines recorded at each case study museum is the communication model with the addition of a feedback loop (Figure 9.8), modelled by Hooper-Greenhill (1999: 44).

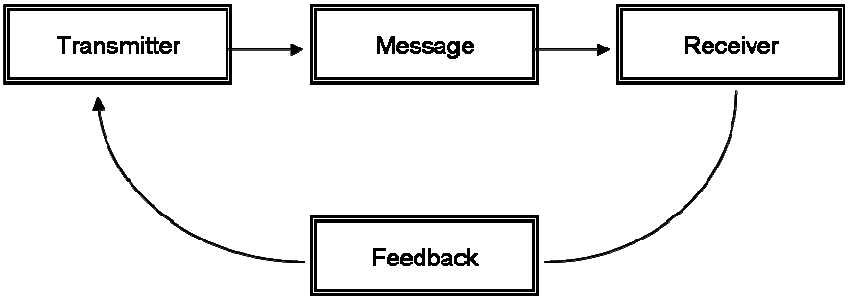

Figure 9.8 Simple Feedback Communication model. Hooper-Greenhill 1999: 44

Whilst this model better reflects the communication transmission between team members within the project teams, it does not reflect the complexity of communications so Figure 9.9 has been developed to illustrate this more clearly. This model is a better fit for the multiple receivers involved in the project teams. What are not addressed in this model, are multiple messages. Receivers can, of course, become transmitters themselves by way of feedback but this feedback can also be transformed into new messages from the original transmitter or the receiver. There are an infinite number of messages transmitted during the course of a redevelopment project, to the point that no model would represent the process exactly. Figure 9.9 is a best fit model for the redisplay communication experienced in these three case study museums.

If nothing else, the development of models in this section illustrates the difficulties in modelling communication lines. Gillian Mason (pers. comm. 10.1.2008) likens her idea of project member communication to an activity from childhood,

> 'you did those wonderful mathematical things where you had a board of wood and you put nails in and then stretched thread across to create some sort of pattern. I'm not sure where I'm fitting in in that lovely pattern, but it's all the threads crossing over and hopefully I'm trying to make them not too tangled.'

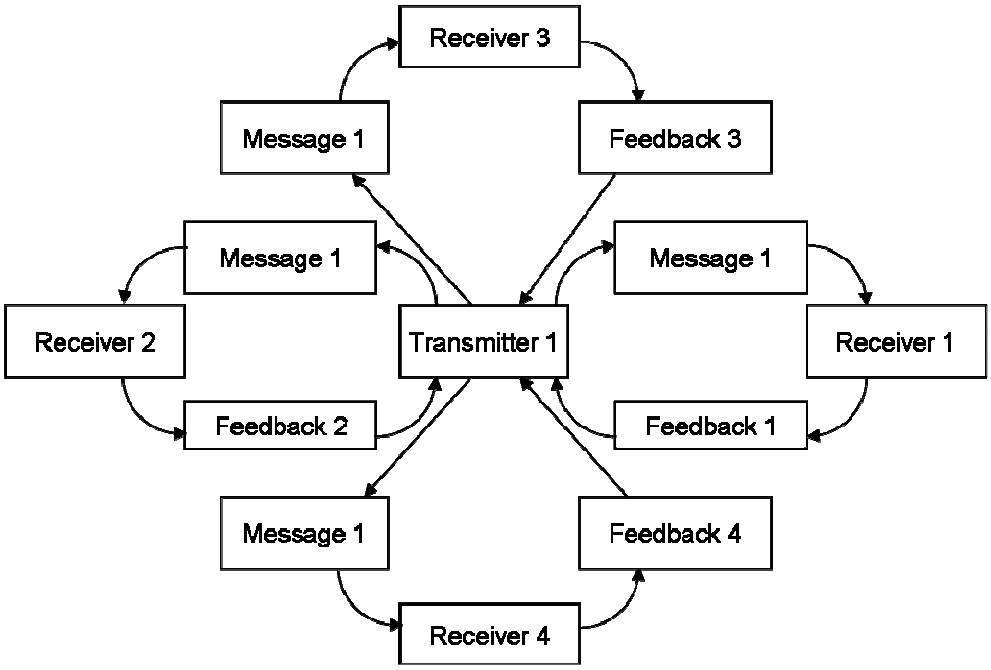

Figure 9.9 Multiple Receivers Communication Model. Paddon ©

Clear communication within a team is essential. Limitations to 'noise' during the transmission of information can help to make communication clearer and more effective. These sections on communication have shown the complexities of communicating within a team, the lines of communication between project team members and the impact this has on decision-making and teamwork.

The next sections use the Transmission of Communication Models (Figures 9.5 – 9.9) to briefly explain the processes of communication between individuals and groups within the museum project teams.

9.4.2 Communication: Formal and informal

Pritchett (2004: 1) regards communication as 'the cornerstone of effective project management'. 'And yet', he continues, 'most of it is done ad hoc, driven by individuals, personalities and preferences, rather than by needs, protocols, processes and procedures.'

The project team at the GNM split the communication procedure in two. The first set of communication procedures concerns strict guidelines which are set out in the 'very detailed PEP (Project Execution Plan)' (S. McLean pers. comm. 8.1.2008). In the document, the lines of communication are outlined to provide a

formal framework for the project team to abide by when communicating with external team members, for instance, project contractors. However, within the smaller project team, McLean declares that guidelines are less formal 'we've got a relationship that's flexible enough for us to communicate between ourselves' without the strict procedures adhered to when communicating with external team members (Ibid pers. comm. 8.1.2008). This flexibility in internal communication procedure allows the team to address issues more quickly and efficiently as-and-when they arise. Whilst this may appear to go against the advice of Kerzner (2009: 244), the team also follow-up their 'ad hoc' informal communication with scheduled meetings; the results of which are formalised in communication formats such as meeting minutes, reports and circulated electronic mail (G, Mason pers. comm. 10.1.2008; J. Parsons pers. comm. 22.7.2008; S. Latimer pers. comm. 14.5.2008). Again, whilst Remington and Pollack (2007: 54) propose that the ad hoc approach to communication is unacceptable in the course of a project, authors such as Kendrick (2004: 18) suggest that 'informal communication is often as (or more) important on projects as formal communication' because casual conversations can alert team members to potential problems before they occur and foster better working relationships.

9.4.3 Communication: The project manager role

The project manager's role in the transmission of information is crucial. It is the job of the project manager to facilitate information transfer through vertical and horizontal lines of communication (Lock 2007: 129). A general model, published by Cleland and Kerzner (1986), illustrates the relationship of the project manager to the various team members in the hierarchy of projects and can be usefully applied in the context of this research (Figure 9.10).

Pritchard (2004: 3) believes that with the role of project manager as 'facilitator' in the communication of information, they are also responsible for 'ensuring that communications are sent, received, and (to the degree possible) understood'. Julien Parsons (pers. comm. 22.7.2008) explained his role, as project manager, as conduit between specific team members at the RAMM:

> 'I'm essentially the contact between the curatorial team, who I manage, and the exhibition designers and the architects. So I'm the filter and focus through which the exhibition design needs to go both ways.'

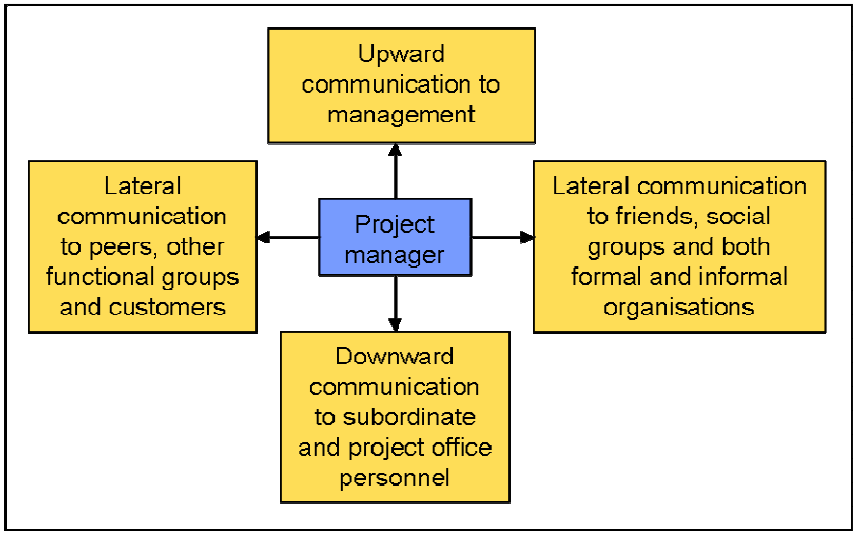

Figure 9.10 Lines of communication emanating from the project manager. Taken from Cleland and Kerzner 1986: 39

That said, this research has revealed that communication in teams is as highly dependent upon each team member being pro-active and ensuring communication lines are kept open, as it is upon the project manager communicating with all groups and individuals continuously. Kate Osborne (pers. comm. 22.8.2008) noticed how communication between herself and the project team tailed-off through the course of the project but that she had recently resumed communications:

> 'Initially there was a flurry of meetings, a whole load of them, and actually I haven't been to one for a year. I have to be honest; communication has dropped off a bit. I actually asked [the project manager] the other day if we could have a meeting about [access in the galleries]. I got a bit pro-active about it because I thought "ummm…!"… We had a very fruitful meeting so we do have one when we need to.'

