How have natural history collections in case study museums in Southwest England evolved in terms of display and interpretation?

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This was a dissertation submitted as part of the requirement for the degree of Master of Arts in Museum and Collections Management at the School of Conservation Sciences, Bournemouth University

For ease of reference, the accompanying diagrams have been reproduced at the end of the text to allow them to be as large as possible.

Abstract
This paper introduces research undertaken for a Masters dissertation at Bournemouth University in 2005. With a focus on local authority museums in Southwest England, displays and the interpretation of natural history have been recorded and comparatively analysed in order to trace their developments since the Victorian period. Methodologies employed during the data collection stages are explained along with a synopsis of each objective achieved. The results include the modelling of trends in natural history display and the changing emphasis of importance placed on these museum collections. Finally, the limitations and conclusions of the research are drawn together, highlighting the need for targeted research on natural history collections across the country.

Introduction
The NatSCA Annual General Meeting 2007 was the first natural history focused conference I had been to. It was refreshing, if not exciting, to meet people who shared the same interest as me. Work on my doctoral research, currently titled 'The use of biological collections: an examination of modern redisplay of biology in British museums', began in October 2006 at Bournemouth University, thanks to an AHRC-funded scholarship. The precursors to the ideas for the research were grounded in my Masters dissertation. This paper therefore, is a brief overview of my previous research as a Masters student.

In 2005, I began a year-long Masters degree in Museums and Collections Management at Bournemouth University, where I was given the opportunity to conduct empirical research on a subject of my choice. I chose to explore the evolution of natural history display, from the Victorian to the modern day period, with a focus on the Southwest of England. The study addressed the evolution of natural history display with a particular focus on four local authority museums in Southwest England; Plymouth City Museum and Art Gallery (PCMAG), Bristol City Museums and Art Gallery (BCMAG), the Royal Albert Memorial Museum, Exeter (RAMM) and the Royal Cornwall Museum, Truro (RCM).

Using primary sources; museum archives, follow-up interviews, qualitative questionnaires and gallery surveys, it was possible to examine and understand the display and interpretation of natural history collections. These sources were combined to give the study a substantial museological and historical grounding. The study highlighted the lack of modern literature relating to the display of natural history, although there are substantial works relating to other aspects of natural history and to display in general. No studies had concentrated on local authority museums in the Southwest of England making this particular study essential and unique.

One of the key findings from this study was that of a trend in the development of natural history display and interpretation. This resulted in the production of pictorial timelines and a model to illustrate the changing trends in natural history display. The model could be used as a hypothesis for further research in Britain and elsewhere. The study highlighted the importance of natural history collections and provided an opportunity to suggest ways in which the subjects profile could be raised, for example, through gallery displays, publications and lectures for both members of the public and museum professionals. Overall, the project shed new light on the display and interpretation of natural history in Britain, illustrated by case study museums in the Southwest England.

Aims and Objectives of the study
The overarching aim of this research was to examine and understand how natural history collections in case

study museums in Southwest England have evolved in terms of display and interpretation.

The study investigated and described the evolution of natural history displays and then applied this model to the four chosen case study museums. Most of the collections within these chosen museums were not brought together until the Victorian period, which saw the introduction of the Museums Act of 1845 '[empowering] local authorities to set up and maintain museums' (Stansfield et al. 1994: 7). For this reason, the study concentrated upon and traced the development of their displays from this period onwards. The objectives for this study were to:

1. trace the developments in the display of this material, focusing on the Southwest region of England since the Victorian period
2. analyse the factors that affected the way in which natural history has been displayed and interpreted
3. examine the likely impact of current and future trends in display on those natural history collections
4. undertake the recording of data about natural history displays nationwide, with particular in-depth focus on the Southwest of England

Methodology

The initial research was focused on a multiple case study approach, whereby research using various sources of information (Creswell 1998: 61) – relevant literature, gallery surveys, archival documents and photographs – were employed. To compliment this study, follow-up interviews with museum curators were undertaken to obtain in-depth opinions relating to the main questions being tackled in the research. Using these qualitative methods, it was possible to gain rich, real data giving not only depth but also breadth of the research and its findings (Hart 2004: 393).

Relevant literature contained ideas of changing displays through time (Whitehead 1970 and 1971) and the 'architecture' of those displays (Yanni 1999), thus leading to the production of pictorial timelines. This empirical research, accompanied by reading across the broad topic and the archival material available, was the underlying rationale for the case study approach.

1) Archival research

In order to build a holistic view of the case study museums, it was necessary to delve into the records held at each of the institutions. This detailed research was carried out over a number of months from the conception of the idea onwards through the analysis stages.

Museum guidebooks and early committee reports were employed to gain an overview of the museums' origins, alongside the origins of their natural history collections. In researching these histories, extensive knowledge was gained of past curators, the changing roles of the museums and the innovative and often original ideas emerging in these institutions. One such idea was the novel way of displaying fresh flowers on a tiered plant table during the summer months of 1937 at PCMAG (Carter and Cumming 1937: 371-2).

