



BIROn - Birkbeck Institutional Research Online

Candlin, Fiona and Poulouvasilis, Alexandra (2020) Understanding and managing patchy data in the UK museum sector. *Museum Management and Curatorship* 35 (4), pp. 446-459. ISSN 0964-7775.

Downloaded from: <https://eprints.bbk.ac.uk/id/eprint/28263/>

Usage Guidelines:

Please refer to usage guidelines at <https://eprints.bbk.ac.uk/policies.html>
contact lib-eprints@bbk.ac.uk.

or alternatively

Understanding and managing patchy data on the UK museum sector

It is well accepted that the museum sector has a longstanding problem with data collection and management. In 1986, when John Myerscough reported on the economic impact of the cultural sector in his landmark study *Facts About the Arts*, he outlined public expenditure on and detailed the revenues of the ballet, opera, theatre, music, and cinema within the UK. However, when he came to the chapter on museums and galleries, he paused and noted that ‘in the absence of a comprehensive catalogue, or data bank, containing precise and systematic information about galleries and museums, it is difficult to present summary tables on this subject’ (1986, 185). Three decades later, Fiona Tuck and Scott Dickinson made an almost identical observation in their report *The Economic Impact of Museums in England*, complaining that there wasn’t ‘a single authoritative list of the museums operating in England’ and that ‘the lack of a single source of data on museums’ had seriously hampered their research (2015, 27).

Then, in 2016, the government department for Digital Culture Media and Sport commissioned Neil Mendoza to review the challenges and opportunities of the English museum sector. Among other issues, Mendoza highlighted the shortcomings of data collection, particularly with respect to visitor numbers, funding, collections, workforce, volunteering, and social impact. He recommended that Arts Council England (ACE) take a co-ordinating role in collecting and disseminating ‘key data on the sector and its health’ so as to provide benchmarks for good practice and inform strategy (2017, 14) (Mendoza 2017). ACE responded by commissioning a detailed report on current practices in data collection and management from DC Research who found that museum staff were frustrated by being asked for the same information from different

organisations, and that there was a lack of clarity about why the data was collected, and what its collection achieved (DCResearch 2017, 1).

Academics in the field of arts policy have also observed deficiencies in museum sector data. In 2002 Sara Selwood surveyed the relationship between data collection and organisational policy at a governmental level?, and pointed out that there was a paucity of robust data on the sector; that the available data was often patchy, inconsistent and incomplete (Selwood 2002). Writing in supportive response to Selwood's article Adrian Babbidge added that numerous agencies overlapped in collecting data, that alterations to definitions led to inconsistent data, and that financial information was withheld making it difficult to draw meaningful comparisons between museums that operate on quite different budgets and scales (Babbidge 2002). Babbidge has also pointed to the lack of longitudinal data on the sector (Babbidge 2005). Moreover none of these problems are particular to the UK. Terry Cheney has found comparable problems with museums data in Canada where the sources are dispersed, of varying quality and inconsistent, and Mark J. Schuster documents similar conditions elsewhere in Europe (Cheney 2000) (Schuster 2002).

Commentators within the sector and within arts policy are broadly united in recognising that there is a problem with data collection in the museum sector. As the different authors variously argue, there is little use in collecting information if it is not reliable and the limitations of data collection and analysis undermine any serious attempt at evidence-based policy.

Yet, it is important to recognise that the lack of coherent data also has an impact on the histories that it is possible to tell about museums, and on whose histories they are. During the late twentieth there was a massive increase in the numbers of museums (Boylan 2006) (Lumley 1988). This growth was largely attributed to the foundation of

independent museums (Hudson 2004), but beyond that, there was very little information about the museums boom. At the time, academic studies tended to concentrate on individual institutions that were founded during this period of remarkable growth (West 1988), or extrapolated wider arguments from particular examples (Hewison 1987). There was no possibility of developing a solid evidence-based overview of the boom because the data required to construct such an analysis was not available. (The exception is 'Forty Years On' by Adrian Babbidge, who for several decades kept his own database on the UK sector (Babbidge 2005)).

If the majority of the new museums that were founded during the late twentieth century were independent, as Hudson and others supposed, then it is probable that many of these venues were established by special interest and community groups, and by private individuals. This means that this missing history could relate to a grassroots rather than a professionalised museums movement. As the historian Raphael Samuel suggested but was unable to substantiate, the UK museums boom could be a story of non-professionals collectively participating in historical work (Samuel 1994). At stake here are the questions of who is credited with precipitating the expansion of the sector, the subjects that they cared about, how the sector changed, and why.