Whilst the RAMM and GNM project curators and education officers had direct communication with their project managers, the curators at Kelvingrove did not. Communication at this museum was more complex, reflecting the large numbers of team members charged with designing the new galleries.

9.4.4 Communication between curator and designer

The amount of direct communication between the curators on a project team and the external designers differed between the projects studied, although at

some point in the project all curators spoke with their commissioned design companies.

Curators were generally afforded limited communication with designers. However, in the initial stages of the design process, they were invited to speak directly with the designers (with the project manager present) to discuss their ideas for gallery themes, storylines and specimens (J. Parsons pers. comm. 22.7.2008; J. Williams pers. comm. 15.7.2008; S. Latimer pers. comm. 14.5.2008). Katherine Skellon (pers. comm. 3.10.2007) explained how the process worked at the RAMM:

> 'we've had a whole series of different workshops and we've had a whole bunch of contact workshops where we go [to Exeter] and have a session per gallery. We might do a couple of galleries per day, or one gallery over two days, whatever it takes, where we bring those curators to the meeting table, understand what they want to do and they show us the content.'

Similar workshops and meetings with designers were held at Kelvingrove and the GNM to allow curators to talk through their ideas, under the supervision of the project managers.

For the *Event Communications* design team, commissioned by the Kelvingrove project team, limits were made on the direct communication with curators. During the pressurised turn-around for the project, the designers elected to conduct all communication through the project management team. Esther Dugdale (pers. comm. 5.9.2008) asserted:

> 'we said at the time that given the amount of time, or lack of time that we had, we didn't feel that we were able to work with all the curators because they love to talk; they want to talk everything through. We did end up meeting them all in the course of it, but we couldn't work directly with them. That would have been a problem that they had previously, that the designers were being pulled in different directions by different curators'.

So in this instance, the project management team collated opinions, ideas, etc. from the curatorial teams, conservation teams, education teams and talked them through with the designers. This communication procedure was established to

prevent the lower team members in the hierarchy from having direct contact with the designers. This eradicated the problem of being pulled in different directions. So instead of the project manager acting as the conduit, it was a team of project managers who acted as the conduit between the lower teams and the external designers. This lack of communication between designers and curators did, however, cause some pressure as Richard Sutcliffe (pers. comm. 13.5.2008) explained:

> 'we would be expected to get comments back to Event within three days… That was the theory, in practice it was often within 24 hours! And latterly it was in 5 minutes. [The Education and Access Curator] would phone and say "I need the answer now"… So if you see a few things that aren't quite right, that's why. Some decisions were made very, very quickly and you just didn't have time to think.'

Nearing completion of the design process, communication between the curators and designers was focused on developing the more detailed aspects of the galleries. Julien Parsons (pers. comm. 22.7.2008), as project manager, explained 'there's the minutiae level which I don't get so much involved with. It usually involves the curator and whoever is doing the laying out for RAA'. Curatorial expertise comes into play here; curators know the most about the specimens to go on display. But the curator of biology said that the process of communication was difficult for geographical reasons:

> 'But the structure of [communication], yes, I think it's got to be less effective. You're dealing with [a designer] that's working in London and you're meeting on occasions and submitting ideas and it does take a while for any ideas to be heard and to be acted on. There isn't that sense of immediacy that you'd get with constantly working with somebody' (D. Bolton pers. comm. 15.11.2007).

The experience of curator/designer communication appeared both limited and monitored. Pressure was also placed upon the extended relationship as communication between the two was not direct. Decisions and idea implementation was a lengthy process, and where it was not, decisions were made spontaneously and without consultation with other team members.

However, the scale of the redisplay projects commanded a restricted level of communication between these two sets of individuals in order to control the

project costs and a team approach to decision-making for the galleries. The project manager role bridges the communication between the two groups, coordinating decisions, and is essential in managing project progression.

9.4.5 Filtering information through the team

Now that the redisplay of biological collections is being achieved through a team approach to redevelopment, information needs to be communicated to a wide number of individuals. In the case of Kelvingrove there were around 300 team members working on the museum redevelopment project (A. McReavy pers. comm. 6.8.2008). Informing all team members about project progress enables continued teamwork and effective decisions-making. Poor communication, however, can lead to conflict within a team and have knock-on effects on 'project control, coordination and workflow' (Kerzner 2009: 212).

The need to filter information was a key aspect of communication in each of the teams. Ruth Randall (pers. comm. 22.7.2008) spoke about the efficiency of teamwork practices at the RAMM. She felt that the 'cascading' of information from the project management team through to the other team members, and vice versa, was the mainstay of project effectiveness.

Likewise, information is filtered through different lines of communication within the GNM project, as Gillian Mason (pers. comm. 10.1.2008) described:

> 'I mean I work with Steve and Lindy who are the joint project managers to look at the big picture, to look at what we have to do, the key dates for those things to be done by… Then I take that and filter it down, so I meet on a regular basis with the curatorial teams to move forward on whether it's looking at specific content of a display or looking at how we interpret that content, working with them on what the interactives are going to do, and then I tend to put that into some sort of report form or action plan, send it out to various other people for comment on, bring it back to the design table with Casson Mann, move it forward a bit more, bring it back to the curatorial team.'

To this end, as mentioned in section 9.4.1, communication is not a one-way process but a two-way process of communication in which feedback operates all the time throughout the course of the project. The lines of communication described by the project members are also in line with that of the Feedback

Communication Model purported by Hooper-Greenhill (Figure 9.6), which was subsequently developed in light of the research findings (see Multiple Feedback Communication Model, Figure 9.7). The two-way process can also be regarded as an iterative process where 'messages' are shaped by the 'feedback', 'transmitters', 'channels' and 'receivers' categories identified by Shannon and Weaver (1949).

Continuing communication with all team members throughout the course of the redisplay projects is a difficult task. Depending on the stage of the project, team members may find they are not playing such an active role or vice versa. Either way, team members should be aware of the general decisions for the project through communicatory channels (i.e. meeting minutes, meetings, email correspondence, reports, etc.). As Kerzner (2009: 212) purports that problems can arise as a result of poor communication 'caused by team members simply not keeping others informed on key project developments', the best way to avoid problems is to make sure all team members are aware of progress.

9.5 Chapter summary

This chapter has introduced the theoretical codes of communication, teamwork and decision-making demonstrating how each code affects the redisplay of biological collections. Why is decision-making highlighted by team members as an important factor in the redisplay process? There are numerous reasons, which have been highlighted in this chapter. For instance, decision-making impacts on:

- the progression of the project
- how the team works and relationships between team members
- individual powers within teams and
- the overall design of the gallery (exhibition of specimens, types of interpretation used, layout of furniture)

The decisions made by museum project teams in this study have highlighted the differences in the final outcomes of the galleries. The single most important decision museum staff are faced with making is that of the redisplay philosophy, the overarching concept for the museum. New epistemologies shape the displays of biology, the visitor-centred goals of the galleries, the flexibility

entrenched in interpretation and design elements and the learning experiences afforded to visitors.

On a more abstract level, the power of decision-making has shifted in the museum. The previous chapter introduced the changes in the power of the audience and the curator (sections 8.2 and 8.6), whilst this chapter has examined the transference of decision-making powers, from curators to project managers, education officers and other team members. What is clear is that this change is irrevocable. Museum redisplays will, for the foreseeable future, involve a *team* approach. No one person will be responsible for making a decision without being informed by other team members before doing so.

Effective teamwork is most notably underpinned by good communication. Communication in projects occurs between many individuals but, perhaps, most markedly, communication lines are limited and monitored between curators and designers. This ensures that no sudden changes are made with sanctioning from the team or the project manager. This change in the power of communication mimics the change observed in the decision-making powers of curators.

An appropriate model for the lines of communication is an adaptation of the mathematical model presented by Shannon and Weaver (1949). Their simplified process of communication, coupled with alterations which reflect these research findings, allows for clearer interpretation of the transmission of information from one team member to another throughout the course of a project.