Often the archival records were forgotten boxes of papers ranging from annual reports and communications to museum plans and roughly-sketched ideas. This archival research led to the review of the entire back catalogue of the *Museums Journal*, originally known as the *Museums Associations Journal*. This recorded the small and larger changes to the Southwest natural history galleries particularly PCMAG, BCMAG and the Royal Albert Memorial Museum. The use of this primary data in this empirical research was 'a means for describing and attempting to understand observed regularities, patterns, commonalities and/ or themes' (Fitzpatrick *et al.*1998: 22).

Whilst collecting and collating archival documents, the natural history curators and other interested employees, unearthed photographic representations of the galleries in former years. Using this photographic evidence, it was possible to plot the changes in the types of casing, lighting, layout and taxidermy in the displays, all of which have evolved over time. This evidence made possible the production of a timeline for the development of the natural history gallery in the case study museum.

Along with photographic evidence original samples of lecture flyers used to advertise the lecture programmes within the PCMAG were discovered as well as original display labels from the natural history gallery. These labels are thought to date from the 1940s, typified by the language and fonts used. PCMAG and BCMAG retained records of previous natural history gallery displays and extensive plans (and failed

plans) for new installations. This wealth of archival material underpinned the analysis of changing trends to natural history galleries.

2) Survey of museum natural history galleries

Blaxter *et al*. (2001) explain that there are two forms of survey; those that involve people and those that don't. The survey conducted on the chosen natural history galleries does not involve people i.e. 'when the subjects which are being questioned by the researcher are really objects: materials or artefacts rather than people' (Blaxter *et al*. 2001: 77). This qualitative, primary data gives an in-depth, descriptive account of the survey subject which when analysed can 'take the reader into the setting that was observed' (Patton 1990: 26).

Other forms of data collection were rejected for such an in-depth study. These included questionnaires to appropriate members of staff or reading gallery guides (where available). It would have been less reliable and not necessarily based on up-to-date information and observations. It would also not allow for any additional aspects that could be added by the researcher whilst conducting the first-hand survey.

With the research questions in mind, it was clear that conducting a survey on the chosen museum galleries would help to answer one of the main research objectives: to record in-depth data about the natural history displays in the Southwest of England. The museums chosen for the survey were the foci museums because they are substantial and exhibit variations of systematic, thematic and interactive displays. These museums, run by local authorities, are an important focus of the in-depth Southwest England research.

Prior to visiting these galleries it was necessary to consider the specific aspects and elements which make up a gallery. A diagram was produced to ensure that all of the elements were noted during the surveys (see Figure 1, at end or text). This structured, standardised research diagram (Blaxter *et al*. 2001: 176) was produced to allow comparisons and analyses across the museum galleries and to 'avoid the varying quality of [data]' (Hart 2004: 357). The surveys, due to the size of the galleries and the range of elements that needed to be recorded, took between two and three hours to complete.

The observational surveys brought to light new questions about the displays of natural history. It was these findings, coupled with the archival research, which led to further research being undertaken for this project. These surveys have been fully illustrated by photographic evidence and accompanied by important museum sources such as plans and original display features.

3) Follow-up interviews

Brief interviews with the curators of the PCMAG and BCMAG, were undertaken to pose more in-depth questions about the gallery displays. PCMAG keeper, Helen Fothergill, was a major part of the design team for the museums new natural history gallery whereas BCMAG curator, Sam Trebilcock, has inherited the natural history galleries in the hope of being able to redevelop them in the near future. The interviews were conducted during the data collection process at the museums and sought to record the personal feelings of the curators along with their understanding of the history of the natural history displays and collections. The questions for these interviews arose after analysis of the archival documents and the surveys of the galleries.

4) Further research

Owing to the nature of qualitative data, analysis in the first stages of research revealed a trend (Creswell 1998: 56). From this emerging trend, it was possible to form a proposition based on the data from the case study museums. This proposition nestled closely with the research aim of tracing the developments in the display of this material, justifying the need for continued research.

Until this point, the research material had focused on the Southwest of England and it was felt that there was a need to examine natural history collections across the country if possible. In order to test this new proposition it was necessary to develop a questionnaire that could be sent to natural history curators nationwide.

A standardised questionnaire (Appendix 1) employing open-ended questions was designed and piloted on the research supervisor (Swetnam 1997: 50 and Patton 1990: 295-304). This would again 'avoid the varying quality of [data]' (Hart 2004: 357). The questionnaire design would be guided by the initial research and the original research questions. The questionnaire design would be guided by the initial research and the origi-

nal research questions. The use of open-ended questions promotes a 'variety of responses' from the respondent (Swetnam 1997: 50-1) providing rich, meaningful, qualitative data (Fitzpatrick et al. 1998: 29). Closed-ended questions were discounted as they afford bland, sterile answers (Swetnam 1997: 50-1). The only feasible option for gathering such large amounts of real data, in a short time, was a qualitative questionnaire.

