Collections in the English National Museums: The Numbers

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The DCMS (Department of Culture Media and Sport) commissioned a report in 2002, delivered in 2003, from consultants PKF, on the storage of the collections of the national museums. Their report and a paper based on it, compiled by the DCMS in 2004, was obtained under the Freedom of Information Act. The intention in this article is rather to investigate the usefulness or lack of these statistics and to understand what issues should be taken account of in any future investigation. Although most of the data are problematic to interpret due to the questions asked in data collection, some useful statitics are provided including on the general quantification of collections in the English national museums. The figures illustrate the magnitude of and variation between collections, and confirm observations from real life on the corresponding variation in storage requirements.

Keywords

Museums, collection costs, National Museums, cost/benefit, freedom of information.

Introduction

Expenditure on storage of museum collections is of interest to the DCMS (Department of Culture Media and Sport), particularly in the national museums that they fund. This museum function does not obviously contribute to more publicly relevant agenda such as museum visits, education or activities to support social wellbeing. In order to obtain some quantification of the storage of the collections of the 17 national museums that they sponsor, the DCMS commissioned a report in 2002 from consultants PKF (the PKF report). PKF are an accountants and business advisory consultancy (see Websites: PKF).

Following representations from some of the national museums a paper was compiled by the DCMS in 2004 (the DCMS Paper), to present the findings in a more digestible way and to provide some interpretation of them (DCMS 2006). Copies of both the DCMS Paper and the PKF Report were obtained from the DCMS in 2006 under the Freedom of Information act (DCMS FoI Cases 35505 and 55494).

In this present article, the intention is not to present a further analysis of the data and information, but firstly to draw attention to its existence, now in the public domain, and secondly to investigate to what extent these statistics provide valid information. A further aim is to learn from this exercise how to improve future quantification exercises such as this.

Some of the major statistics provided are reviewed. For instance, it is possible to gain an idea of the scale and order of magnitude of the national collections and an indication of the variation among them. There are a number of discrepancies within the DCMS Paper, and between the figures it provides and those in the PKF Report, and explana-

tions are offered for some of these. Indications from the statistics are compared to observations from experience of managing some of these national museum collections.

The Brief for PKF
The consultants were asked to undertake a survey of collections storage facilities of the DCMS-sponsored museums and galleries to identify:

- Location, floor space, tenure and management arrangements of the stores
  operating costs
- Types of collections held there
- Levels of access to the collections by museum personnel and members of
  the public
- Compliance with museum standards of collections care.

PKF's Report was delivered in 2003 (PKF 2003), and is referred to below as the PKF Report.

The Documents
The following documents were provided by the DCMS:

Comprising the PKF Report:
- The PKF Data Report: A report for each of the 17 museums,
  consisting of the questionnaire and the data provided by the museum in
  answer to each question (PKF 2003 (1))
- The PKF Steering Committee Report An Overview Study, subtitled Revised
  Report to the Steering Committee, dated 31st March 2003 (PKF 2003 (2))
- The PKF Digest: A Digest for Participating Institutions, also dated 31st
  March 2003 (PKF 2003 (3))
- The PKF Second Stage Report: Collections Storage Survey – Stage 2:
  March 2003. (PKF 2003 (4))

From the DCMS:
- The DCMS Paper: A paper providing a digestible summary of the PKF data
  with some interpretation of them (DCMS 2004)
- A brief covering letter provided with the DCMS Paper
- A more explanatory covering letter subsequently provided with the PKF
  Report (DCMS 2006).

The PKF Data Report runs to hundreds of pages. For each of the 17 national museums, replies to a detailed questionnaire are provided (each questionnaire includes approximately 5800 data fields – PKF 2003 (3)). The PKF Steering Committee Report and Digest each consist of a large number (about 100, not numbered) of PowerPoint presentation slides, with a few bullet points but no tabulated statistics (PKF 2003 (2) and (3)). The PKF questionnaire is summarised below in Appendix 1.

The DCMS Paper is 28 pages long. It summarises the statistics for each of the national museums, listing areas, costs and cost elements for elements of storage and collections management (DCMS 2004). Some discussion and interpretation is provided, mainly

identifying difficulties with the statistics but noting also where a site is particularly costly or inexpensive.

There are some discrepancies and contradictions within the DCMS paper. They were checked primarily against the Horniman Museum's response. The Horniman was chosen because it has large collections with objects ranging from very small to a few very large items and it has a large off-site store in addition to its main museum site. It therefore has the typical characteristics of a mixed collection museum, yet the figures sought should have been fairly straightforward to supply and interpret. The author is also broadly familiar with its arrangements and so is in a position to assess the interpretation.

The DCMS's Intention
The motive for commissioning the report is not stated in either the DCMS Paper or the PKF Report. However, it may be inferred that the DCMS wanted to understand whether its expenditure on collections storage was being used cost effectively and could therefore be justified in the Treasury Fundamental Spending Review due in 2007. The DCMS wanted information on the size of the national collections, the sites occupied and the storage space required, and the costs involved (PKF 2003 (3)). From this it clearly hoped to understand what proportion of total DCMS finance was devoted to collections storage and to compare cost efficiency between museums (DCMS Paper: 3-4). It also sought information about the costs of external property such as leasehold premises. A supplementary report it requested looked at the cost effectiveness in particular of the shared storage site at Blythe House and the possibility of pooling storage at the NMSI site at Wroughton, a disused airfield where the large objects collection is stored (PKF 2004 (4)). This further report is not discussed here. Also required was information on quality of storage – what proportion met museum standards - and the level of access to stored collections. There seems to have been a wish to quantify the future demand for storage, as there are questions on the number of acquisitions compared to the number of disposals (the latter negligible) on unused storage space and on future plans that might affect storage (PKF 2004 (4): 1-2).