The Mapping Museums research project, which the authors lead, was formulated in response to the lack of data and historical research on the UK museum boom. A four year, AHRC-funded project based at Birkbeck College in London, it aims at documenting and analysing the development of the UK museum sector from 1960 until the present day, paying particular attention to the emergence of small independent museums. At the beginning of the project, the Mapping Museums research team set out to compile a list of all the museums that had been open since 1960, along with key pieces of information including the year that they opened, their location, governance,

subject matter, visitor numbers, and whether or not they had closed. At the same time, the team designed and built a database that enabled that information to be browsed, searched, and visualised in nuanced ways. Latterly, we have analysed that data and at the time of writing are in the process of conducting interview-based and historical work to account for the patterns and trends that we have identified.¹

Early on in the project we realised that a huge amount of information had been collected on the museum sector. Thus we begin this article by asking why commentators complain about an absence of data. Here, we concentrate on access to data, coverage, inconsistent methodologies, and only finally on the absence of data. Having established the shortcomings of the current situation as to data collection, our second issue was what could we do, as researchers, to generate the evidence that would underpin a history of the recent UK museum sector. In the second part of the article we explain how we collated data from numerous sources to create a single dataset of UK museums, but that there were some areas where it was impossible to establish a full set of data. This meant that we had to find a way to design a database that was sensitive to limitations of the material. Thus the third part of the article deals with how the Mapping Museums team modelled and structured inconsistency, uncertainty, and absence in computational terms. To close, we briefly note how the ensuing database is enabling us to write new histories of the sector, and we present some brief thoughts about how the collection and management of data on museums could be improved in the future.

Accounting for absence

There has been no shortage of museum surveys over the past sixty years. The Standing Committee on Museums and Galleries repeatedly surveyed UK museums (SCMG 1963) (C. W. Wright 1973) (Drew 1984), while its successor body, the Museums and Galleries

Commission, conducted a review of independent museums in 1988 (Morris 1988) and, in 1994, launched the Digest of Museum Statistics (DOMUS).² This was intended to provide a ‘doomsday book of the museums business’ and was run on an annual basis until 1999 (M. Wright et al. 2001, 6). After some aspects of government in Northern Ireland, Scotland and Wales were devolved from England at the end of the twentieth century, each country produced a series of reports and kept lists on the museums and galleries in their jurisdiction. The Museums Libraries Archives Council in England (which replaced the Museums and Galleries Commission) issued a digest of Museum Statistics (Greenwood and Maynard 2006) and the government Department of Digital, Culture, Media and Sport published the Mendoza Review in 2017.³ This covered English museums. The Northern Ireland Museums Council produced Mapping Trends reports in 2002, 2007, 2012, and 2016 (‘Mapping Trends in Northern Ireland’s Local Museums’ 2016); the Scottish Museums Council conducted a National Audit (Scottish Museums Council 2002), and a series of Visitor Attraction Monitor studies, which concentrated on museums and galleries in 2007, 2008, 2010, 2011, 2012 and 2014 (Martinolli 2014).⁴ CyMal (later renamed Museums, Archives, Libraries Division (MALD)) produced Spotlight reports on the sector in Wales in 2006, 2011, and 2015 (Newman, Tom 2015). Arts Council England also keeps a list of all the accredited museums in the UK. Finally, the Museums Development Network conducts detailed annual surveys of the accredited museums in each of the English regions.

In addition to the data gathering exercises conducted under government auspices, other bodies also compiled surveys and lists. In 1983 the Association of Independent Museums surveyed that part of the sector, and in 1987 the Office of Arts and Libraries funded the Museums Association to establish the massive Museums.UK Database project, which produced the first survey available in a digital format (Prince,

Higgins-McLoughlin, and Museums Association 1987).⁵ The UK Museums Association also produced an annual *Yearbook* that recorded the details of all its members, and they currently have a subscription service called 'Find-A-Museum' which offers similar information.

In short, a plethora of information has been collected. Why then has it resulted in a perceived or actual lack of data about the sector? Most obviously, data has been collected and published by multiple agencies and is not available in a single place. Moreover, to date, there has been no single access point where the different surveys and reports are listed. Thus, researchers have to first identify what research has already been undertaken. Having done so, potential users face several major challenges: access to the data (and the related issue of data format); coverage; inconsistent methods of data collection; and absence of information. Here we take these points in turn.