In order to distribute the questionnaire to nationwide museums with natural history galleries, it was necessary to retrieve their gallery and contact details from a reliable source. The databases on the '24 Hour Museum' website (www.24hourmuseum.org.uk) was searched for museums with natural history collections. This website was established by the government Department for Culture, Media and Sport (DCMS) and the Museums, Libraries and Archives Council (MLA) as an independent charity (24 Hour Museum 2005: 1 page). The exact term entered into the website search engine was 'natural sciences' as there is no term 'natural history'. This search generated 507 museums with such collections but it was realised that there were some falsities with the search:

1. the search term 'natural sciences' included geology collections, which were not a consideration of this study
2. the search located museums with natural science collections, it did not specify galleries, so it was also recognised that not all of the museums would have natural history displays
3. 'museums' in the form of historic houses, nature centres and planetariums etc were discarded, the study was limited to *bona fide* museums

Taking these points into account, the total number of true museums with natural history collections was expected to be approximately 50% of the total search results. The amount of collections on display was anticipated to be around 50%.

The self-completed questionnaire was sent to the museums via email as it deemed that this would be the bet way to administer a nationwide survey. Table 1 illustrates the advantages of using an email questionnaire.

Criteria	Internet Questionnaire
Cost	*Very low*
Speed of data collection	*Fast*
Ability to reach geographically dispersed segments	*Very high*
Hard-to-recall data obtainable	*Good*
Respondent anonymity	*Possible*
Interviewer bias	*None*
Need for interviewer supervision	*No*
Response rate	*Moderate*

Table 1 Advantages of the Email questionnaire method. Source: adapted from Frazer and Lawley 2000: 3

The final question on the questionnaire asked museums whether they would supply photographic or addi-

tional information that would be of value to the research. The electronic format facilitated the ease of transfer between the institution and the researcher, to the study write up. Some of the museums in the search had no contact details other than an address and/ or telephone number. These museums were contacted via telephone in order to determine whether they had a designated natural history gallery. In either case, an email address was recorded and the museums were sent an electronic copy of the questionnaire. The final number of museums contacted was 221, 211 of these were contacted via email with the remainder contacted initially via telephone and followed up with electronic correspondence.

Results

Plymouth City Museum and Art Gallery
The strong photographic evidence uncovered at the PCMAG allowed for the assembly of a case study timeline. The timeline traces the development of natural history display in the PCMAG from the Victorian period to the present day. The photographic evidence is accompanied by written information taken from various museum sources and personal thought. (If you would like a copy of the Plymouth City Museum and Art Gallery timeline, please contact me).

Southwest England: remaining case study museums
Using surveys of the current natural history galleries of PCMAG, BCMAG, RAMM in Exeter and the RCM in Truro, it was possible to create a comparative table of all four local authority museums natural history galleries. The qualitative, primary data was collected using the criteria as defined in Figure 1. This included issues such as labelling, lighting and types of display. By asking set questions of each gallery it was relatively straightforward to compare and contrast findings for data analysis. Photographic evidence was also taken during each gallery survey.

British museums: questionnaire responses
As explained in the methodology chapter, the focus on Southwest England within the research was limited to testing four case studies. In order to distribute the questionnaire nationwide a standardised, open-ended format was produced and sent via email. This questionnaire recorded a wide variety of responses providing rich, meaningful, qualitative data (Fitzpatrick *et al*. 1998: 29).

The final number of museums contacted was 211. At the end of the questionnaire, respondents were invited to make any further comments that they felt might be of use or interest to the study. Some took the opportunity to include photographs, rough ideas for future redisplays and supporting websites to gain more detailed information where possible. The amount of photographs submitted meant that a comprehensive pictorial timeline charts the trends in the design of natural history displays from the Victorian period to the present day and enables the reader to identify particular periods of interest where necessary.
(If you would like a copy of the British museums timeline, please contact me).

Discussion
The aim of this research was to examine and understand how natural history collections in case study museums in Southwest England have evolved in terms of display and interpretation. In order to accomplish this, four objectives were identified at the beginning of the study. These were:

1. to trace the developments in the display of this material, focusing on the Southwest region of England since the Victorian period
2. to analyse the factors that affected the way in which natural history had been displayed and interpreted
3. to examine the likely impact of current and future trends in display on those natural history collections and
4. to undertake the recording of data about natural history displays nationwide, with particular in-depth focus on the Southwest of England

Objective 1
This important objective was accompanied by identifying case study museums in the Southwest with a particular focus on PCMAG.

Rich photographic evidence, accompanied by archival and journal research, was presented as a series of surveys for comparative analysis. The timeline focused on the history of PCMAG natural history displays with details of the galleries after each development.

Developments in natural history display were also traced across the Southwest by carrying out detailed surveys on local authority case study galleries. These surveys were comparative as the same factors were analysed at each gallery. Evidence of display practices at different stages throughout the last 100 years was recorded and the data was presented in tabulated form.