The English National Museums
The 17 national museums in the study are:

> British Museum (The BM)
> Geffrye Museum (GM)
> Horniman Museum (HM)
> Imperial War Museum (IWM)
> Museum of London (MoL)
> Museum of Science and Industry in Manchester (MSIM)
> National Museums Liverpool (NML)
> National Maritime Museum (NMM)
> National Museum of Science and Industry (NMSI)
> National Gallery (NG)
> National Portrait Gallery (NPG)

Natural History Museum (NHM)
Royal Armouries
Sir John Soane's Museum
Tate
Victoria and Albert Museum (V&A)
Wallace Collection

The Statistics Reported
The PKF questionnaire is summarised in Appendix 1. The PKF Data Report reports the statistics provided museum by museum (PKF 2004 (1)). The DCMS Paper summarises the data, providing for each museum figures on:
- The number of sites occupied (all property, including storage and display sites)
- The costs in total and per square metre of the total space occupied by the museum, under the headings Rent; Rates; Utilities; security; Environment Control and Monitoring; Repairs and Maintenance; Cleaning (General); IS/IT Costs; Finance Costs; Staff (HR) Costs; Other Shared Overhead costs. These costs relate to the whole estate including office accommodation, galleries and exhibition space as well as collections storage. For most of the national museums an estimate is also given of the total cost of collections storage alone.
- The number of objects in the collections.
- Proportion of space utilised for collections storage and estimated rate of acquisition and de-acquisition, hence, an estimate of when the museum would run out of storage space.

The Numbers
In this section the statistical information discussed in the DCMS Paper is summarised and discrepancies are noted. Its validity is explored based on the source data in the PKF Report.

Sites and Storage Space (DCMS Paper: 1, 6-27; Appendix 1 Q 2)
At the time of the study in 2002-2003, 81 sites in all (including both museum exhibit sites and storage sites) were occupied by the national museums. A further 15 (DCMS Paper) or 13 (PKF Report) sites were occupied as, e.g., commercially rented storage. Of the 81 sites, 48 were in London, 17 in Liverpool and six in Yorkshire, with a mix of freehold tenancy and leasehold or even indeterminate occupancy. The DCMS Paper gives a total of 219 000m^2 designated as storage space, with an additional 53 500m^2 for facilities such as study rooms, packing areas and loading bays, and decontamination (totalling the figures for the separate museums gives the same approximate total, 219 847m^2: see Table 2).

The data on the number of sites occupied and the tenure arrangements are useful. It is surprising to find that 17 museums require so many buildings to display and store their collections.

Costs (DCMS Paper: 2, 4, 6-27; Appendix 1 Q 7)
The costs obtained by PKF were for all sites, including museum exhibition buildings. It seems that they later returned to the museums to seek information specifically on the costs of storage. However, in many museums some or all of the collections stores are within the main building and hence difficult or impossible to cost separately. For example PKF proposed to calculate the cost of storage pro rata by the area of the site used for storage, but the British Museum pointed out that the apparent high cost of their main site storage was because most of the building constituted the museum itself.

There is much confusion over the costs of storage both in the PKF data and Report, and in the DCMS Paper. The only possibly useful figure is not derived from the PKF Report but provided in the DCMS Paper as from a different source: 'in December 2002, the DCMS estimated the cost of storage and related space to be approximately £34.5 million – 12-15% of grant-in-aid (the government funding provided to national museums)'(DCMS Paper: 2). The costs of sites which are dedicated to storage alone might, however, be validly compared through a re-analysis of the data.

The problems of calculating the costs of collections storage and management have elsewhere been demonstrated by the lack of takeup of the formulae offered in *The Cost of Collecting* Report (Lord et al. 1989). This report offered a formula to use in order to calculate the long term cost of any addition to the collections. Commissioned by the then Office of Arts and Libraries, when launched it attracted considerable interest from museums. But attempts to implement it in real life encountered exactly the difficulties found in the DCMS Paper (see quotations below): normal museum accounting practices do not allow for the costs of one kind of space and activity to be separated from those of the rest of the organisation (DCMS Paper: 4).

Theoretically it would be possible for museums to calculate these costs, but the utility of doing this must be weighed against the considerable cost in time and effort to analyse out accounts separately for particular spaces, in a non-standard fashion. End-of-year accounting is a time consuming and expensive process for any organisation, and every separate and special analysis comes at a price. Even in the case of an off-site store the cost of security staff may well be included in a general museum contract. For local authority museums it might well be impossible, as their accounts will be administered and undertaken by the local authority accounting department as part of a far larger exercise across all the authorities' functions and properties.

The Cost of Collecting formula is in any case fundamentally flawed. Because it calculates the cost of storage per item, good storage is penalised by it. Well stored objects usually occupy more space than badly stored ones crammed too tightly into a space, and good maintenance costs more than no maintenance.