One of the key findings from the three overlapping constructs was their evolution through the process. Decision-making, communication and teamwork should be regarded as dynamic and malleable; they can be reconfigured to suit the situation, at least up to a point. For example, if a team member leaves at any project stage a solution must be found and decision-making, teamwork and communication lines must be rectified to fit the circumstances. Similarly, teamwork, communication and decision-making aspects will be different depending on the stage of the project.

Whilst it is impossible to generalise about these three components, due to the fact that they alter for each museum, each team and each gallery, this research

has shown that it is possible to conclude that teamwork, communication and decision-making do impact tremendously on project management and consequently the character and quality of the redisplay of biological collections in museums.

The final results chapter in the thesis, Chapter 10, draws together the findings presented in Chapters 8 and 9 to produce the overarching theory for the study.

Chapter 10
Accepting Change

This study began with the aim of exploring and examining the factors and processes involved in the redisplay of biological collections in British museums. This has been accomplished through the presentation of the results in Chapters 8 and 9, together with the explication of focused codes as factors and theoretical codes which shape the process. Whilst the presentation of results in these chapters hinted at the core category, it was not fully clarified. The aim, therefore, in this brief chapter is to amalgamate and summarise the findings of the study to present the grounded theory; accepting change.

For many museologists, the museum has evolved with slow shifts in paradigm brought about by external constructs, i.e. new political agendas, advances in scientific knowledge, developments in technology, etc. To the modern museum visitor, the collecting institution remains as 'a treasure house of important objects' but at the same time, can be judged as boring, didactic, irrelevant and unchanging (Black 2005: 79).

The advent of the HLF and their investment in large-scale redevelopment projects has catalysed a change in museums (D. Bolton pers. comm. 15.11.2007). Unprecedented, multi-million pound projects, spanning five years or more, have sought to change the visitor's perspective of the museum by developing new interpretation and display philosophies and becoming more inclusive and accessible (Casson Mann 2006a; Exeter City Council 2003; KNCP 1999).

Museum projects are required to fulfil certain criteria in order to acquire monies (HLF ND). In doing so, there is a shift in power from the museum to the financial stakeholder. By their very nature, funding institutions are investing in a project to further their own agendas, transmit organisational messages and bring themselves publicity. This has caused conflicts of interest between the funding agency and the museum. The museum must make decisions based on its aims and objectives and not pander to the funding organisations. This will ensure that museum messages are not compromised. In Chapter 8, the code 'conflicting interests' raised the issue of pandering to the financial stakeholder illustrated

with an example taken from the Kelvingrove redevelopment project (see Chapter 8.5); the project team decided that they were not prepared to compromise on a gallery message so the funder, in turn, pulled investment from that particular gallery. Whilst this incident reflected the power of decision-makers to renege on the fulfilment of funding organisation demands, it should also be noted that this was a relatively small amount of money. In dealing with larger sums of money, upon which the museum projects are reliant, funders are empowered (MacLeod 2007: 72). They were also identified as one of the major factors driving the redisplay of biological collections.

Another of the main driving factors in the new museum redisplay process is the audience. A paradigmatic shift has been observed in the power of the audience in each of the three case study museums (see Chapter 8.3). Audience evaluation and consultation has played a pivotal role in the decision-making process of these redevelopment projects, and consequently, audiences have had more of an impact on and become more involved with the redisplay process. This paradigmatic shift has been driven by recent government initiatives and museological studies into learning in the museum (Hein 1998; Lord 2007; MLA 2004b; MLA 2008c). Appreciating that the museum learner is active, not passive, and that each individual has different learning needs, the museum must now cater to a wider range of visitors (Hooper-Greenhill 1994: 67). The audience has also helped shape the educational gallery elements. Displays aimed at children enlist National Curriculum foci as a way of increasing the potential for formal learning. Core curriculum subjects have influenced decisions for gallery themes. For example, Gillian Mason (pers. comm. 26.6.2007) explained that their 'Egyptian Gallery' does not have much material, it is more theatrical, but it is what the audience wanted in their museum. Generic learning and social outcomes are also set to help measure the educational and social successes of a gallery (MLA 2008b). This paradigmatic shift in accepting the visitor as an active learner (Rowe 2002: 20) and one that needs different learning experiences in the museum has been developed by museologists as a concept, meaning-making (see Roberts 1997; Silverman 1995). Conceptually conceded as a 'social [approach] to mind growing', meaning-making asserts that objects and specimens in the museum have different values according to the individual visitor. At the same time, these objects and specimens can create diverse experiences and evoke memories (Hooper-Greenhill 2006). Taking a

narrative approach to the redisplay of biology, as each of the museums has, has led to the polysemic identities of specimens (Ibid 2006: 238).

One of the most considerable paradigmatic shifts has been the power of the curator. Recognised as a key factor in the redisplay of biological collections, the curator, as this research has revealed, no longer holds power over decision-making or communication (see Chapter 8.7). The curator, in the process of redisplay, is being forced to accept a dramatic shift in his/her role (Lee 2007: 195). No longer considered the 'power broker' (Miles 1994: 251), he/she must consult and work alongside colleagues to select objects, write labels and text panels, define messages in the displays, design interactives and devise multi-layered experiences, etc. The power of the curator has been spread amongst museum project team members and external stakeholders. Charting this as the 'death of the curator/author' (Mason 2006: 28) might be slightly too harsh. It is more a revision of the role of the curator, an adaptation, and part of that adaptation is the acceptance to work as a member of a team, rather than solo, on the redisplay of biological collections.

Miles (1994: 255) suggests that 'on the whole, curators are used to taking all the big decisions' and that 'they tend to resist almost any change in the system', and although this is the case at first glance, the curators have in fact accepted the power changes in their museums. They accept that they need to work alongside education officers, access officers, conservation officers, etc. to successfully accomplish the many aims and objectives of new gallery displays. They also accept that they are no longer the 'power brokers' in the relationship; they are answerable to the project manager (see Chapter 8, in particular Figure 8.13).

Evidently, the change of redisplay approach did cause some frictions and conflicts (J. Marsh pers. comm. 15.11.2007; R. Sutcliffe pers. comm. 13.5.2008). Although every one of the project curators interviewed attested that they wanted the project to succeed, they also had to allay personal agendas for the sake of constructive project progression. When any issues proved controversial, it was the job of the project managers or project management teams to find a resolution and make the final decision (A. McReavy pers. comm. 6.8.2008; S. McLean pers. comm. 8.1.2008; J. Parsons pers. comm. 22.7.2008). This part of the process highlighted the need for hierarchy in a project team but also

highlighted the need for effective communication and teamwork to help the project manager make informed decisions.

The internal museum team has also had to accept the addition of one particular team member; the specialist designer. In doing so, the expert designer, and the external design company, have become a part of the museum project team. They are charged with interpreting and realising the vision set out by the museum team in the briefing document. Once again, some of the curatorial power is transferred away; relinquished to the designers.

Working with designers was testing at times for all of the museum team members, not least because of communication difficulties brought about by geographical isolation (R. Sutcliffe pers. comm. 13.5.2008). The research demonstrated that most resistance to working with designers came from the curatorial team members (D. Bolton pers. comm. 15.11.2007; J. Marsh pers. comm. 15.11.2007; R. Sutcliffe pers. comm. 22.8.2007 and 13.5.2008). For the curators who had been involved in prior redisplays of biology, the in-house design, creation and mounting of the display allowed for complete control; this control, again, has been relinquished. All team members also discussed the tight turnaround in design decisions and elaborated on problems borne out of the lack of direct communication with the designers in these highly pressurised, deadline-oriented projects. However, the use of museum designers was recognised as essential to the holistic, large-scale redevelopments of entire museum galleries. Ultimately, responsibility for the process was shared amongst the project team members, including the design companies.

Coupled with the change in approach, the stages in the process of redisplay have become more defined. The case study museums employed the project stages as stipulated by the HLF and implemented by most museum design companies; the RIBA *Plan of Work* (see Appendix 1). Each stage has clear aims, for example stage C of the plan stipulates the

> 'implementation of a design brief and input to the project brief. Preparation of a concept design including outline proposals for structural and building services systems, outline specifications and preliminary cost plan. Review of procurement route' (RIBA 2007).

Accepting this defined process has ensured that the project is paced, deadlines are set and each team member is aware of the work they need to undertake in order to progress to the next stage. The plan of work stages also allow for the simultaneous management and administration of projects across both internal and external team members.

Communication, within the realm of biological collection redisplay, has changed dramatically. Drawing from communication theory, a model has been developed to illustrate the complexities of communicating messages, and subsequently decision-making, within the project team (see Figure 9.9). This iterative model, which includes the feedback of messages interpreted by receivers, may then be infinitely replicated to represent the countless communications between team members throughout the course of the project.