As Table 1 shows, in the majority of cases, the data that informs surveys and reports has not been archived. For instance, while the final report still exists, the data from the Museums.UK project of 1987 is missing, and similarly, there is no record of the information used in government surveys of the 1970s and 1980s.

Even when the material has been archived or is made available, it is rarely straightforwardly accessible. In one case, the problem concerns archiving. The DOMUS survey, which was conducted in the 1990s and is potentially an enormously rich resource for researchers, is stored in the National Archives. However, it was designed to run on software that is no longer available. Researchers can download the component spreadsheets, but their names, the contents of each sheet, and the organising folders are all encoded. While the archive does provide an introductory overview of the survey and some documentation, it does not provide the key to the original coding, or explain how

the tables relate to each other in the absence of the original software. The data is thus accessible but not in a usable form.

The barriers to access are different in relation to current data. The government bodies that conduct surveys do not automatically publish their data, or publicly archive it. In the experience of the Mapping Museums team, they have usually released that data on request, but even so, potential inquirers need to know that the information exists, whom to ask, and have their request taken seriously. In contrast, the Museum Association Find-A-Museum Service does publish its data, but charges for access. Potential users must become members of the association and pay an additional subscription for the service, but the costs are high (in 2018 the combined fees amounted to £186 for an individual or £450 for an organisation), which is prohibitive for some. Then, even if users do pay for the service, they can only search the data in ways that are prescribed by that system, and the information cannot be downloaded for research purposes.

Format is also a problem with respect to older surveys that were only published in hard copy. The 1963 *Review* has a long appendix listing details of all the museums included within the survey. In some ways this is the most accessible and long-lived form of publication but in order to search or otherwise use that information, all entries would have to be manually digitised. Indeed, the only data on museums that is easily accessible, in digital format, and available online is the Arts Council England's list of accredited museums and as we will discuss below, that has its own limitations with respect to research.

The second major factor underpinning the perceived lack of data on the museums sector is coverage. Each survey has a different remit in relation to geographic area, the status of museums documented, and the information that is recorded about

them, which results in data collection being uneven. Table 2 lists the surveys and reports where data is (more-or-less) accessible. As it shows, before 2000, government surveys covered the whole of the UK but after that point, England, Northern Ireland, Scotland and Wales each surveyed their own museums (a change that was due to the devolution of certain aspects of government from Westminster to the individual nations). Thus, since the millennium, there have been no government surveys of museums in the UK. To construct an account of museums in the UK, as the Mapping Museums project aims to do, requires researchers to stitch together data from four different sources.

Arts Council England do have a remit for the whole of the UK but only insofar as it relates to accredited museums. The accreditation scheme was first introduced in the 1970s and more formally launched in 1988. In order to gain accreditation, museums had to reach certain standards with respect to collections management, and latterly, governance and provision for audiences. From 1988 onwards the accreditation scheme became one of the primary mechanisms by which information on museums was gathered, which meant that museums that had not applied for the scheme or were not eligible to do so, were not included in official surveys. Whereas early surveys included all the venues that were commonly understood to be museums, later surveys only featured more professionalised museums. From 1998, the accreditation process also required that museums be constituted as trusts, which further excluded museums that are privately owned, and those run by companies or on an ad-hoc basis (Candlin et al. forthcoming).

Some sources do include unaccredited museums, most notably the Museums Association. However, their data derives from their membership. Any museum that joins the association must have a reasonable income, so as to afford the fees, and a

professional outlook, so it is rare to find the smaller venues listed in their records. This is a particular problem for the Mapping Museums research since it is likely that many of the new museums opened in the later part of the twentieth century do not meet the benchmarks required by accreditation, and do not join the Museums Association, and hence are invisible with respect to the data.

Coverage is also challenging with respect to detailed information about museums. To recall, in order to construct a history of the UK museums boom, the Mapping Museums team required information on the location of the museum, opening date, governance, subject matter, and visitor numbers. As Table 2 shows, no single survey contained all of that information, and no opening dates or subject matter was logged for museums after 1999.