Costs will not be further discussed here, as the cost data from the PKF Report are so problematic, as the DCMS Paper recognises:

Operating Costs
It is difficult to precisely calculate total direct costs of storage from the information provided, though in December 2002, DCMS estimated it to be approximately £34.5m (12-15% of total G-I-A). Of this, overhead costs amount to £26m

(DCMS Paper: 2)

Many of the institutions questioned the validity of this data, as it accounts for total costs of maintaining their estates in these storage "related" areas of expenditure. It is recognised that it is difficult to provide accurate figures on expenditure on these items relating solely to storage (though a few institutions have, however, either done their own separate reviews or made an educated guess in order to provide us with a more realistic cost). There remain opposing views on placing the same cost value of some storage related costs such as security, cleaning and utilities, for storage areas as the same items in the public spaces of our museums and galleries (DCMS Paper: 5).

Storage Space and Volume (DCMS Paper: 2, 6-27; Appendix 1 Q 3)
Data on these do offer a ballpark figure for the sheer area devoted to storing the national museum collections, but only if storage were to be laboriously analysed separately from display space from each museum's questionnaire report. The problems of comparing density of storage, which might be assumed to indicate efficient use of it, are discussed below.

Collections (DCMS Paper: 2, 4-5, 6-27; Appendix 1 Q 3)
The numbers of items in collections are data of interest, but due to the way they were collected they require re-analysis. The difficulty of this is illustrated in the contradictory figures provided for the total number of objects in the national collections. Three different figures are provided: more than 136 million items including objects, archival and library items and various other material (the DCMS Paper: 2); about 120m items (from totalling the DCMS museum-by-museum summaries, DCMS Paper: 6-27)); 134m items (the PKF Steering Committee Report and Digest). Taking a completely different source, the HLF Needs Stewardship review in 2000 cites a figure of 200m objects in UK museums in total, in turn derived from the Museums and Galleries Commission's DOMUS report in 1998 (Paine 2000: 7, citing Carter et al. 1999). From the Natural History Museum's own estimate there are 70 million specimens in the collections of that museum alone (Chalmers and O'Nions 2003). The most conservative figure of around 120 million items in the national collections seems quite probable.

There is another issue in enumerating objects. Museums count 'an object' in many different ways. A whole workshop of tools may be counted as one (pending detailed cataloguing), while in archival collections many large plans may be rolled up together, or a single file may contain many documents. Therefore data on number of objects must always be taken as indicative but still, they may be compared between museums, as such compromises are common to all museums.

A solution to the problem of comparing storage for varied collection types has been developed for the NMSI (the museums comprising the Science Museum London, the National Railway Museum in York, the National Museum of Photography Film and Television in Bradford, plus a number of off-site stores). The collections include almost every type of material, except for archaeological research collections. Collections were categorised as: large (many items floor standing due to size and weight); general (three dimensional items stored on racks, in cupboards or on shelves); archive and library; and photographic. The number of objects in the large, general and photographic collections could be estimated from documentation records with reasonable accuracy, but archive and library collections were accounted for by shelf length since they were not individually documented. Storage for each type of collection could be compared across the diverse sites in the different museums. This would seem to be a more useful approach to storage quantification.

Collections Management (DCMS Paper: 2; Appendix 1 Q 5)
In 10 out of the 17 institutions one individual held overall responsibility for stored items. Some organisations said that responsibility was divided for different aspects of stores: collections, estates, maintenance etc., and some indicated that this arrangement was being reconsidered.

Access and Use (DCMS Paper: 3; Appendix 1 Q 4)
The DCMS Paper cites in 2001-2 '857 910 visits to stores by non-staff, together with 83 000 visits by museum staff.' This is a very large number compared to those gathered by Laura Gardner from her survey in 2005, which included some national museum departments (see Gardner, this volume). The NMSI large object store at Wroughton, regularly open to the public, achieved only 24 544 non-staff visitors in 2005-2006, and this was more than double the year before (NMSI 2006).

On consulting the Horniman Museum's response, it was found that the overall number of visitors was requested for every site that included collections storage. The Horniman museum therefore reported the total number of visitors to its main museum site, since some collections are stored there (PKF Data Report for the Horniman Museum, Q 4).

Where the store is a completely separate building these data may be useful, if they were to be re-analysed, but many of the museums include storage in their main buildings and here the data will be useless. The same applies to data reported on staff and non-staff access.

Collections Care Standards (DCMS Paper: 3; Appendix 1 Q 5)
The MLA has published benchmarks for the quality of museum storage. Against these, the DCMS Paper quotes that 11% of the National Museum stores was fully compliant, 57% compliant in all significant respects, 11% did not comply, and for 21% of storage the information was not provided. However, not all museums find these benchmarks usable, and the question as put provided for broadly subjective responses, so these data should be treated as an indication only.

The Data in the PKF Report

The PKF report presents data and statistics as shown in Table 1. The questionnaire that PKF used is summarised in Appendix 1.

Information reported	Comments
Number of sites	Reliable but dated and not very pertinent
Location, tenure and management	Useful data for those interested in this aspect
Floor space	Storage floor space is useful as a ball park figure but cannot be used to assess efficiency of storage for reasons above
Operating costs	Museums found it impossible to separate out storage operating costs effectively. The DCMS paper did compare the overhead costs of storage on different sites, but this ignores accessibility for museum staff, which will result in outcomes of 'effectiveness' of having collections.
Numbers of items in collections	The data are reported in a way that makes subsequent analysis extremely laborious and error prone. Presumably the consultants used a spreadsheet to perform their calculations. However, raw data could be useful if re-analysed.
Levels of access to collections	The statistics reported in the DCMS Paper are not valid. The questionnaire, Q 4.1, means that if a store is within a museum exhibition building the total visitors to the whole building is counted. Some useful data may be retrieved if data are re-analysed for some sites that are stores only.
Numbers of non-staff visits	As above
Standards of care	Not useful, criteria are not well enough defined and questions are subjective.