Finally, questionnaire responses from nationwide museums were used to gain a broad picture of the British development in natural history display but could also be used to further back findings from the Southwest case study museums. These British findings were presented as a comprehensive pictorial timeline.

From the research a flow diagram (Figure 2) has been produced to illustrate the distinct changes to natural history displays since the Victorian period. Although the flow diagram shows a move away from taxonomic/ systematic displays in the 1920s, some museums retain the original installations from the Victorian period, for example, the Sladen Gallery at the RAMM. These galleries act as museums within museums and record the display of natural history in former eras.

In-depth gallery surveys were conducted in PCMAG, BCMAG, the RAMM and the RCM natural history galleries, the results for which were shown in the tabulated analysis. Comparisons can be drawn from the galleries. For example, all of the main natural history galleries in the Southwest of England are located on the ground floor of the museums. This may be due to the design of the building or the size of the gallery itself. However, there may also be a link between gallery location and visitor popularity. Helen Fothergill, keeper of natural history at PCMAG explained that their natural history gallery is the 'most popular gallery with family groups' and points out that 'natural history galleries and exhibitions nationwide [have] consistently attracted the widest audiences from 'A's to the 'holy grail' of 'C2's, 'D's and 'E's (H. Fothergill 2005: pers. comm.). (NB: talking about social inclusion groups).

Objective 2
The development of natural history displays since the Victorian period is due to a number of factors. It is important to identify those factors. Figure 3 illustrates the main and subsidiary factors affecting natural history display and breaks them into two categories, external and internal factors. External factors are usually out of the control of the museum, whereas the internal factors are direct effects of the museum governors, professionals and even the collections themselves.

Objective 3
Hub funding, from the 'Renaissance in the Regions' project, is funding nearly all local authority museum natural history galleries in Southwest England. Most have undergone or will undergo gallery redisplays in the future. This funding accompanied by Heritage Lottery Fund (HLF) money and in-house budgets has revolutionised natural history collection displays.

PCMAG redisplayed their natural history collections in 2004, largely funded by money from the HLF (H. Fothergill 2005: pers. comm.). This new gallery combines basic interactive games, multi-sensory activities and an inviting atmosphere with the re-interpretation of specimens from the collections. Similarly, the RAMM plans to redisplay their collections within the museum. This project is on a larger scale than that of the PCMAG whereby most of the museum galleries are being redisplayed. David Bolton, Curator of natural history explained that '[RAMM] are embarking upon an exciting venture to create a new museum which will incorporate all the most up-to-date methods of displaying and interpreting museum collections' (D. Bolton 2005: pers. comm.). This £15 million project is being funded by the HLF, Exeter City Council and a fundraising effort by the museum itself. (See figure 3).

With the influx of cultural funding to the Southwest, natural history galleries are now becoming innovative, inviting spaces of interactivity and informal learning. This study has traced the development of natural history galleries, particularly concentrating on displays since the Victorian period. Tracing the display history has illustrated the reflection of fashions in each distinctive period. For example, the starkness of 1940s natural history displays in comparison to the somewhat overwhelming presentations of the Victorian and Edwardian periods.

Common technology installations in natural history galleries include microscopes. These are often linked to screens for easier viewing. Many museums in the survey included these types of technology as a means for

visitors to examine specimens more closely. However, it seems that one natural history 'hands-on' favourite will always remain; the touchy-feely specimens, for example, skins, furs and skeletons are displayed allowing the visitor to come into direct contact with the specimens. These types of hands-on activities are relatively low cost and incorporate sensory access for all, particularly for those with sight disabilities.

The move, in recent years, to incorporate high-tech gadgets and interactives seem to have been received with mixed reactions. For many curators there are doubts about learning associated with using computers as the main sources of information. Helen Fothergill, keeper of natural history at PCMAG points out that '[natural history] seems to be focusing on computer-based information sharing…but only one person can gain anything from this at a time'. It is also reliant on visitors being able to confidently use computers and also that the technology will always be working.

The current fashion of high-tech natural history galleries could remain in British museums for many years however, in the opinion of Helen Fothergill goes further to say, 'I think there will be a reaction to the whizzy hi-tech or specific target audience galleries and a re-focus on all-inclusive object rich spaces filled with little gems you need to search out' (H. Fothergill 2005: pers. comm.). To a certain extent this is already happening but many museums and curators seem to be heralding the arrival of high-tech gadgets to their natural history galleries. There needs to be a balance between the high-tech aspects and the simple viewing of specimens so as not to distract or detract from the objects themselves. If not could there be further moves towards virtual galleries and a rejection of the 'real McCoy'?

One of the major points highlighted by this study was the push towards inclusivity and access for all. It also became apparent that most funding is appointed for education in galleries in fact Alison Armstrong, Natural Sciences curator for Bradford Museums suggests that 'all funding today is in 'education' in then broadest sense so that drives the direction museums and displays go in' (A. Armstrong 2005: pers. comm.). A focus on the National Curriculum in new displays has led to alternative themes for natural history galleries as with PCMAG. There has also been:

> 'more pressure to respond to ethical, environmental and conservation issues and 'excuse' the use of dead animals (even though this does not seem to be a real issue with the visiting public' (H. Fothergill 2005: pers. comm.).