The third issue confronting researchers concerns inconsistent data collection methodology, particularly with respect to visitor numbers. There is no established procedure for collecting data on attendance, and institutions each decide how to accomplish this task (Babbidge 2018). In some instances, museums log everyone who comes through the door. If the museum or gallery has conveniently placed toilets, as was the case at Middlesbrough Museum of Art, then people coming to use the facilities raise the footfall (Webber 2012). Cafes can similarly boost the total visitor count. Other museums only record the number of visitors who enter into a gallery or look at artwork, although those criteria can be met by putting artwork or displays into the foyer of a museum, and it is unclear whether people who participate in outreach activities are included in total numbers. Who is doing the counting and how they count has a significant impact on the recorded visitor numbers.

Finally, there are two areas where there is a complete absence of information: smaller museums have never collected visitor numbers, and no survey has ever recorded

closing dates. Most surveys and reviews are concerned with current practice, not historical change, and once museums close they cease to appear in the official record, which makes it almost impossible to document longitudinal change.

In short, there is a great deal of data on museums but it is not easily usable. There are a wide variety of reasons why this is the case. Most obviously the data is scattered across multiple institutions and simply tracking down disparate sources of information mitigates ease of use. Data has been lost, poorly archived, or is difficult to access. Political change has resulted in museums of the four nations being separately surveyed, and the connection between the accreditation scheme and surveying has meant that unaccredited museums are missing from many surveys. At a more detailed level, the lack of consistent methods for collecting visitor numbers makes that data unreliable and inconsistent across sources. Indeed, the only clear absences, at least as far as the Mapping Museums research was concerned, are closing dates, which have never been recorded, and among some museums, visitor numbers.

Improving the data

How then did the Mapping Museums team deal with this dispersed, uneven, inconsistent and absent data? Our first task was to pull together the existing data on museums from all the government bodies responsible for museums in the UK. We collated information from all the government sources listed in Table 2, a process that involved translating the field codes for the DOMUS data and manually entering information from hard-copy sources. It also involved considerable data checking and cleaning since the latter source contained dummy entries that had not been deleted and the names of museum services rather than individual museums.

At this stage, there were a series of identifiable holes in the data. There was a large gap in information between the 1963 review and the DOMUS survey of 1994. Private museums were listed for the period before 1994 but not thereafter, and the smaller non-professional museums of various types of governance were almost entirely missing, whatever their governance. At a finer level of detail, we had information on which museums were accredited. We knew the locations, subject matter, and opening dates of museums that had appeared in the 1963 Review and DOMUS, but not those of museums that opened after 1998 or were unaccredited at that point. We had information on governance for all accredited museums, and for some unaccredited museums in Scotland, but not for other museums. Information on visitor numbers was extremely sparse and closing dates non-existent.

Accordingly, we turned to the information available from the Museum Association. Cross-referencing with the Find-A-Museum service allowed us to fill in many museums' addresses and helped us to identify some unaccredited museums, which can join the Museums Association. The *Yearbooks* from the 1960s and 1970s helped bridge the gap in the data available from government sources. Even so, we knew that we were probably missing information on small independent museums that do not appear in official surveys and that do not join the Museums Association. This gap was partially rectified by the Association of Independent Museums who shared their current membership information, and by research in the Leicester University Archives, which led to the discovery of photocopied survey returns from individual respondents to the 1982 AIM survey. Finding a contemporaneous list of potential members compiled by AIM marketing staff meant that we could identify many small museums that usually fell outside the orbit of AIM.

The team also turned to other sources, drawing on historic guidebooks and gazetteers such as *Macmillan's Guide to the UK* (Bax and Fairfield 1978), the *Directory of Museums and Living Displays* (Hudson and Ann Nicholls 1985) and *Guide to the Small Museums of Britain* (Redington 2002). We consulted regional guides such as *Exploring Museums: Wales* (J. Geraint Jenkins 1990), specialised sources such as *Historic Houses, Castles and Museums*, the Historic Homes Association Friends guidebook, the Army Museums Ogilby Trust directory, and lists devoted to a single type of museums including *Aviation Museum Guide UK*. We checked Wikipedia and made calls for information via social media, all of which enabled us to build a much more comprehensive list of museums.

The Mapping Museums team slowly established the locations of almost all the museums in the dataset, and in the very few cases where we did not have a precise address we adopted the centre of the relevant town or village as a marker. We made hundreds of phone calls and sent hundreds of emails to tourist boards, local history societies, and retired and current curators to track down detailed information about closing and opening dates. We also devised our own classification system for subject matter, because the last system used was out-dated and insufficiently detailed, and categorised every museum accordingly. All of our data was repeatedly cross checked within the team, checked by each regional team within the Museums Development Network, and by the national bodies for museums in Scotland, Northern Ireland and Wales. These groups also added information on new museums as they opened.