Table 1. The information and data in the PKF report: validity and usefulness. Source: PKF Report.

Size of Collections and Storage: Useful Numbers

The tables and charts discussed below present information from figures provided in the DCMS Paper. Only data on the number of items in collections and on storage areas are analysed here. For these, the data are relatively unproblematic, yet they raise useful issues about their interpretation.

How Many Objects in the National Collections?
The discrepancies in the various figures cited for the total number of objects in the national collections have been discussed above.

Total Number of Objects in Store		% of National Museum Total	
Wallace Collection	13 100	<1	Library items: virtually all objects are on display
Museum of Science and Industry in Manchester (MSIM)	19 271	<1	
Geffrye Museum (GM)	26 630	<1	
Sir John Soane's Museum	49 658	<1	Of which 18 750 are library books and 30 000 architectural and decorative drawings
Royal Armouries	89 734	<1	
Horniman Museum (HM)	358 000	<1	
Museum of London (MoL)	467 810	<1	In addition, archaeological archive (not quantified)
National Gallery (NG)	539 771	<1	Of which 402 500 are library books, 136 365 photographic collection items
National Portrait Gallery (NPG)	930 643	1	
Tate	1 559 682	1	Of which 6451 artworks, 57 570 works on paper, 1 496 661 library + archive
Victoria and Albert Museum (V&A)	2 540 082	2	In addition, 100 000 on display. Stored, "mostly library books plus works on paper"
National Museums Liverpool (NML)	2 856 521	2	
National Museum of Science and Industry (NMSI)	5,600,604	5	Includes library, archive etc.
British Museum (The BM)	7 000 000	8	In addition, 2 435 260 archaeological archive items
National Maritime Museum (NMM)	10 227 057	8	Includes library, archive etc.

Imperial War Museum (IWM)	17 556 930	14	Mostly library, archive, photo, film etc.
Natural History Museum (NHM)	70 444 889	57	
Total	120 280 382		

Table 2. Numbers of objects in the stored collections of the English national museums (ranked by number of objects) Source: DCMS Paper, museum-by-museum summaries, pp. 6-27.

The Natural History Museum has about 70m collections items (this same figure is given in a report from the NHM itself, Chalmers and O'Nion 2003). The next largest collection, that of the Imperial War Museum, includes very large holdings of archives, photographs and film. The National Maritime collections also include these materials, and great numbers of ships' plans as well. The statistics are broadly in line with the fig-
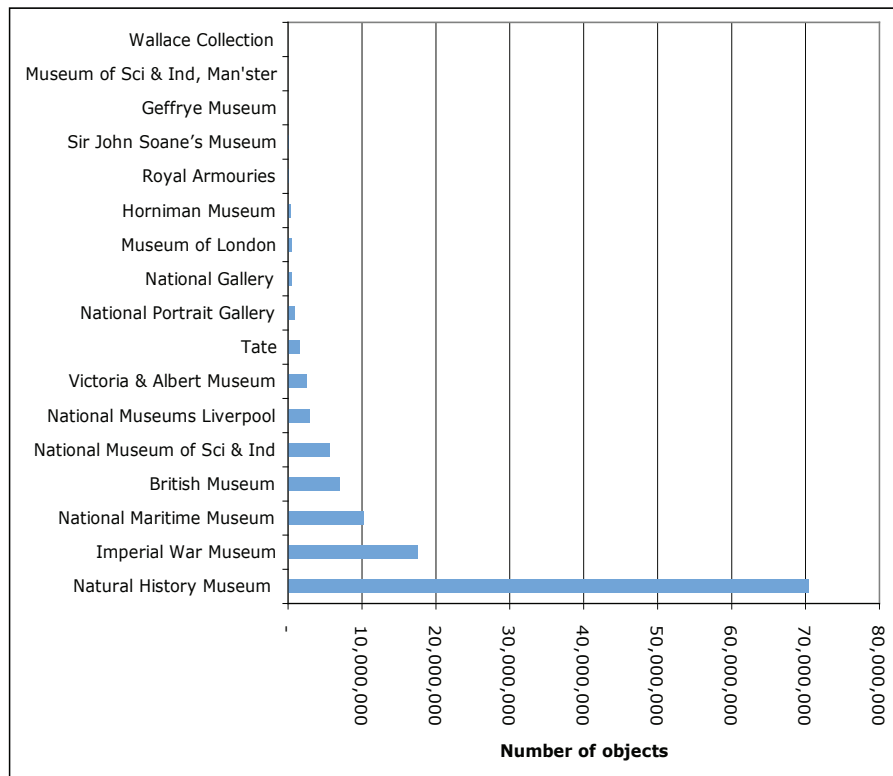

Figure 1. Numbers of items in store in English national museum collections. Figures include library, archive and photographic holdings, but the BM and Museum of London exclude their archaeological archive. Source: DCMS Paper, museum-by-museum summaries.

ures provided by Paine in his Stewardship Needs Report for the Heritage Lottery fund. The figures he cites are drawn from the Museums and Galleries Commission DOMUS report of 1998. Paine cites 200m items in all UK collections with about half, 48.6% (97m) in the national museums. At that time there were 68m items in the NHM.