It is also apparent that there are pressures from those who fund the displays. If these funds come from private individuals and corporations they often have an impact on what is expressed in galleries. Unfortunately, this often leads to biased views:

> 'As there becomes a greater need to cover costs, corporate sponsorship of galleries will push interpretation and the use of collections in specific directions' (H. Fothergill 2005: pers. comm.).

When considering all of the aspects involved in the display and interpretation of natural history, it is clear that the future of these displays rest upon multiple factors. Whether the curator has the final say in the redisplay process or the type of specimens govern the displays. It is certain that the developing technological world and sources of funding will have a tremendous influence on the presentation of collections in the future.

Objective 4

The Southwest of England has a number of local authority museums but there were four chosen for this study; PCMAG, BCMAG, the RAMM and the RCM. These museums make up four of the five hub museums in the Southwest and all contain natural history galleries.

A standardised questionnaire was sent via email to all British museums with natural history collections. The research gathered from these museums illustrated definite trends in the display and interpretation of natural history collections. From the archetypal Victorian display which is found at the RAMM to the modern, interactive display at the PCMAG. The archival data at the museums highlighted the influence of fashions and more importantly the personal opinions of the curators, on the display of natural history collections.

The ultimate results of the research were the development of a trend model (Figure 2) and the production of two timelines, the first produced from PCMAG data and the second from the Southwest England and British museums data.

Out of 211 galleries approached with the questionnaire, surprisingly only 39 of the respondents had designated natural history galleries but from these respondents, valuable information was retrieved. For example,

it was possible to gauge when the last redisplays took place and who had funded the projects. This important data highlighted a change in museum funding and explained the recent surge in natural history gallery redisplay. It also backed regional findings i.e. many have been or will be funded by HLF or hub money, and suggests one reason for the planning of future redisplays. This data was then transposed onto a map of the British Isles for analysis. It was extremely interesting to note that local authorities ran more than 75% of those museums with natural history galleries. This finding further backed the decision to concentrate the in-depth study on local authority-run museums in the Southwest.

The nature of the questionnaire allowed respondents to add as little of as much information as desired. Some respondents returned their questionnaire with photographs of their natural history galleries and gave more detailed descriptions of the changes to displays over the years. These extra pieces of information formed the basis of the British timeline, a pictorial record of natural history display and interpretation from the Victorian period to the present day. Personal thoughts and observations of the changing trends in display and interpretation were added to give support to the photographic representations.

The British data highlighted the importance of local authority museums in the preservation, conservation and continued display of natural history. Many respondents added that their museums once had natural history galleries but these have given way to other departments and supposedly 'more popular' subjects.

Limitations

In hindsight, there were a few limitations in this study. These limitations were the methods used in identifying the museums to survey across Britain and the time frame for the case study museum research.

A standardised, open-ended questionnaire was designed for distribution to all British museums with natural history collections. In order to forward the questionnaires to the correct museums it was necessary to retrieve data from a reliable source. The 24 Hour Museum website (www.24hourmuseum.org.uk) was employed as the only source for collecting data. In retrospect, it would have been useful and more reliable to double-check the museum collections using the Museums and Galleries Yearbook, produced annually by the Museums Association.

The questionnaire would have benefited from the addition of one question: *How will display and interpretation of natural history change in the future?* This would have allowed for comparison amongst professionals and could act as an opportunity for further study. It would be interesting to compare the thoughts of curators in local authority museums and university museums. These museums often have different agendas, for example, university museums are typically aimed towards researchers and those undertaking higher education whereas local authority museums must cater for all visitors.

Time permitting, it would also have been useful to spend more time researching the case study museum archives. As with most museums, the archives were vast and proved to be of great use. They charted the history of the collections along with some of the personal thoughts of the curators and keepers of the past. It would also have been useful to conduct further, fuller interviews with the curators and possibly other museum staff such as designers, educators and managers. This would have given a more holistic view of natural history display and interpretation whilst viewing it from another angle.

Conclusions

The first major finding from this study was the trend in display and interpretation. Using the information gathered from the South West case study museums, and by further backing these findings with the data gathered in the questionnaires, it was possible to trace the evolution of natural history display from the Victorian period through to the present day. As a consequence, two pictorial timelines were produced; the first using specific data information from the PCMAG and the second incorporating illustrative examples of typified galleries in British museums throughout the period. The study found that there were distinct periods of display design and influencing fashions that dictated these galleries. The Victorian period focused the presentation of specimens on systematic sequences with little interpretation simply basic, descriptive information. In the 1920s there was a move towards habitat displays particularly in the form of dioramas. The 1950s and 1960s saw overcrowded galleries becoming stark with a focus on environmental and topical issues. Presentations of natural history collections in the 1980s were typified by dark galleries including backlit photographs and text panels. Modern day galleries include themes loosely based around the National Curriculum and interactive activities to aid learning. Most museums involved in this study fitted the trends model (Figure 2). The model was formulated to illustrate the trends in natural history display and interpretation across the case study museums but could also be used in further study. It would be possible to use the

model to test the trends in museums across Britain and elsewhere.