After eighteen months of research we had identified just over 4,000 museums that had been open at some point between 1960 and 2018. This is a considerably higher number of museums than are listed elsewhere and we now have by far the most authoritative dataset on museums in the UK to date. Even so, despite this sustained

enquiry, we did not have a complete dataset. When we finished the main phase of data gathering, we had the year of opening for 88% of those museums. A precise closing date was attached to 13% of venues; 6% of other venues were known to be closed, but we did not have a precise date for that occurrence. We also had visitor numbers for 66% of entries and governance information for 92% of the museums.

Modelling the data

Our improved but ‘patchy’ data presented a number of challenges in relation to designing a database for the Mapping Museums project. The process of collecting data was incremental and we added to the dataset as we identified new museums, or found additional items of information. We also developed our own criteria for inclusion and exclusion over a period of time and some museums were deleted and added as we refined our process (Candlin and Larkin, n.d.). This meant that the system had to be flexible enough to encompass new or changed data, and to continue to do so as the sector changes or as new information is established. We therefore opted to use semantic technologies to describe and store our data. Semantic databases are also known as ‘Triple Stores’ and they store pieces of information in triplets of the form *Subject-Predicate-Object*. For example, the fact that the Science Museum is located in London would be stored as the triplet *Science Museum-hasLocation-London*. This kind of data model can easily be extended with new triplets as new data and knowledge accrue, and it allows us to describe in fine detail the different relationships between entities.

The database is designed so that users can browse in a structured way through the categories of accreditation, governance, location, size, subject classification, year of opening and year of closing, and see the results on a map or in a list view. Alternatively, users can submit a detailed search that allows them to filter results by combinations of

the categories above, or they can generate visualisations of how the different types of museums have emerged over time or create tables showing how the various categories inter-relate. At any point, it is possible to scrutinise the details of individual venues. However, we needed to find a way to manage incomplete data within the system.

One option was to exclude museums with missing data from any relevant analysis or calculations. If, say, we had been unable to establish the governance of a museum, then that venue would similarly disappear from searches relating to governance. It would, however, appear in searches relating to other categories for which we did have the relevant information. Likewise, if we had the governance but no visitor numbers, then it would appear in searches for the former but not the latter category. The problem with this approach is that the museums that are less well documented are disproportionately likely to be smaller scale, less professional venues, or to have closed some time previously, and so we would simply replicate the exclusions of the official government surveys. This was particularly problematic because one of the aims of our study is to examine grassroots, independent museums, and so this approach would not support our own research questions.

Another option was to include a sub-category labelled 'unknown'. If the user browsed through museum opening dates, they would see a list of folders labelled by decade and one containing museums where that information was missing. This has the advantage of making the missing data apparent, and of showing the problem of patchiness rather than hiding it. We decided to take this approach to listing museums with missing governance, but took a different route for opening and closing dates. While it was likely that most of the museums with no listed governance were independent, we had no way of knowing for sure. In contrast, we often had rough information about opening and closing dates. For instance if a museum was listed in a

1975 guidebook then we knew it must have opened some time before that; similarly, if a museum appeared in the 1963 *Review* but is no longer open then it must have closed to the public at some point subsequent to that date. Such pieces of information allowed us to identify ranges of dates for a museum opening and closing when a precise date was not known. Some date ranges are longer and some shorter, for instance when the founders of a museum remembered it as opening ‘in the late 60s’, a museum may have a date range of 1966-1969, whereas if we only know that a museum was open at some point before 1990, then it might have a range that stretches from 1945 to 1990.

We thus record date ranges in the database if precise dates of opening or closing are not known. In the Browse facility, museums’ opening and closing dates are regarded as being the mid point of the specified range. The Search facility provides a more nuanced approach as the user has the option of searching by definite dates so that the results exclude all the museums with date ranges attached, or by possible dates, in which case the results include museums where the range intersects with the specified period. For example, if a user searches for museums that possibly opened between 1975 and 1980 then she will see results for those that definitely opened and those that may have opened in that period. Museums with date range information are also factored into the Visualisation facility. In this case we use a ‘smearing’ operation within our statistical analyses: for example, if a museum is known to have opened between 1965 and 1969, then the count of one museum is spread over that time period (i.e. a count of 0.2 is assigned to each of the five years 1965, 1966, 1967, 1968, 1969). The same methodology applies to museums with longer date ranges and for date ranges relating to closure.