Numbers of Objects and Storage Density

The number of objects in a collection has little relationship to the storage space required, as Table 2 and Figs. 2 and 3 show. Ways of categorising collections in order to compare storage across different sites are discussed above, Collections. The museum with the most storage space is the Science Museum (NMSI), which uses eight aircraft hangars at its Wroughton large objects store. It is followed not by the IWM, with comparable numbers of large objects in its collections, but by the Natural History Museum, which also has large objects in its vertebrate collection, besides the sheer quantity of other material. However, it is science and industry collections that require most storage space, as the Manchester Museum of Science and Industry and the Museum of London, with its Docklands and other industry collections, also demonstrate.

Museum	Number of stored objects	Storage area, m²	Objects per m²
Wallace Collection	Library only		58
Museum of Sci and Ind, Man'ster(MSIM)	19 271	4100	0
Geffrye Museum (GM)	26 630	N/A	10
Sir John Soane's Museum	49 658	115	15
Royal Armouries	89 734	2071	4
Horniman Museum (HM)	358 000	1382	24
Museum of London (MoL)	467 810	14 009	3
National Gallery (NG)	539 771	1217	
National Portrait Gallery (NPG)	930 643	1224	7
Tate	1 559 682	10 129	12
Victoria and Albert Museum (V&A)	2 540 082	23 430	18
National Museums Liverpool (NML)	2 856 521	17 112	47
National Museum of Sci and Ind (NMSI)	5 600 604	49 143	33
British Museum (The BM)	7 000 000	28 574	205

National Maritime Museum (NMM)	10 227 057	11 010	671
Imperial War Museum (IWM)	17 556 930	14 633	1388
Natural History Museum (NHM)	70 444 889	41 577	1003
Total		219 784	

Table 2. Numbers of objects, storage area and storage density.

A large proportion of the Natural History Museum's 70m collections items consists of tiny insects and the like. These may even be stored mounted on microscope slides, leading to high density storage as seen in Figs. 3, 4 and 5. The collections of the Imperial War Museum are densely stored presumably because of the enormous numbers of archival items, film and photographs, while most of their large objects are on display at Duxford, IWM North, and in the main museum in London. In contrast, storage in the NMSI at their large objects storage site at Wroughton and in the Manchester Museum of Science and Industry is low density, as very large objects in science and industry collections take much floor space. However, low density storage facilitates access: large objects can easily be visited and enjoyed by the public, while small or flat objects are normally reserved as research archives.

Discussion
The apparent objectives of the DCMS in commissioning this report were perfectly reasonable: to produce basic quantitative information and statistics on the size of the national collections and the resources required to store those that were not exhibited, and to compare cost efficiency across museums. Was the exercise able to satisfy these objectives?

Even cost efficiency is difficult to estimate. The measure obvious to the lay person, number of objects per square metre of storage, is immediately ruled out by the variation in the size of the objects, the floor loading capacity they require, etc. This is illustrated in the discussion above of the different figures. The Horniman notes that in one of their stores the main use is for a collection of ethnographic musical instruments, but that there is also 'a very large stuffed fish in a glass case' (HM Q 3.3, Site S). In an exercise to estimate the storage requirements of the Science Museum, installing mobile racking in a half hangar that was then fitted with static racking seemed an obvious solution. But only small and medium sized and light weight objects could be stored on mobile racking, while it was large, heavy objects for which more storage space was required. The Natural History Museum's cost per stored object looks very cheap, even though it is in central London, because so many objects are literally microscopic in size.