The second major finding was that of the low number of museums with designated natural history galleries. Standardised questionnaires were sent, nationwide, to museums listed as having natural science collections. The second question asked: 'Does your museum have a natural history gallery?' Surprisingly, only 39 of the 129 respondent museums retained a designated natural history gallery. Of the remaining 129, only eleven museums included natural history specimens in other galleries with 79 museums having no natural history on display at all. Some curators commented that the galleries and natural history collections were 'rationalised' due to the difficulties of sorting and conserving such collections and the fact that 'the collections do not lend themselves to permanent display' (M. McGinnes 2005: pers. comm.).

With so many British natural history galleries being disbanded or 'rationalised' many questions arose. Where do members of the public go to view such specimens? How will environmental and topical issues be addressed without the aid of natural history specimens? How will research into collections be carried out if they no longer exist? The history of natural history collections in individual museums should be researched and recorded fully before any attempt is made to dispose of these irreplaceable collections. Without these collections, either on display, in store, or ideally as hands-on interpretative galleries, the link that museums could and should have with learning, schools and the national curriculum in the area of science in general or natural history in particular would be weakened.

Figure 4 'Collectors Corner' at the PCMAG 2004
Source: reproduced with permission of PCMAG 2005

There is a genuine need to recognise the importance of the archival evidence held at museums especially within natural history departments. These records often chart the development of the galleries, displays and the collections themselves. Nationwide or regional projects could be set up to record in-depth details of natural history collections and their origins. These records could be used to contribute towards modern displays of early naturalists associated with local areas or events held at the museum in the past. For example, PCMAG has installed a 'collectors corner' (Figure 4) using lecture advertisements from the 1910s and information about the collectors that have donated their collections to the museum. This is incorporated into the theme, 'Collecting Nature'.

In addition, the recording of in-depth natural history data on a national scale could lead to the increased profile of natural history as a subject within both the museum profession and with members of the public.

Societies such as Natural Sciences Collections Association (NatSCA) and the Society for the History of Natural History (SHNH) promote the use and conservation of natural history collections with aims to '[act] as an advocate, [provide] training and [promote] best practice' (NatSCA 2005: 1) and are 'devoted to the history of botany, zoology and geology in the broadest sense' (SHNH 2005: 1). These societies act as forums to which natural history professionals, and indeed amateurs, could express their views and make valuable contributions. Moreover, conferences and seminars that focus on natural history could incorporate collecting and present day natural history collections. As mentioned previously, the topic of former collectors and the profile of natural history in the past would make for interesting presentations within natural history galleries. This could encourage a greater focus 'on the history of the collections & collectors' (H. Fothergill 2005: pers. comm.).

Overall the profile of natural history as a subject needs to be raised. Members of the public are often unaware of the vast collections of specimens held in storage or the history behind them. Some of the collections held in museums are of tremendous significance and were collected by prolific naturalists. Without recognition from museums nationwide, through gallery displays, publications and lectures, the profile of natural history will diminish.

This study sought to trace the development of natural history display and interpretation in the South West of England. By considering the key objectives, including the analysis of factors affecting natural history display, the research produced a number of interesting findings. These findings highlight the need for further targeted research into natural history collections, their display and interpretation.

Acknowledgements
I would like to thank: Prof. Mark Brisbane (School of Conservation Sciences, Bournemouth University) for his endless support, direction and enthusiasm; Helen Fothergill (Keeper of Natural History, Plymouth City Museum and Art Gallery) and Kelly Dilks (Assistant Keeper of Natural History, Plymouth City Museum and Art Gallery) for their help and patience during research at the natural history department; Sam Trebilcock (Curator of Biology, Bristol City Museum and Art Gallery) for her time in discussing natural history redisplay at Bristol; David Bolton (Curator of Natural History, Royal Albert Memorial Museum, Exeter) for his correspondence; Sara Chambers (Curator of Natural Science, Royal Cornwall Museum, Truro); Bill Grange (Ex-Curator of Natural History, Derby Museum and Art Gallery) for his valuable comments and responses to the questionnaire and Michael Cooper (Registrar, Nottingham City Museums and Galleries), Alison Armstrong (Museums Officer for Natural History, Bradford Museums Service), Angela Houghton (Reading Museum Service) and Eliza Howlett (Oxford University Museum) for providing photographs, presentations and detailed information about past and present displays of natural history.