The research also uncovered the changes in communication throughout the project stages. At the start of the project, communications are profuse as bigger decisions need to be made and the team is established (Kor and Wijnen 2007: 104). Project members must establish effective lines of communication in order to develop a dynamic, coherent team (Pritchard 2004: 1). As the project progresses, communication between parties continues but the number of communications and the number of individuals involved in communications is reduced. This is as a result of the lessening number of decisions that need to be made and the pressing actualities of production (see Figure 9.4). The number of 'transmitters' and 'receivers' is also subject to change depending on the stage of the project and the decisions that need to be made.

The necessity for accepting change became clear over the course of this investigation. Change, in these museums, is occurring at different levels; the restructuring of hierarchies, the redistribution of power, the relocation of collection storage, the display approach for biological collections.

10.1 Conclusions

This research was premised on the fact that biological collection redisplay has enjoyed a recent resurgence thanks to substantial funding from the HLF. In researching the factors and processes involved in such redisplays, significant changes were observed:

1. an increase in the number of factors driving the redisplay of biological collections (see Tables 6.1 and 6.2); certain factors having more impact on redisplay i.e. the audience, collections, project team members and funders.
2. a change in the approach to biological collection redisplay; moving from the curator-driven to the team approach.
3. a change in the process of redisplay; employing the RIBA stages in the redevelopment process.
4. a shift in the powers of individuals; namely the dissemination of power from the curator to other team members and stakeholders.
5. the implementation of new display philosophies; a narrative approach and multi-layering of interpretation to provide different learning experiences.
6. a change in the storage of biological collections; purpose-built, off-site storage facilities.

Teamwork is the mainstay of the new redisplay process. Professionals have been compelled to bring together subject specialisms in order to inform decisions for an improved level of gallery design, collection interpretation and overall visitor experience. The teamwork approach has also fostered new lines of communication. Communication theory can elaborate some of the complexities of message interpretation and feedback (see Figure 9.9). Effective communication allows for effective decision-making. Ensuring that decision-makers have information vital for making decisions brings the team together.

Accepting change has meant that team members, throughout the process of redisplay, have learnt from one another. They have been brought together by common goals and interests; they have become aware and developed an understanding of each other's specialisms. They have become a 'community of practice', which is defined by Wenger (2006) as 'groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly'. Using this concept in a recent study, Høg Hansen and Moussouri (2004) identified two distinct 'communities' when exploring exhibition teams in natural history museums. They were characterised by vertical and horizontal divides, as they explain:

> ‘natural scientists mix with designers, museum educators and others to develop exhibitions as a team, but natural scientists also share a craft and a repertoire with colleagues in other institutions’ (Ibid 2004: 163).

Applying the ‘communities of practice’ concept to this research, the vertical and horizontal divides have also been uncovered. Vertical communities are found to span across the hierarchical team structures (see Figures 5.5, 5.6, 5.17 and 5.30); where the project is the focus of the group. Unlike Høg Hansen and Moussouri’s research, this study uncovered two different horizontal communities. The first is made up of team members with equivalent status, for example, curators, conservators, designers and education officers. The second is made up of subject-specific staff, for example, curators of biology who work together within the same institution and with colleagues in other museums.

Accepting change has been key to each project’s success. The ability of project members to adapt to the pressures of a new process and stakeholder demands has been imperative to project progress. This chapter, accompanied by the findings presented in Chapters 8 and 9, illustrates the theoretical construct ‘accepting change’ comprehensively in an attempt to explain the practices of redisplay in contemporary British museums by focusing on three case study institutions.

The final chapter in this thesis summarises the major findings of the research as well as discussing the challenges faced in the course of the project and suggestions for future research.

Chapter 11
Research Conclusions

This thesis charts the contemporary redisplay of biological collections in British museums by explicating the driving factors and new process from three case study museums. After introducing the aim and objectives of the study in Chapter 1, Chapter 2 presented an historical account of biological collection display. Charting display and interpretation from the earliest known 'museums' to the modern period, the chapter considered the influence of the advancement of scientific knowledge and display philosophies to explain the changing paradigms of display through history. The final section of the chapter focused on innovative, influential contemporary redisplays of biology in museums around the world, therefore placing the research in a rich, conceptual context.

The third chapter presented, albeit briefly, a review of the literature setting the research in a wider context. In addition to museological constructs, educational, political, psychological and scientific constructs have also been explored to provide a wide-ranging, interlinking foundation for the research.

Chapters 4, 5, 6 and 7 presented the methodological stages of the study. Explicated within the chapters were critical aspects of the research including the grounded theory methodology and methods, the results of the preliminary research, revised objectives for the main research and the analytic process for the main data sets.

The results of the research were presented in Chapters 8, 9 and 10. Beginning with the first stage of the analytic process, Chapter 8 communicated the focused code categories which emerged. These codes are substantiated further by drawing on existing museological constructs and theories from other academic disciplines.

The next stage of the analytic process, the move from focused codes to theoretical codes, was presented in Chapter 9. In the chapter, the elements of decision-making, communication and teamwork were explored, again, using theoretical concepts to place the research within a wider context.

The final results chapter, Chapter 10, drew together the findings from the three stages of the analytic process to provide an overview of the core category, or overarching theory: 'accepting change'. In this chapter, change was indisputably linked to all aspects of the redisplay process, including the driving factors and the new display process.

This chapter draws together the aims and revised objectives of the project by considering the rich results that emerged from the extensive data collection phases. To begin with, the first two sections summarise the findings from the preliminary and main research studies. The final section considers the impact of the research within the wider museological context and suggests opportunities for future work.

11.1 Conclusions from preliminary research

Initial unstructured interviews were conducted with six project team members from the three case study museums (see Chapter 6). The interviewees, with direction from open-ended questions and the use of gallery plans, spoke about their projects. In addition to the six interviewees, further information pertaining to biological collection redisplay was gathered from museologists and other museum professionals.

Following transcription and initial coding of the data, the preliminary research results identified twelve main factors in the redisplay of biological collections. The factors affecting redisplays ranged from the audience and funding to curators and the collections. These results were further categorised into internal and external factors, for instance, the audience and funding were considered as external to the museum but the curators and collections were factors within the institution.

The results from the preliminary research fed into and shaped the methodological framework for the main study. They also generated research threads on which to concentrate data collection, for example, threads informed questions in the interview schedule for the final semi-structured interviews.

11.2 Conclusions from the main research study

The main research framework was drawn from the qualitative research paradigm; grounded theory. Semi-structured interviews were chosen as the

main method of data collection with other primary and secondary sources, such as photographs, reports, gallery plans and project correspondence, to triangulate findings.

Each interview, which took between 45 minutes and three hours to complete, was transcribed and subsequently coded in line with the constant comparative analytic process. The interviews yielded a range of results; some of which were anticipated from the initial research findings but others of which were revealed through the data collection phases.

This section of the chapter uses the seven revised objectives for the study (see Chapter 6) to draw succinct conclusions.

11.2.1 Objective 1: to present a history of biological collections display

Biology specimens have been collected and displayed in private and public 'museums' for over two millennia (Findlen 1996: 4; Glaser and Zenetou 1996; Whitehead 1970: 51). Chapter 2 has provided an overview of those displays, from the early Greco-Roman period to the present day.

The earliest 'museums', or cabinets of curiosity, presented biological specimens alongside archaeological, ethnographic and art objects. Although at first displays seem disorganised, it is clear from the catalogues, and frontispieces within the catalogues, that cabinets were indeed organised to separate the different collection 'disciplines' (Whitehead 1970: 52).

The Linnaean period witnessed further organisation of the natural sciences with the invention of binomial classification. Linnaeus's seminal work, *Systema Naturae*, and the use of taxonomic classifications (the binomial) influenced the organisation of biological specimens, particularly in William Bullock's *Museum of Natural Curiosities* (Pearce 2008). Bullock also appears to have been one of the first collectors in Britain, possibly the world, to display biological specimens in a 'natural context'; a dioramic form. Biological collections were no longer purely for the expert audience; Bullock was producing displays which 'presented a scene altogether grand and interesting' for the non-expert visitor (Bullock 1813: preface).

The museum display of biology then moves to the 'modern period' where the curator becomes responsible for presenting scientific discourses in displays about biological specimens. Collections are systematically and taxonomically displayed with institutions promoting the skills of observation and in-depth study. Now, vivaria and plant tables become integrated within gallery displays (see Carter and Cumming 1937; Society of Arts 1858) and lectures inform the lay-person about the intricacies of species behaviour, characteristics, etc. Within the modern period, the museum display of biology has changed dramatically. It has moved from didactic, systematic displays to thematic galleries, from 'book-on-the-wall' text to interactive installations with little interpretation (see Chapter 2.4; Bryk 2001). The 1960s and 1970s also gave rise to the external design consultant. Consultants such as Robin Wade and Giles Velarde (Wade 2009: 1; Velarde 2001: preface) were drafted in to aid museum teams in the development of exhibitions. This early manifestation of the museum designer has led to the establishment of numerous museum design companies around the world.