Further problems in understanding how storage space could be used more cost efficiently arise from the way that the space is fitted out. For example, the Horniman Mu-
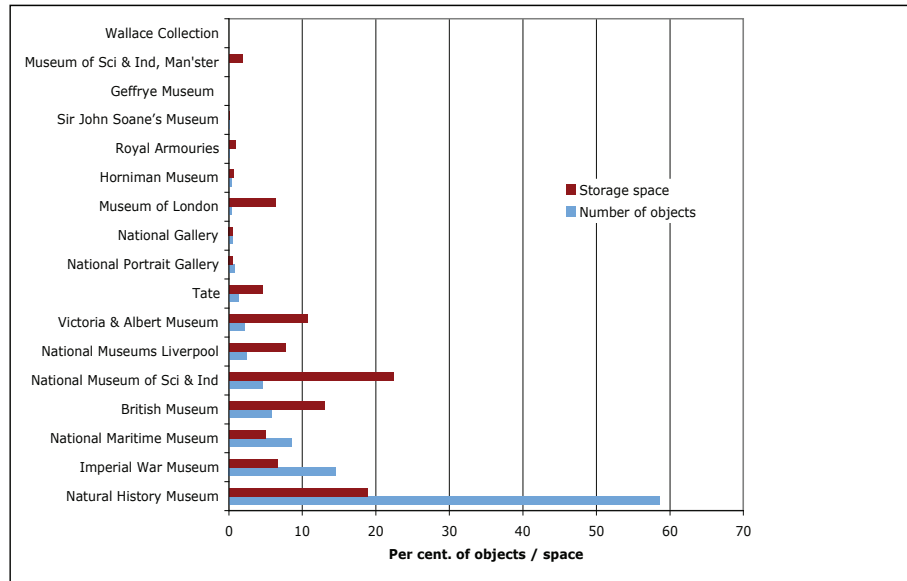
Figure 2. Number of Items in stored collections compared to square metres of storage area. Source: DCMS
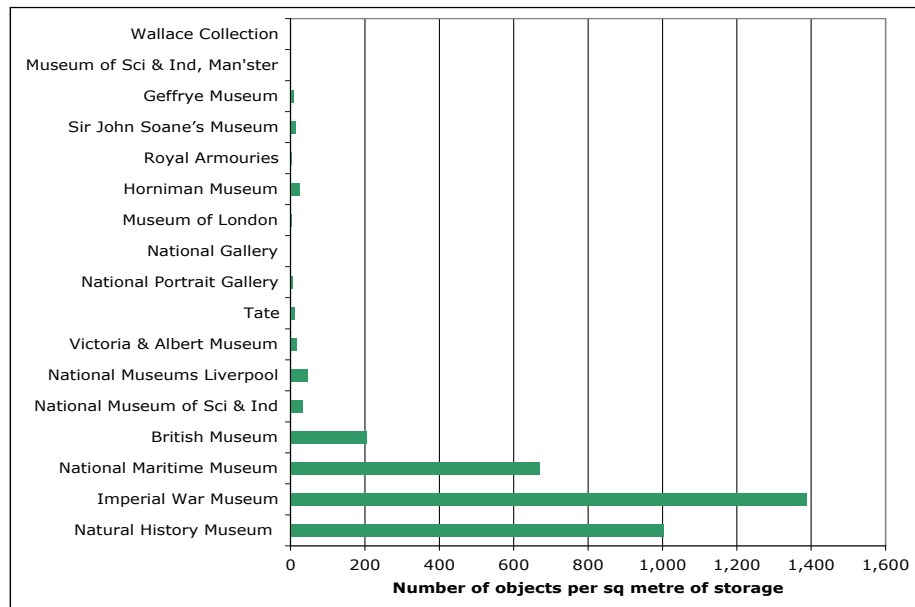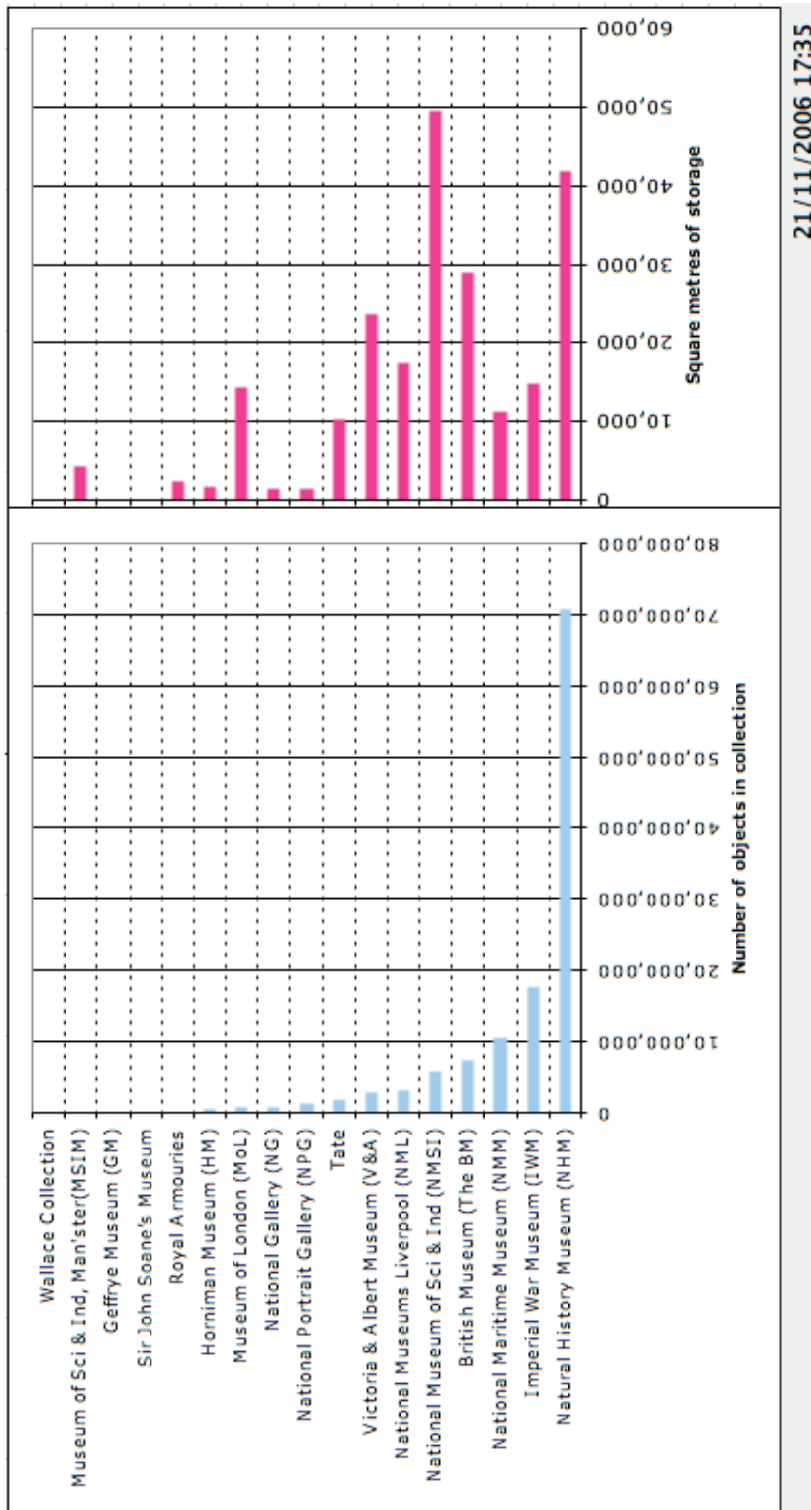

Figure 3. The distribution of object numbers and storage space among national museums, shown as the percentage of each for each museum. Source: DCMS Paper.