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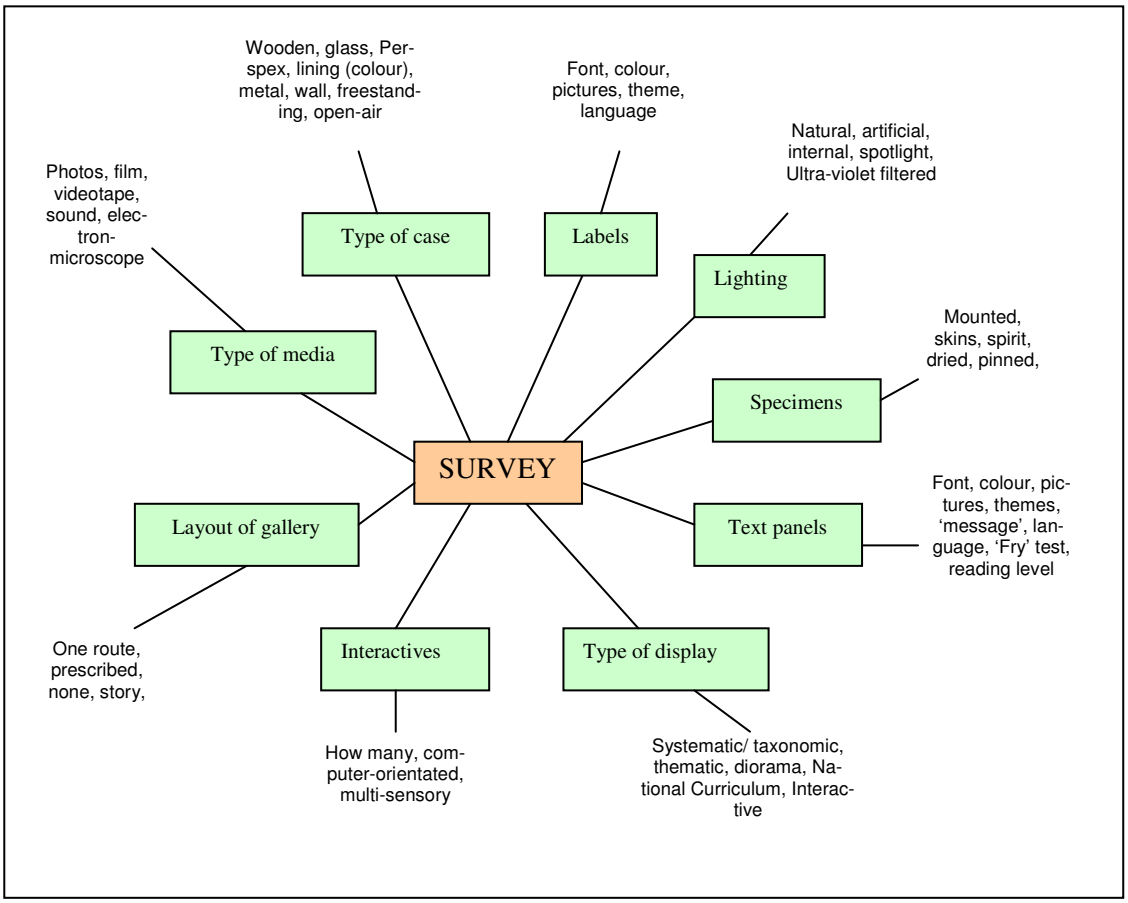

Figure 1 Mind-map of natural history gallery survey elements. Source: H Paddon 2005