The history of biological collections redisplay, charted in Chapter 2, underpins displays in the contemporary museum. Learning about the positives and negatives of former displays allows today's museum team to strike a balance between didactic and self-guided displays, interactive and static installations and stories and themes within galleries.

The next objective explores the contemporary display of biology in British and international museums to show the progress in design and interpretation in the past decade.

11.2.2 Objective 2: to explore and explain contemporary museum displays of biology in a British and an international context

The final section in Chapter 2 of this thesis, discusses the contemporary display of biology through three iconic case study museums; the Muséum national d'Histoire naturelle in Paris, the Nationaal Natuurhistorisch Museum 'Naturalis' in Leiden and the American Museum of Natural History in New York. These museums represent some of the changes in the interpretation and display of biological specimens in the last two decades. Employing the team approach to redisplay, the three museums worked with the strengths of their collections to tell new stories and create visually pleasing arrangements of material. All have strong display philosophies and gallery visions, akin to those at each of the case

study museums. Whilst the museums and galleries in Paris, Leiden and New York were reopened over 10 years ago, they are still referred to by the project team members as best practice (S. McLean pers. comm. 8.1.2008). Their influence on 21st century design is clear.

Learning in the museum has developed as a specialised area of museological study (Bicknell and Farmelo 1993; Yellis 1990). The audience member has therefore become the focus of increasing research in museums (Hooper-Greenhill 2004: 562). Contemporary museum professionals have begun to realise that whilst they can tell multi-layered stories through the display and interpretation of collections, visitor will also bring with them their experiences, knowledge and values; they will make their own meaning in the museum (Roberts 1997; Silverman 1995). New museum displays are attempting to present collections in a non-didactic manner; they shy away from taxonomic exhibits; they omit diorama as a display method; they display specimens according to themes and they offer different learning experiences. Visitors are encouraged to find their own route through the gallery (D. Gordon pers. comm. 10.1.2008; S. Latimer pers. comm. 14.5.2008); they are provided with different learning experiences; they are encouraged to examine and learn about specimens in study zones or discovery centres (see RAA 2006: 38-39 for example).

Part of the theory of 'accepting change' has been the realisation, by museum theorists and practitioners alike, that the museum is not a static institution; it needs to evolve and develop with the results of research, increased knowledge, new acquisitions, new interpretations, etc. These museologically-influenced strands should feed into new displays mounted at the museum.

11.2.3 Objective 3: to identify the factors driving the redisplay of biological collections

By far, the two most important external factors in the redisplay of biological collections are the funders and the audience. Without the initial backing from the HLF, the projects wouldn't have been set in motion (D. Bolton pers. comm. 15.11.2007). The HLF is considered here as a major catalyst for the redisplay renaissance witnessed in the early part of the 21st century; 'I think the biggest influence on museums is actually the funding' (E. Dugdale pers. comm. 5.9.2008). The impact of this heritage money has afforded museums the

opportunity to renovate and extend their listed buildings, employ new display philosophies, develop interdisciplinary teamwork and provide a better quality of experience for their visitors. The audience is the other important external factor in the redisplay of biological collections. The days of viewing the museum visitor as passive have long gone (Hooper-Greenhill 1999b: 67). Visitor studies and the recognition of different learning styles in the museum have gone a long way to addressing the wants of the visitor (Falk and Dierking 1992: 103). This is furthered by consultation programmes, and this consequently feeds into the decision-making process for the redevelopments. The research has highlighted these two factors as key to the redisplay of biological collections.

Whilst the key external factors are palpable, the key 'internal' factors are less discernible. In previous projects, the collections and the curator would be considered the most influential internal factors (Harrison 2005: 45) but the curator can no longer be considered to be in this position. By encouraging parity across institutions, through the employment of the team approach (discussed in 11.3.4), team roles have become more equal and powers have been shared (A. McReavy pers. comm. 6.8.2008). The collections, however, do maintain the power to drive decisions. In particular, the team members interviewed spoke about the 'two-way process' of story/theme decision-making (J. Parsons pers. comm. 10.7.2007; J. Robinson pers. comm. 13.5.2008; J. Williams pers. comm. 15.7.2008). Whilst there are stories they may wish to tell, they are aware that they need the specimens to tell that story, and vice versa, so the collections are an overriding factor.

Although I have not addressed all of the key factors in this précised section, they are discussed initially in Chapter 6 as the result of initial research and again, more thoroughly, in Chapter 8 of this thesis.

11.2.4 Objective 4: to investigate and record the design and interpretation process/stages of a biological display

This research has uncovered that the three museums employed a new process in the redisplay of their biological collections. The general process in which museum collections are redisplayed has been defined by many museologists (Dean 1996; Lord and Lord 2001: 4; Miles 1988). They group aspects of the process into three overarching categories: development, design and implementation. However, each category is unpacked further by following the

RIBA *Plan of Work* (Appendix 1). The Plan of Work, which has been adopted by the HLF as a way to monitor and measure project progress, sets manageable goals for the team whilst providing detailed information about each progressive stage.

Whilst the new process has been shaped by the *Plan of Work*, it has also been shaped by a new approach. The new 'team approach' differs from that of the old 'curator-driven approach' by placing decision-making, communication and teamwork between team members at its heart. The transference of power away from the curator to other members of the team and the parity of certain team members appears crucial in this new approach (Heumann Gurian 2006: 163). Also, team roles must be affirmed and responsibility made clear. Chapter 8 discusses more fully, the roles of the team members, in particular the curators, and the shift described above. Despite the fact that the team approach is not a new approach to redisplay (see Lindaeur 2005: 41-42; McLean 2004: 201; Terrell 1991), it was a new way of working for the project members in the three case study museums, particularly in terms of scale.

Chapter 9 has disentangled the team approach further by discussing the three fundamental elements of the team approach; decision-making, teamwork and communication. These elements were influential in shaping the process through the 'black box' stage (see Figure 6.2) of the project. Using theories and models from other disciplines, emergent findings are presented. For example, by employing communication theory in the evolution of the museum projects, it is clear that the team approach is iterative, as opposed to prior communication which is linear (Hooper-Greenhill 1999: 44; J. Parsons pers. comm. 10.7.2007). Communication lessens, as do all of the elements, over the course of the project (see Figure 9.4).

As West (2004: 7-8) suggests, teamwork allows project members to 'accomplish infinitely more' than when people work individually. By working as a team, the project is completed more quickly and will, hopefully, create displays that are 'well-designed, educational, intellectually reliable and entertaining' (Terrell 1991: 152).

Whilst decision-making is one element in a tripartite composition, it was outlined in the revised objectives as an important aspect of the display process to understand.

11.2.5 Objective 5: to assess the decision-making process in museum display design

Decision-making, as ascertained in Chapters 9 and 10, was found to be a crucial aspect in the process of biological collection redisplay. However, many team members found it difficult to articulate the exact process of decision-making; it differed, and employed different decision-making forms, according to the stage of the project. Some decisions were straightforward and involved few people; others were complex and needed the consensus of multiple stakeholder groups (S. McLean pers. comm. 10.1.2008).

One way in which the museum teams might have benefited in their decision-making process was to set out a decision-making strategy at the start of the project. In a contributory chapter of the *Handbook for small science centers*, the authors impart the importance of outlining a decision-making strategy at the beginning of any project. They say 'in our experience, the key to effective exhibition planning is the creation of a strong decision-making framework at the beginning of the process. Before we design anything' (Hands On! Inc 2006: 97). They continue to list seven reasons for the necessity of a strong decision-making framework (Figure 11.1).

Whilst this structured approach to decision-making and the development of a framework is advocated by the Hands On! Inc authors (2006), the approach is not widespread in museum redisplay projects; none of the case study museums used a decision-making structure to plan their projects.

Decision-making frameworks would benefit museums undertaking collection redisplays. Any framework should be based on the aim and objectives of the project, the museum's mission, and stakeholder and collection interests. The framework can then inform decisions throughout the process ensuring that they fit with as many aspects of the redevelopment project as possible. It would also help to justify decisions made to stakeholder parties.

How a framework can aid in decision-making

- Allows the team to focus creativity to an effective end.
- Supports sustainability by increasing the efficiency and astuteness of decisions.
- Builds consensus and trust among team members that is reflected in the quality of the final exhibition and supporting elements.
- Gives the museum team something that can be articulated with confidence when communicating with key stakeholders and potential donors.
- Narrows the task at hand so that the team stays focused on priorities rather than side issues.
- Gives outside consultants such as exhibit designers and architects clear guidelines.
- Helps reduce the last-minute crisis management and remediation that sap the energy and budgets of many projects.