We employed a third strategy for visitor numbers, which is the least complete category and has discontinuities that make it difficult to compare like with like. Our

primary objective was to use visitor number data to provide an indication of the size of the museum and, given the patchiness of the information, we decided to have a category of unknown and to gross numbers into size categories of Huge, Large, Medium and Small. This tactic enabled us to include data from the Association of Independent Museums and Arts Council England because they generally provide visitor number ranges rather than precise figures, and to use predicative analysis to establish broad size ranges. It also allowed us to circumvent some of the methodological problems of having figures collected by different means and from across the decades. With this approach, visitor numbers are not directly compared, nor presented in a spurious semblance of accuracy, but are used to indicate scale. Users can now browse or search according to these size categories, and in addition, they can search according to precise date-stamped numbers where available. This enables a user to run specific queries on, say, visitor numbers in the 1990s.

Thus, the Mapping Museums team managed patchy data in a variety of ways: by designing a flexible database that can be modified and added to as required, and by representing absence rather than ignoring unknown information. We used date ranges and provided users with the option of searching by definite or possible dates, and we ‘smeared data over time’ for statistical analysis. Rather than implying that all visitor numbers data are of equal reliability, we created size categories for a large number of museums, and provided the means to search the definite but incomplete data that was available.

Moving Forward

Collating and improving the data on UK museums, and designing a database that explicitly manages incomplete data, has enabled us to create a far most inclusive and

consistent database than has been established before, and importantly, the first database to present longitudinal data on UK museums. Users can see how the UK sector has grown and contracted over time. They can also focus in on the individual nations of the UK, or on particular regions so as to compare patterns of growth or closure in England as opposed to Scotland, or Northern Ireland and Wales. It is also possible to analyse the constitution of the museum sector with respect to the size of the museums, their subject matter, governance, and accreditation, among other factors. Researchers can investigate the relative sector-share of museums according to specific characteristics, or investigate their spikes of growth and closure over time.

At the time of writing, the findings of the study have yet to be finalised and will be published elsewhere, but briefly, our data shows that there were and are far more museums than was generally assumed. Museums of all types were opened during the boom, but the massive growth in numbers was propelled by the foundation of independent museums, the majority of which were very small in scale. Over a third of the museums open in the UK today have less than 10,000 visitors a year and are unaccredited, which points to a substantial non-professional sector. We can also see where growth occurred, that there are real disparities in numbers of museums and of their sustainability across the regions, and demonstrate the differences in patterns of closure across types of museums. This is important information that is useful to researchers of all types: academics, museum consultants, and policymakers, but is only made possible by gathering data into a single platform.

Nonetheless, there is always more data and there is always something missing. Like other surveys, the Mapping Museums project has its own agenda, namely to provide a historical overview of the foundation, character, and development of UK museums between 1960 and 2020. Our database is a highly coherent, rigorously

researched repository of information about UK museums, but it does not necessarily meet needs that go beyond the remit of the project. When a representative of the Department of Digital, Culture, Media and Sport viewed the system, she remarked that it did not contain information on finances. Similarly, during the user trials one participant regretted that we had decided not to include information on when museums gained or lost accreditation. These pieces of data were potentially useful to these respondents and so they found the system to be lacking in these aspects. As the system is extendable, this data could be added given additional time and staffing resources, but the point is that no database will ever be all encompassing or entirely complete.

There is also the possibility that the same fate as befell Museums.UK and DOMUS awaits the Mapping Museums data. As a historical project with limited funding, the data collection and database development will cease in 2020. At that point the database will be made publicly accessible online and free of charge to all users. Free reproduction will be permitted for research purposes and private study so long as the authors and URLs are quoted. The project website will include links to the open-source software developed by the project, which will be available under Gnu General Public Licence (GPL) and user documentation will be provided in the form of online help on the project website. The dataset will also be published as Linked Open Data, and a hard copy will be archived in the Micromuseums Archive at the Bishopsgate Institute. In short, considerable efforts are being made to ensure that the data is neither lost nor badly archived, that historic data is made available to other researchers, and that all our material is easily accessible and fully comprehensible.