Figure 4. Number of objects per square metre of storage space.   Source: DCMS Paper.

seum responded to the questions it was asked about the variation between the volumes of usable space versus used space,

> Variance is due to the type of storage furniture currently installed. In some storage areas, the installation of mobile racking would increase the useable storage space. In some areas, the utilised storage space exceeded the useable storage space; this happened in areas where items are stored over capacity, meaning that it is difficult to access them. Some of the areas we measured as useable storage space would not currently be suitable for storage of collection objects ... . Some other areas we counted as useable storage space are currently used for essential storage related facilities ...
>
> (HM Q 2.7)

There is also a payoff between dense and apparently cost efficient storage and the desired outcomes of collections storage: to preserve and provide for access to and use of these public assets. Objects stored at high density may appear cost efficient in the short term, but this is not cost effective. Objects that are carefully stored to promote their long term survival take up much more space per object than ones that are crammed into unsuitable storage. In another answer the Horniman says, 'Overcrowded storage makes retrieval of objects take twice as long as in good storage' (HM Q 8.7).

Public access and appreciation of stored collections many also be prejudiced. The V&A has invested in heavy duty mobile racking in its area of Blythe House, the store building shared by three national museums, while another occupant, the Science Museum, continues to store its collections on less costly fixed racking. The Science Museum collections are thus visually accessible, and it has made use of this in running highly successful programmes of public store tours (see Caesar, this volume), while all that is visible of large parts of the V&A's efficiently stored collection is the ends of racks.

Location also affects both efficiency and effectiveness. Storage out of London is naturally lest costly, but at the expense of access and use, at least by museum staff. As the Horniman Museum notes, 'most staff work near these stores, so are more likely to visit more often, i.e. natural History store is right next to the Keeper's office, approx. 3-4 staff visit the library every day because it is accessible to them. i (sic) am not sure how relevant these figures [presumably figures on accesses] are.' (HM, Q 4.6).

The DCMS showed interest in the proportion of its national museum grant-in-aid that was used on stored collections (DCMS Paper: 2). As the costs of exhibitions and public activities are increasingly met from outside bodies, the proportion of DCMS funding applied to infrastructure activities like storage will inevitably rise.

Management Information on Collections Storage
The immense variety of objects in museum collections has been noted elsewhere (Keene 2005). For sensible management information on storage, collections need to be categorised according to the way in which they are stored. Archive storage in one museum may be compared to archive storage in another; similarly, large object storage;

but statistics on archive storage cannot usefully be compared to those on large object storage.

The DCMS Paper does not attempt a comparison between one museum's storage and another; in the discussion it sensibly only provides figures without attempting comparison or conclusions. This is because PKF, apparently having no museum expertise available to it, did not use any system of classifying collections in terms of their storage requirements that could be used to compare collections data between museums. Yet the quantity and quality of storage for the extremely varied collections of the National Museum of Science and Industry, comprising three varied museums, the Science Museum itself, the National Railway Museum and the National Museum of Photography Film and Television (now the National Museum of Media), ranging from stamps to railway engines, has been monitored and compared for performance indicator reports since the mid 1990s (Keene 2002: 118-23).

Conclusions
The PKF Report comprises a very large amount of extremely detailed data about each of the national museums. The total cost of assembling this level of detail must have been very considerable. Yet PKF hardly interprets this other than by bar charts with minimal commentary and a few PowerPoint bullets – it does not even tabulate the data. It is only the short DCMS Paper that analyses and discusses the data, even though it heavily qualifies the statistics.

A cynic might suggest that PKF had chosen to shift as much of the time and work as possible onto the museums, and to automate not only the processing of the vast amount of data provided but even the overview report. In that way its costs would be minimal and it could still claim to have fulfilled its brief. The DCMS might usefully have required a pilot study first, to see if it was going to get useful information.

Was this a useful exercise? Some of the data are potentially useful, although less so as time passes. Some are highly misleading such as density of objects per square or cubic metre, and the costs of storage. Some questions are badly phrased so that answers are not as useful as they should be. The DCMS Paper heavily qualifies the figures, especially those on cost. It warns of the difficulty of obtaining comparable estimates from a set of independent and very varied organisations that categorise and account for costs in different ways, and reports that caveats and comments were received from several of the museums on the validity of the interpretation of the figures that they supplied (DCMS 2004: 5). The covering letter in the DCMS response to the Freedom of Information request confirms that the national museums 'had some reservations about PKF's interpretation of the data supplied to them', and that it was in response to this that the DCMS Paper was produced (DCMS 2006).

Are such exercises useful in general? Statistics on the vast quantity of collections in store are a two-edged weapon without a balancing consideration of their usefulness. This would be a much more exciting and productive aspect of museum operations to investigate, and a large scale research exercise is planned and will be reported in 2008.

However, despite the inconsistencies and reservations about the DCMS Paper, it does provide a "flavour" of the collections, their storage and the costs involved (DCMS 2004: 5). The PKF Report and the completed national museum questionnaires are a source of some useful data on the collections, storage and access to what is almost certainly more than 50% of items in museum collections in England.