Figure 11.1 Reasons necessitating a strong decision-making framework. Adapted from Hands On! Inc. 2006: 97)

Using a mixture of consensus, voting and autocratic forms of decision-making throughout the projects, the teams have affected the redisplay of biology within the constraints of time, budget and quality. However, not all decisions are seen as correct by every stakeholder group but it is important to recognise that it is impossible to please everyone.

Although not every decision pleases everyone, initial evaluations from Kelvingrove and the GNM have returned favourable comments from visitors. Some articles and webpage blogs, however, have perceived the new displays at Kelvingrove and the GNM negatively. For instance, Stephen Dawber (2006: 18), a freelance arts writer and self-proclaimed 'anti-consultant', writes that 'two problems dominate Kelvingrove, each intimately related to the other: the breakdown in the presentation of the object and the absence of adequate narrative or interpretation.' He draws examples from the makeshift barriers and 'do not touch signs' and concurs with Richard Sutcliffe, Research Manager at Kelvingrove, who suggested the 'psychological barriers' were not enough to prevent the public from touching objects on open display. The lack of interpretation, which Dawber perceives as 'a persistent evacuation of layered content' does not present learning opportunities for everyone that enters the museum in his opinion. With these problems at the heart of Dawber's interrogation of the newly-opened Kelvingrove, he concludes that the museum

'constitutes yet more evidence of the evacuation of complex meaning from our public culture, a process inimical to the fostering of an informed citizenry': a dumbing down of museum messages. Dawber is particularly strong in his opposition to Kelvingrove; its philosophies and outcomes. Clearly, the decisions made to redisplay the museum's objects have not impressed this visitor. There are similar reactions to the redisplay at the GNM. In his blog titled 'Great North Museum actually Reasonably Okay Museum', Pickard contests the self-proclaimed greatness of the museum. Recounting visits from youth, he reminisces about the former displays and the lack of soul and character of the new museum (Pickard 2009).

The rather negative reviews above are not held by the majority of people visiting the institutions. By considering the identified audience groups in decision-making, the project teams have satisfied visitors with their interpretations and themes within the galleries; this has been corroborated by surveys conducted at both museums (more than 95% of visitors surveyed at these two museums are satisfied or extremely satisfied with the overall visitor experience (A. McReavy pers. comm. 6.8.2008; Tyne and Wear Museums 2009).

So although it is impossible to please every visitor that comes into the museum, the majority are being catered for thanks to the team approach in which considered decisions are made throughout the duration of these redevelopment projects.

11.2.6 Objective 6: to examine the role of the biological curator in the creation of displays

Since the development of the museum as a public institution, collections within the museum have been managed, organised and displayed by the curator (Kaptein 1997; Millar 2001). The curator was responsible for the 'exhibition framework' in which 'teamwork and collaboration were not expected' (Bryk 2001: 38). But the 21st century has seen the power of the curator shift dramatically. Curators are now considered as one 'cog' within the huge museum 'wheel' of gallery redisplay. Curators must work together with internal and external staffs to conceptualise, design and produce displays which concur with the demands of multiple stakeholders.

The research theory generated from the analytic process conceived of 'accepting change' as the core category which runs through the contemporary redisplay of biological collections. Curators, in the traditional sense, are facing extinction in civic museums where the team approach has been adopted. It is, therefore, the job of the curator to adapt his/her skills-set, whilst preserving those favourable variations which allow for the completion of redevelopment projects. Those traditionalist curators, who are not prepared to adapt and work within the constructs of the team approach, inevitably leave the project or cause conflict which stalls decision-making, communication and teamwork. In the case of the curatorial participants interviewed in this study, the acceptance of change and the preparedness to adapt their ways of working have resulted in the acquisition of numerous transferable skills; communication, teamwork, organisation, prioritisation, etc.

Whilst, of course, curators retain the power in terms of collection and subject knowledge, they do not possess specialisms in access, education or, perhaps, conservation. They, therefore, need to relinquish some of their powers to other key members of the team in order to produce displays that are balanced. They are also encouraged to gain new skills including those of team-work and effective communication.

Bryk (2001: 41) petitions curators; 'do not hold tenaciously to traditional roles; by moving outside of them you just might wander into exciting new ones you never thought about before.' Curators must embrace and adapt to change in the museum. The traditionalist curator will become extinct, a professional of the past, but the modern curator can potentially revolutionise and challenge perceived roles.

11.2.7 Objective 7: to identify the underlying themes and trends in the redisplay of biological material within the case study museums

The three case study museums share some specific characteristics in terms of themes and trends in the redisplay of biological collections; aside from the factors and process.

All of the museum redevelopments included a revised museum display philosophy. Embracing the buildings architectural features, galleries were opened up, vistas restored and circulation patterns reinstated. This allowed for

displays to be presented in a non-prescriptive order; museums are no longer dictating a 'right way' around the gallery. Visitors, as active learners, are given options and encouraged to decide for themselves. This change comes as a result of increased knowledge of visitor learning, experience and motivations.

Another part of the display philosophies for all three museums was the move to a narrative approach. Anthony McReavy (pers. comm. 6.8.2008), project manager for the Kelvingrove redevelopment stated 'we knew from the research that we had done that people learn best through narrative so we wanted to have a story-based approach'. Whilst former interpretations of specimens would include species characteristics, behaviour, habitat, etc., the new displays incorporate a range of social, historical, environmental, etc. stories. To these, visitors can bring their own knowledge, values and experience to interpret collections in new ways.

The museums have used these stories to build up multi-layered interpretations. Providing different levels of information means that the visitor is, once again, offered opportunities for decision-making. They may want to drill down through levels of information to find out more about a specimen or they may to choose to simply know its name. This is a characteristic of the post-modern museum; museums are attempting to cater for a range of identified audience groups.

In the recent past, museum redisplays have moved from didactic exhibitions heavy in the written presentation of information to a design-led presentation of specimens through 'interactives' (manual and computer). Today, the museum is striking a balance between the two. Whilst written information is important in the display of biology, concepts and scientific ideas are often best expressed through interactive installations but as Katherine Skellon (pers. comm. 15.7.2008), Senior Designer for the RAMM project said

> 'it is a balance between how best to tell the story; whether it's a good place to use it or if it's the best way to bring it alive.'

Also, interactives or hands-on installations are being used to supplement sensory experiences. Julian Parsons (pers. comm. 22.7.2008), Collections and Interpretation Manager for the RAMM redevelopment, explained that one of the interactives in the 'Insect Gallery' would challenge visitors to guess which sounds belonged to selected insects.

In addition to the interactives dotted throughout the galleries, the three case study museums also provide a space dedicated to hands-on interactions with collections and areas to continue self-guided learning; discovery centres or study zones. These interactive learning areas offer different experiences and cater for different learning styles than those in the main museum galleries. At Kelvingrove, staff are on hand to deal with visitor enquiries as well as guide people to resources and collections (J. Robinson pers. comm. 13.5.2008).

Although the museum teams follow the same process to produce the gallery designs, the outcomes are very different (S. Latimer pers. comm. 14.5.2008). They tackle different themes and stories within their galleries but they do categorise material in similar ways. For example, the division of material into native and foreign species is clearly evident in two of the three museums. The GNM divides the biological collections across two main galleries; the first where specimens are viewed through global climatic zones (Living Planet) and the second where the gallery focuses on local area case studies (Natural Northumbria). At Kelvingrove, although parts of the collection are interwoven through a range of stories in many galleries, biological specimens are found, most abundantly, in the 'Scottish Wildlife' gallery (the local angle) and 'Animal Superlatives' in the West Court (foreign specimens). The divide of material at the RAMM does not follow this format as strictly. Using the strengths of their collections they decided to dedicate two galleries specifically to biological specimens: the 'Bird Gallery' and the 'Insect Gallery'. Animals are then used to tell historical and social stories in the rest of the museum including the 'Introduction Gallery' and 'Core Gallery'.

But are there any missing themes? It seems that the three case study museums have shied away from including any overt messages about climate change, species diversity, deforestation, etc. The main argument presented by museum staff and external designers is that they are reticent to include strong, explicit messages due to the speed at which situations change. Many believed their galleries to be unresponsive to such quick changes in research and posited the study zones as the spaces where these issues would be considered. That said, it is maybe surprising that Kelvingrove in particular cannot deal with these kinds of issues within their main galleries. The flexible display system should, in theory, allow them to react to current research and changes in issues such as these.