Even so, the larger question remains, how can the museum sector's problem with data collection be remedied in the long-term. In his article 'the Only Game in Town' Adrian Babbidge argued that the solution to impoverished data in the museum

sector may be to have a central body tasked with data collection. This, he suggests, could be linked to the Office of National Statistics or to a university so it would be independent and yet accountable, and it would result in economies of scale, and enable the collection of consistent longitudinal data. More recently, DC Research have strongly recommended that Arts Council England should find a way to work with the information that they already collected, or develop a new process that would enable a more consistent approach to data collection. In either case, they suggested the aim is to create ‘a process by which current, consistent, reliable, and ideally longitudinal data is collected on a comprehensive basis for all museums in England. This will support museums, Arts Council England, and a range of other sector organisations’ (DCResearch 2017, 1). We wholeheartedly endorse that conclusion, strongly recommend that it is carried forward, and suggest that the data collected and the methods developed by the Mapping Museums project could make a significant contribution to such an undertaking.

- Babbidge, Adrian. 2002. 'Commentary 2: The Only Game in Town'. *Cultural Trends* 12 (47): 91–97.
- . 2005. 'Forty Years On'. *Cultural Trends* 14 (1): 3–66.
- . 2018. 'Who's Counting Whom? Non-National Museum Attendances in the UK: Part 1'. *Cultural Trends* 27 (4): 239–50.
- Bax, A., and S. Fairfield, eds. 1978. *The Macmillan Guide to the UK 1978-79*. London and Basingstoke: Macmillan.
- Boylan, Patrick. 1986. *The future role and organisation of local government*. Institute of Local Government Studies University of Birmingham.
- . 2006. 'The Museum Professions'. In *A Companion to Museum Studies*, edited by Sharon Macdonald, 415–30. Malden, Mass. ; Oxford: Blackwell.
- Candlin, Fiona, and Jamie Larkin. n.d. 'What Is a Museum?' *Museums and Society: A New Approach*.
- Candlin, Fiona, Jamie Larkin, Andrea Ballatore, and Alexandra Poulouvasilis. forthcoming. 'The Missing Museums: Accreditation, Surveys, and an Alternative Account of the UK Sector'. *Cultural Trends*.
- Cheney, Terry. 2000. 'Summing Up...Better Data in an e-Culture Age: DGCI Needs for Better Data - A Review and Recommendations'. Report Prepared for Research, Analysis and Compliance, Publishing Policy and Programmes. Canadian Heritage.
- DCResearch. 2017. 'Mapping Museum Data in England'. Arts Council England.
- Drew, Arthur. 1984. 'Eleventh Report, 1978-1983'. London: Museums and Galleries Commission.
- Greenwood, Helen, and Sally Maynard. 2006. 'Digest of Statistics for Museums, Libraries and Archives'. London: Museums Libraries Archives.
- Hewison, Robert. 1987. *The Heritage Industry : Britain in a Climate of Decline*. London: Methuen.
- Howard, Esmé. 1988. *A History of the Commission: Standing Commission on Museums and Galleries 1931-1981, Museums & Galleries Commission 1981-1986*. London: Museums & Galleries Commission.
- Hudson, Kenneth. 2004. 'The Museum Refuses to Stand Still'. In *Museum Studies : An Anthology of Contexts*, edited by Bettina Messias Carbonell, 85–91. Malden, MA: Blackwell.
- Hudson, Kenneth, and Ann Nicholls. 1985. *The Directory of Museums and Living Displays / [Compiled by] Kenneth Hudson and Ann Nicholls*. 3rd ed. London: Macmillan.
- J. Geraint Jenkins. 1990. *Exploring Museums Wales*. Museums Association Guides. London: HMSO.
- Lumley, Robert. 1988. *The Museum Time-Machine : Putting Cultures on Display*. Comedia Book. London ; New York: Routledge.
- 'Mapping Trends in Northern Ireland's Local Museums'. 2016. Northern Ireland Museums Council. file:///Users/fionacandlin/Downloads/mapping-trends-2016.pdf.
- Martinolli, Marina. 2014. 'Visitor Attraction Monitor Report'. Glasgow: Museums, Galleries, Scotland.
- Mendoza, Neil. 2017. 'The Mendoza Review: An Independent Review of Museums in England'. Department of Culture, Media and Sport.