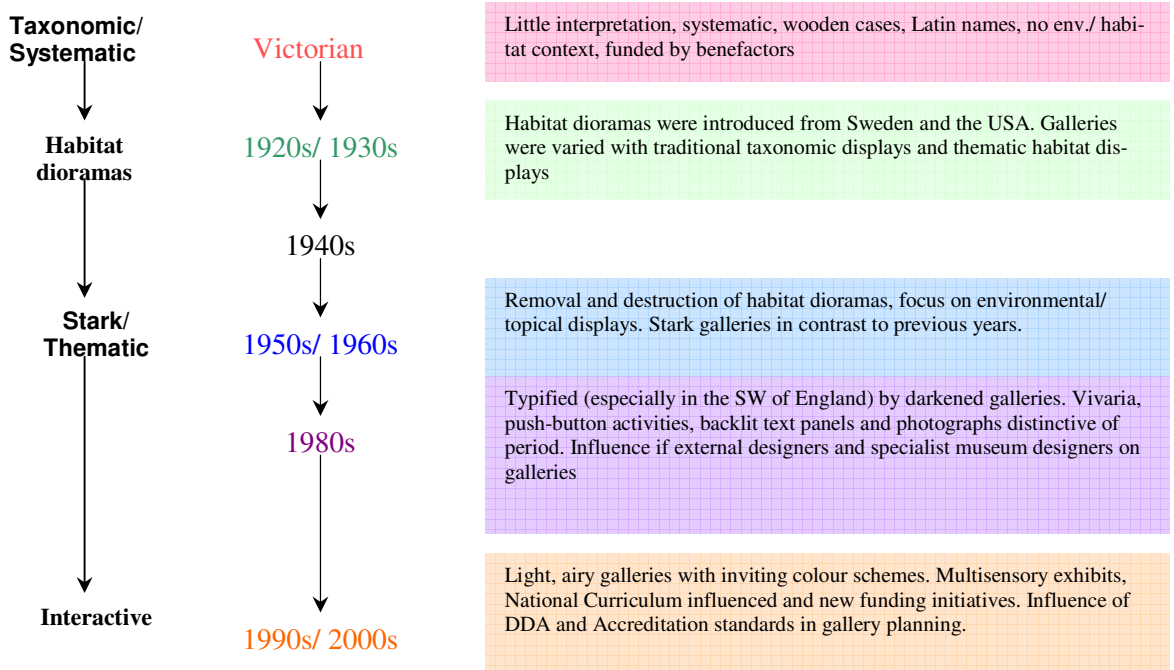

Figure 2 Natural history display development from the Victorian period to the present day. Source: H Paddon 2005

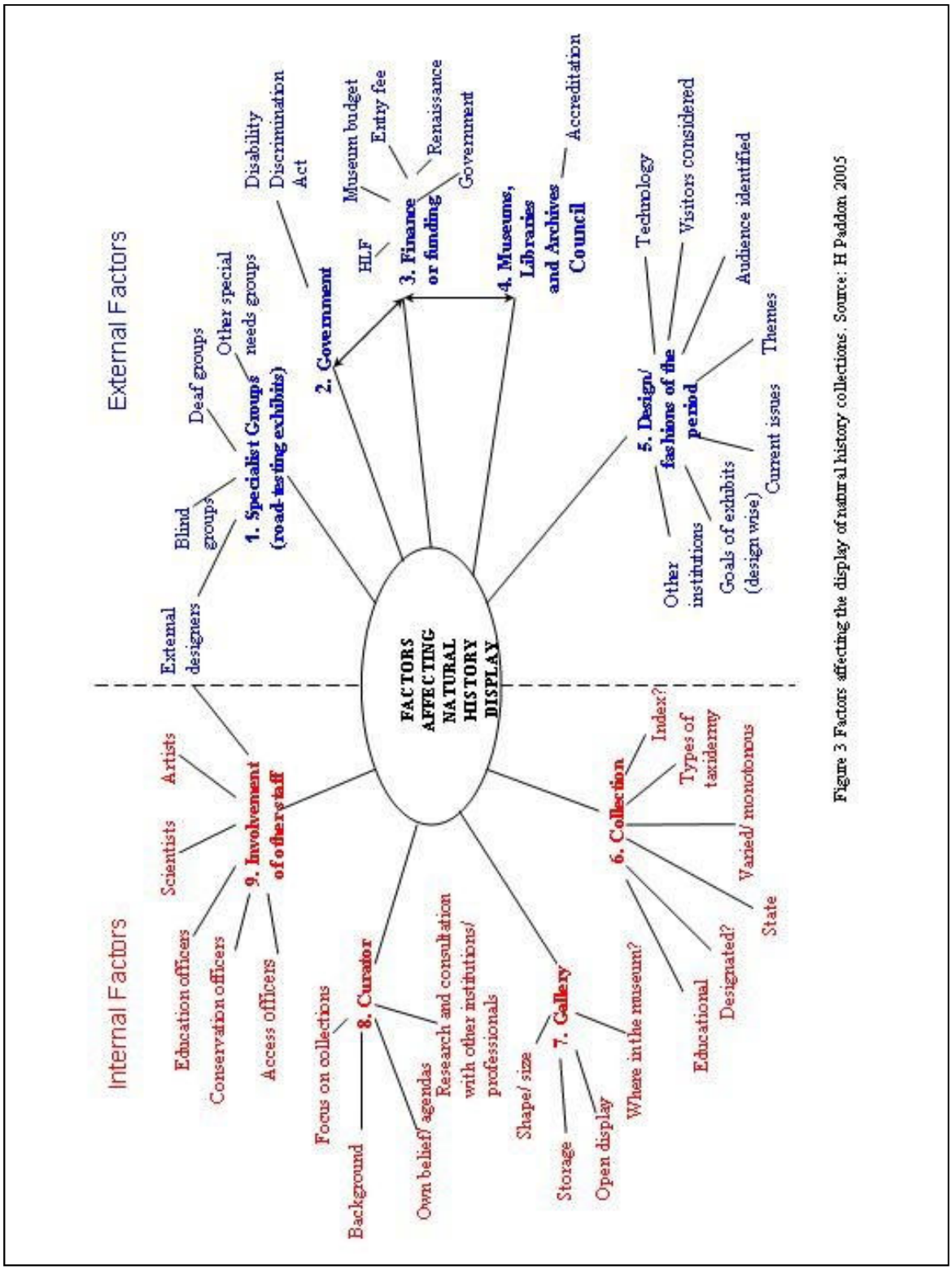

Figure 3 Factors affecting the display of natural history collections. Source: H Paddon 2005

Figure 3: Internal and external factors affecting natural history display