Omissions were not only seen in the themes on display at the museum but also in the types of material on display. On the one hand, some museum team members felt that only certain types of material were 'displayable'. For instance, study skins, wet and herbaria collections were dismissed as undisplayable because of their original function as research collections or their fragility (K. Osborne pers. comm. 22.8.2008; N. McNicholas pers. comm. 10.1.2008). Others within the teams suggested that all collections were relevant for display as they could highlight the social, political and historical stories of museum acquisition and the advancement of knowledge (A. McReavy pers. comm. 6.8.2008; K. Skellon pers. comm. 15.7.2008).

11.3 Research within a wider context

This research was premised on the fact that little museological literature focuses on the contemporary redisplay of biological collections and that there has been a renaissance in biological collection redisplay over the past five to ten years spurred by investment from the HLF.

Throughout the results chapters presented in this thesis, findings have been reported and further discussed by drawing on current museological research. For instance, the move from stipulated gallery routes to non-prescriptive circulatory typologies is compared with findings from Lehmbruck's 1974 work. This research also linked with gallery placement and the work of Falk and Dierking (1992: 149) who suggested that exhibits that were closest to museum entrances gained more exposure. In light of this, the galleries in the new museums were carefully thought out with 'must-see' objects located farthest from entrances, enticing visitors through the museum.

Other museological research fed into the results of this study. One of the major findings from the research was the shift in power of the curator. Charting the role of the curator in biological collection display, the likes of Miles (1994: 256), Spalding (1999: 32) and Witcomb (2003: 108) have provided these research findings with an historical overview of constant curatorial dominance. However, recent studies (Mason 2006: 28) had surmised the 'death of the curator' as equality amongst colleagues and audience importance begins to dictate a new governance in museums. These redevelopment projects have taken the opportunity to revise hierarchical positions and redistribute power across the

museum. This is illustrated with the development from the curator-driven model as posited by Miles (1994: 252) to a teamwork model (see Figure 8.13).

Similarly, other academic discipline theories and models were used to place the findings from the research into a wider context including communication between team members in the new teamwork approach to redisplay. Drawing from communication theory (Shannon and Weaver 1949), and developing the work of Eilean Hooper-Greenhill (1999), communication within the project was explained. Realising that there are an infinite number of communications between multiple stakeholders and project team members over the course of a redisplay, the complexity of communications was simplified to a multiple receiver's transmission model (see Figure 9.9). The model posits that messages are relayed from one member to another, processed and then relayed with feedback to the original member. This conclusion hypothesises the communication in museums using the teamwork approach. Testing of this hypothesis, in museums undertaking redisplay projects, could verify or disprove the new communications model.

The findings from this research contribute to on-going debates about the process of redisplay in museums. Highlighted as particularly important in the redisplay process are the power struggles in museums, the new approaches adopted and the display philosophies underpinning new displays of biology, the increasing significance of the audience in decision-making, working with expert design companies and the lines of communication within the project team and between the wider agencies.

The research, as mentioned above, fills a gap in current museological literature by considering the contemporary redisplay of biological collections in British museums. The lack of former research into the redisplay of biological material meant that hypotheses were generated as opposed to tested (Strauss and Corbin 1998: 13). It also meant that the study could explore the factors and processes involved in redisplay without any preconceived ideas. Grounded theory was also selected for its ability to produce process theories from primary data (Glaser and Strauss 1967: 114).

Focusing on case study museums allowed for a comprehensive presentation of the redevelopment projects whilst exploring and examining the factors and

processes involved in biological collections redisplay. As Yin (2003: xi) points out, there are three main reasons for employing case studies in qualitative research:

1) to define research topics broadly and not narrowly
2) to cover contextual or complex multivariate conditions and not just isolated variables and
3) to rely on multiple and not single sources of evidence.

Data collected from the three museums, and their project team members, have been used to compare emerging threads. The uniqueness of each project was found to be driven by the uniqueness of project factors. For example, although all three case study museums had collections of biology, the specimens in the collections were unique; they had their own multi-layered identities. Therefore decisions made and stories that could be told were also unique. Whilst the process was the same for the redeveloping museums, the unique composition of factors shaped the outcomes of the project and influenced the decisions made at all stages.

Whilst this research explores many interlinking threads, both in current museological research and in other academic disciplines, there were limits to the scope of the research. For example, more work could be undertaken on visitor reactions to the new displays of biology. This research has relied on the findings of museum evaluation, which may be biased. Also, other participants could have been included, for example, HLF staff. One of the controlled variables within the case study museum selection criteria was the geographical restrictions, i.e. considering only British museums that were undertaking biological collection redisplays. Extended research may consider the factors and processes involved in biological collection redisplay in other parts of the world.

Further research would allow aspects, such as these, to be examined fully within the context of biological collections redisplay to build upon the results presented in this thesis.

11.4 Major findings from the research

Whilst the research set out to uncover the factors and processes in contemporary biological display through the study of three case study museums, the results have delved deeper into the motivations and problems, power shifts

and conflict resolutions associated with redisplay. The use of a grounded theory methodology meant that the research was guided by the participant's responses and new lines of enquiry developed (see Table 6.3 for revised objectives).

The major findings from this research are, however, clear. Firstly, factors have been identified in both the initial and main research studies (see Tables 6.1. and 6.2 and Chapter 8 respectively). Some factors have been found to impact highly upon the redisplay process; for example, the funders involved and the audience. These have all fed into the process, which is another major finding of this study. The process of collections redisplay can be divided into two categories, 1) the stages of the process and 2) the operational approach during the project.

In the first instance, the stages of the process are highly prescribed. The HLF has stipulated that all projects follow the RIBA *Plan of Work* stages. This corresponds neatly with the work practices of external designers, who favour this process of project development (E. Dugdale pers. comm. 5.9.2008; J. Williams pers. comm. 15.7.2008; K. Skellon pers. comm. 15.7.2008).

In the second instance, the operational approach has changed dramatically from the curator-driven approach to the team approach (see Miles 1994: 252). Within this new approach, the process elements of decision-making, communication and teamwork have been highlighted as imperative to successful project progression (see Chapter 9).

As a result of the acceptance of the team approach to display, there has been a dramatic shift, or transference, of power within the museum. Curators have needed to accept powers, particularly in decision-making, in order to progress with the project.

This study was predicated on the fact that there was an observed renaissance in the display of biological collections, and that it was occurring on a large scale. The permanence of these galleries is at present indefinable but they should provide visitors with 'well-designed, educational, intellectually reliable and entertaining' display for years to come (Terrell 1991: 152).

To summarise, the main results of this study are that:

- the theory of 'accepting change' was developed to encompass all findings from comprehensive data collection and analysis.
- factors feed into, define and shape the process and outcomes of biological collection redisplay. Four factors have been identified as key to redisplay of biological collections: the funders, audience, collections and team members.
- a new approach was adopted by all three case study museums: the team approach.
- the shifts in power i.e. away from the curator towards the audience, education officers, designers, conservation officers and project managers influenced the process of redisplay.
- the display philosophies, although variable, have a major influence on the gallery outcomes.
- the introduction of 'study zones' has enable hands-on, self-guided learning and access to additional specimen/species information.
- team members acquire new, transferable skills which can be employed in everyday museum practice, i.e. communication and teamwork, negotiation and compromise.

Continued research into the display and interpretation of biological collections in museums is imperative. It can contribute to wide-ranging museological discourse such as meaning-making, paradigmatic shifts towards the post-modern museum and display approaches and philosophies. Additional research could also enhance discourse around constructs including learning theories, communities of practice and communication theory in the museum.

Undoubtedly, the ability to accept change in the museum is going to allow for new innovative approaches to the display and interpretation of biological specimens and ensure their standing in regional museums for the foreseeable future.

Appendix 1
RIBA Plan of Work

Preparation	**A**	**Appraisal** Identification of client's needs and objectives, business case and possible constraints on development. Preparation of feasibility studies and assessment of options to enable to client to decide whether to proceed.
	B	**Design brief** Development of the client's initial statement of requirements into the design brief by or on behalf of the client confirming key requirements and constraints. Identification of procurement method, procedures, organisational structure and range of consultants and others to be engaged for the project.
Design	**C**	**Concept** Implementation of a design brief and input to the project brief. Preparation of a concept design including outline proposals for structural and building services systems, outline specifications and preliminary cost plan. Review of procurement route.
	D	**Design development** Preparation of a developed design to include structural and building services systems, updated outline specifications and cost plan. Completion of project brief. Application for detailed planning permission.
	E	**Technical design** Preparation of technical design(s) and specifications, sufficient to co-ordinate components and elements of the project and information for statutory standards and construction safety.
Pre-Construction	**F**	**Production information** F1 Preparation of production information in sufficient detail to enable a tender or tenders to be obtained. F2 Preparation of further information for construction required under the building contract.
	G	**Tender documentation** Preparation and/to collation of tender documentation in sufficient detail to enable a tender or tenders to be obtained for the project.
	H	**Tender action** Identification and evaluation of potential contractors and/or specialists of the project. Obtaining and appraising tenders; submission of recommendations to the client.