- Morris, Brian. 1988. 'Report 1987-88: Specially Featuring Independent Museums'. London: Museums & Galleries Commission.
- Myerscough, John. 1986. *Facts about the Arts 2*. London: Policy Studies Institute.
- Newman, Tom. 2015. 'Spotlight on Museums: Report for Museums, Archives and Libraries Division Welsh Government'. Museums, Archives and Libraries Division Welsh Government.
- Prince, David, Bernadette Higgins-McLoughlin, and Museums Association. 1987. *Museums UK: The Findings of the Museums Data-Base Project*. London: Museums Association.
- Redington, Christine. 2002. *A Guide to the Small Museums of Britain*. London; New York: I.B. Tauris.
- Samuel, Raphael. 1994. *Theatres of Memory*. London: Verso.
- Schuster, J. Mark. 2002. *Informing Cultural Policy: The Research and Information Infrastructure*. Brunswick, New Jersey: Pew Charitable Trusts.
- SCMG. 1963. 'Survey of Provincial Museums and Galleries (Rosse Report)'. London: Standing Commission on Museums and Galleries.
- Scottish Museums Council. 2002. *A Collective Insight: Scotland's National Audit; Full Findings Report*. Scottish Museums Council.
- Selwood, Sara. 2002. 'The Politics of Data Collection: Gathering, Analysing and Using Data about the Subsidised Cultural Sector in England'. *Cultural Trends* 12 (47): 13–84.
- Tuck, Fiona, and Scott Dickinson. 2015. 'The Economic Impact of Museums in England'. London: Arts Council England.
- Webber, Chris. 2012. 'Middlesbrough's MIMA Art Gallery "Has World's Most Expensive Urinal"'. *The Northern Echo*, 9 March 2012.
http://www.thenorthernecho.co.uk/news/9579832.Middlesbrough_s_MIMA_art_gallery_has_world_s_most_expensive_urinal/.
- West, Bob. 1988. 'The Making of the English Working Past: A Critical View of the Ironbridge Gorge Museum'. In *The Museum Time-Machine: Putting Cultures on Display*, edited by Robert Lumley, 35–62. London; New York: Routledge.
- Wright, C.W. 1973. 'Provincial Museums & Galleries. A report, etc.' London: Department of Education and Science.
- Wright, Melanie, Sara Selwood, Claire Creaser, and J Eric Davies. 2001. 'UK Museums Retrospective Statistics Projects'. Library & Information Statistics Unit, Loughborough University. Ev_domus1.pdf. National Archives.

We would like to thank Dr Jamie Larkin for his helpful comments, the Digital Humanities Institute at Sheffield University for the opportunity to present an earlier version of the paper at the Digital Humanities Congress 2018, and two anonymous reviewer for their helpful comments. This work was supported by the Arts and Humanities Research Council under the Standard grant scheme.

¹ For more information on the Mapping Museums project see:

<http://blogs.bbk.ac.uk/mapping-museums/about/>

² The Standing Commission for Museums and Galleries was established in 1931 and was responsible for advising government on museum affairs and for promoting co-operation between national and provincial museums. It was renamed the Museums and Galleries Commission (MGC) in 1981 when it was also given additional responsibilities (Howard, 1988). The Digest of Museum Statistics (DOMUS) was an annual survey conducted by the MGC. It was launched in 1994 with the aim of adding to the body of information about museums that was gathered through the Registration Scheme (later known as the Accreditation Scheme). It was closed in 1999. Information and records of DOMUS are held in the National Archive.

³ The Museums and Galleries Commission was replaced in 2000 by Re:source, which was later named the Museums Libraries Archives Council, and was dissolved in 2010.

⁴ The Northern Ireland Museums Council is a government department as is the Museums, Archives, Libraries Division (MALD) in Wales. MALD was previously known as CyMAL. The Scottish Museums Council advised the Scottish government on museum affairs and was the national development body for museums in Scotland. In 2008 it was renamed Museums Galleries Scotland.

⁵ The Association of Independent Museums (AIM) is a charity and a membership organisation that supports and champions independent museums. It was set up in 1977. The AIM report is mentioned in two contemporaneous sources: Myerscough notes that the survey took place in 1983 and that it lists 1250 museums (1986, 186) while in 1986

Patrick Boylan, wrote that a recent survey by AIM had identified over 1400 museums run by voluntary organisations and individuals (Boylan 1986)