For the present we may welcome this limited information and note the lessons that the paper offers on the limitations of the more detailed statistics on these complex arrangements.

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Appendix 1
PKF Museum Questionnaire: Summary of Questions
This is a guide to the questions that were asked. Questions are mostly summarised, not quoted word for word, as they are often lengthy.
1. Institution, point of contact etc

2. Sites and Facilities Currently Occupied or Used
2.1 Number of sites including main museum
2.2 Addresses
2.3 Additional places e.g. commercial or temporary storage
2.4 Ownership or tenure of land for each site
2.5 Ownership or tenure of buildings on each site
2.6 Area and volume of buildings on each site (total, storage associated, usable storage, utilised storage space)
2.7 Reason for variance used vs. unused
2.8 Spare capacity
2.9 If any of any site is let, provide details
2.10 For each site, detail groups of separate spaces within the site
2.11 Areas and volumes of each sub-space
2.12 Percent of stores on each site with workable access to facilities

3 Storage of Items
3.1 Number of items on each site and category of access (by owned or on loan in each category below):
> Collections items: On exhibition / open access, Managed access; Access by pre-arranged appointment
> Library and archive items: On exhibition / open access; Managed access; Access by pre-arranged appointment
> Other items (including general storage): On exhibition / open access; Managed access; Access by pre-arranged appointment

3.2 Identify items housed for another institution
3.3 For each sub-space, describe the types of item stored in it and categorise attributes:
> High value or sensitive
> Particularly large and difficult to move/store
> Particularly heavy, needs high floor loadings
> Potentially hazardous
> Requires special environmental conditions

3.4 Items on loan out
3.5 Items that might have to be housed if current holder is dis-established
3.6 Numbers of items acquired and deaccessioned over last 10 years
3.7 How do you anticipate the accession / de-accession profile is likely to develop in the future, and impact on storage requirements?
3.8 Number of items issued from and received into stores during the financial year (excluding movements within and between stores).
3.9 *[This question is so obscure that it is reproduced in full]*

To assist us to understand the level to which removal of items from the store is prevented by having associated facilities within the storage site, please detail below the number of items leaving their position within the store and being unpacked for the following purposes: viewing by the public, research use, conservation, production of surrogates (ie photographs, microfilming, digitising) etc.

4. Access to Items
4.1 For each of the sites, details of total visitor numbers during the financial year 2001/02 *[NB: this does not distinguish between visitors to the museum and visitors or access to stored collections]*
4.2 If possible, breakdown of non-staff visitors to each of the sub-stores
4.3 For each sub-store what levels of interpretation are available? (including special needs)

>   Label, Staff provide guide, Staff available to assist if required, Staff fetch
>   items for visitors, Sound guide, Digital access provided, Other (specify)

4.4 For each sub-store extent to which items are accessible to visitors with impaired mobility
4.5 Cost and time implications of stores on separate sites. Miles between them?
4.6 For each sub-store, breakdown of number of staff visiting per annum
4.7 Estimate the numbers of staff travelling between sites per annum
4.8 List a summary of the reasons for these journeys

5. Standards of Care
5.1 Within each store or group is responsibility clearly assigned to one individual?
5.2 How recently has a risk assessment been carried out?
5.3 Do any of the risks remain unaddressed?
5.4 How recently has a fabric audit of the buildings been carried out?
5.5 Were there any issues in this audit that remain unaddressed?
5.6 To what extent are items stored in accordance with the MGC Care of Collections standards?
5.7 Generally how do you rate the standards of care for the items you house or store; % Best practice, Good practice, Basic practice, Below basic practice
5.8 For each sub-store, how do you rate the standards of care? (categorise as above and note improvement required, cost, comments)

6. Details of Staff Involved in Storage Activities
6.1 Detail all staff performing duties directly related to storage and which sites these activities relate to. Particular activities: Packing / unpacking; Portering and moving objects; Registration and inventory control; providing access; transfers in and out; preventive conservation. (Numbers of people and total salary cost).

7. Financial Information
7.1 For each site, costs/budgets for the whole of the building (they will apportion costs according to floor area) *[the British Museum objected that their site costs mostly related to the visitor area, not to the stores]*

Rent, rates, utilities, security, environental control and monitoring, pest control, insurance, repairs & maintenance, cleaning, IS/IT costs, finance costs, HR costs, other shared overhead costs – central admin, admin of charity

7.2 Cost and budget information for direct and variable costs items relating to storage of objects and stores only (additional to those above). Rental, storage furniture, packaging, other consumables, other direct,

7.3 Anticipated requirement for capital budget for repairs and maintenance to stores facilities over next five years

7.4 Anticipated required capital budget in respect of other capital improvement projects for stores facilities over the next five years?

7.5 Book value per year 2001/02 for each of the sites

8. Additional Information

8.1 Any storage partnership arrangements, current or planned?

8.2 Have you considered alternative ways of storing your collection?

8.3 Have you considered alternative uses for your current storage facilities?

8.4 Are there currently any changes or developments planned that will significantly affect the amount you are required to store or the way in which you store them?

8.5 Do you have any plans to increase the level of access or interpretation to the stored collections?

8.6 What are currently the main obstacles to increasing and improving levels of access and interpretation to the collections currently in store?

8.7 What are the main obstacles to improving the efficiency and effectiveness of storage?

9. Notes

[the museum was free to add notes on any of the questions]