Construction	**J**	**Mobilisation** Letting the building contract, appointing the contractor. Issuing of information to the contractor. Arranging site handover to the contractor.
	K	**Construction to practical completion** Administration of the building contract to practical completion. Provision to the contractor of further information as and when reasonably required. Review of information provided by contractors and specialists.
Use	**L**	**Post-practical completion** L1 Administration of the building contract after practical completion and making final inspections. L2 Assisting building user during initial occupation period. L3 Post-occupation evaluation: review of project performance in use.

Taken from RIBA: London. Available from: http://www.architecture.com/Files/RIBAProfessionalServices/Practice/OutlinePlanofWork(revised).pdf (accessed 15.12.2008)

Appendix 2
Consent Form

Project Title: To explore the factors that underlie the contemporary display of biological collections in British museums.

I agree to take part in the above Bournemouth University research project. I have had the project explained to me, and I have read the Explanatory Statement, which I may keep for my records. I understand that agreeing to take part means that I am willing to:

- Be interviewed by the researcher
- Allow the interview to be audiotaped and transcribed
- Allow the researcher to use interview quotes within the thesis
- Make myself available for further interviews if necessary

Data Protection
This information will be held and processed for the following purpose(s):
I understand that I will be given a transcript of data concerning me for my approval before it is included in the write up of the research

1. I understand that I have given approval for my name and/or the name of my workplace to be used in the final report of the project, and future publications.
2. I understand that confidentiality cannot be guaranteed for information which I might disclose in the interview(s).
3. I understand that I will be given a transcript of data concerning me for my approval before it is included in the write up of the research.

Withdrawal from study
I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

Name:.....(please print)

Company:…….. (please print)

Signature: ..... Date:.....

Arts & Humanities Research Council

Appendix 3
Explanatory Statement

Explanatory Statement

The research project is being conducted by Hannah Paddon, PhD research student, and supervised by Prof. Mark Brisbane, Museum Lecturer for the School of Conservation Sciences, at Bournemouth University. The research is funded by the Arts and Humanities Research Council (AHRC).

You have been invited to participate in this research because you are involved in the redisplay of the collection of biology at a chosen case study museum for this project.

The aim of this research is to explore the factors that underlie the contemporary display of biological collections in British museums.

The findings of this research will be used to develop the theories and assumptions in museological research pertaining to the display and interpretation of museum collections, with a particular focus on biological collections. This will benefit both the museological community and the design communities.

The study will involve interviewees completing a semi structured, open-ended interview relating to the museum, the biological collections held at that case study museum, the audiences identified at the museum and the design processes involved in the development of a new biological gallery. The interviews should take no longer than approximately 1 hour. They will then be transcribed and sent back to the interviewee for approval.

Participating in this research project should pose little to no risks outside your normal daily activities. However, given that your participation requires you to respond to questions about the museum, the biological collection and the specifics of the design process, you may feel that such questions are of a sensitive nature. Alternatively, you should feel free to contact Prof. Mark Brisbane (see contact details below), who is the primary supervisor for this research project.

Participation in the study is voluntary and you are under no obligation to consent to participate.

Interviews and interview transcripts will be kept in electronic form on computers with password entry only and will not be given, under any circumstances, to third parties.

The findings of this study may be reported in journal articles, student reports (i.e. theses) and conference presentations.

If you would like to be informed of the aggregate research findings, please contact Hannah Paddon on 07816 132914 or hpaddon@bournemouth.ac.uk

Signed: …….. (Prof. Mark Brisbane)

Hannah Paddon
C232, School of Conservation Sciences
Bournemouth University
Talbot Campus
Fern Barrow
Poole
Dorset, BH12 5BB

Prof. Mark Brisbane
C213, School of Conservation Sciences,
Bournemouth University,
Talbot Campus,
Fern Barrow
Poole
Dorset, BH12 5BB

Appendix 4
Semi-Structured Interview Schedule

Introductory

1. What is your job title?
2. What is role your in the project as curator/ designer/ education officer etc?
3. How long have you worked as a curator/ designer/ education officer etc?
4. At what stage/s of the project were/ are you involved?
    a. How does communication within the team work?
5. How is/ was the current redisplay (being) funded?
6. Who are the key stakeholders (or interested parties) in this project?

The Museum

1. When was the museum established and opened?
2. How many people visit the museum each year?
3. What are/ were the projected figures for visitors after the redevelopment? (have they been achieved? – Kelvingrove)
4. Is the building listed? If yes, are/ were there any constraints on the gallery's' design?
5. Does/ will the layout of the museum dictate a specific order of viewing/ route around the galleries?
    a. Do you think this a good thing?
6. Where is/ are the biology gallery/ galleries located in the current/ old/ new museum layout?
    a. Does this, in your opinion, affect how the audience behave in the gallery?

Design

1. How is/ was the collection displayed (before the redevelopment)?
    a. What interpretation was used in the gallery?
    b. Was the gallery well-lit?
    c. Were there any dioramas?
    d. Were there any text panels?
    e. What information was given about the specimens on the labels?
2. Have you been involved in the design or interpretation of a biology gallery before? If yes, when, where and in what capacity?
3. What was the initial design brief for the biology gallery?
    a. Who composed the brief?
4. Were the themes or subthemes for the gallery/ galleries written into the design brief?
5. How do you feel the display and interpretation of biology has changed in the last ten years generally?
6. What are the current trends in museum gallery design?
7. Is there an overarching theme to the gallery/ galleries? If so, why and how was this theme chosen?
    a. Also, do you think this is/ will be apparent to the audience?
8. How long is the gallery display expected to last? I.E. its longevity
9. Does the gallery have a design theme? Colour scheme, font size etc?
10. What forms of interpretation and multimedia are (going to be) used?
11. How many interactives will be/ are used in the new displays and what form of interactive do these take?
12. Does/ will the new gallery consider any local, national or global issues?
    a. If so, which ones?
13. Were there any topics or themes for the new gallery/ galleries that were omitted? If so, what were they and why?
14. Can you explain how the decision-making element of the project works?
15. Who makes the final decisions about the design of the gallery/ galleries?

16. Have there been any drivers in the display and interpretation of the gallery/ galleries, for example, government policies or your own museum policies?
17. Do you think the media influence the themes in the display of biology? If so, how?

Collection

1. How large is the collection of biology at this museum?
2. Who owns the collection of biology?
3. Is the collection of biology Designated, Significance or does it have any particular strengths?
4. Do you think the type of biology (skeletal, spirit, dried, taxidermied) influences the design and interpretation of a gallery?
5. Do you feel that there are any aspects of the collection that do not lend themselves to display in the museum?
6. When was the last redisplay of biology at the museum?
7. Did/ have you design(ed) the theme of the gallery from your existing collections or did/ have you decide(d) on a theme and source(d) specimens to illustrate it?
8. Are there any themes/ topics in biological research at present? If so, what are they and are they presented in the new gallery?

Audience

1. Who were the key audiences before the redevelopment of the museum?
    a. How did they perceive the previous biology gallery/ galleries?
2. Who were/ are you aiming the new gallery/ galleries at? (How are the new galleries perceived now? – Kelvingrove)
3. Was any front-end evaluation conducted by museum staff or external consultants? If yes, what were the outcomes?
4. Did/ have you test(ed) your ideas on different audience groups during the redevelopment project?
    a. What were/ are the outcomes?
5. How did/ do the audience perceive the gallery?
6. If any, what are the educational goals of the gallery/ galleries of biology?
7. In your opinion, what information should be included, if any, on a specimen label?
8. With regards to the DDA, what physical access issues are tackled and what intellectual access issues are tackled?

Given the opportunity, is/was there anything you would do differently?

Appendix 5
Ice-Breaker Interview Images

Image 1

'Explore Nature' Gallery

Plymouth City Museum and Art Gallery

Image 2

'What on Earth!' Gallery

Weston Park Museum, Sheffield

Image 3

Starling diorama

Manchester Museum

Image 4

'Worlds Alive' Gallery

Sunderland Museum and Winter Gardens

Image 5

'Nature' Gallery

Royal Cornwall Museum, Truro

Image 6

'Animal Life' Gallery

Manchester Museum

Image 7

Elephant diorama

Unknown American museum

Image 8

La Grande Galerie de L'evoluton

Muséum national d'Histoire naturelle, Paris

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