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Keeping for the future

Introduction: the use of objects for teaching and research

With the development of object-based teaching and research from the late sixteenth century, universities across the world began to establish museums and collections. This ‘first generation’ university museum¹ – with its triple mission: teaching, research and public display – experienced its golden age from 1850 to 1950. These museums were specialised and closely linked to a department within a faculty. Well-established universities had up to 20 or more of such specialised museums and collections, covering the natural sciences, the arts and the humanities. Content and organisation was directly linked to research programmes or curricula.

The development of ‘second generation’ university museums – integrating collections resulting from historical accumulation – seems to have started in the early 1900s², with the establishment of a number of now well known history of science museums, such as the Museum of the History of Science, University of Oxford (1924). Some, like the Museum Boerhaave, in Leiden (1929), eventually became national museums. Typically, they originated from the need to protect and preserve eighteenth and nineteenth century instruments, models and other equipment previously used in teaching and research apparatuses that had become obsolete.

Since the 1980s, a ‘third generation’ university museum has developed through integrating collections as well as management structures. Many third generation university museums act as a ‘showcase’ for their universities and have a stronger public commitment. Today, after centuries of existence, university museums are said to be at best ‘at the crossroads’ or at worst in ‘crisis’.

¹ M.C. Lourenço, 2005. *Between two worlds: the distinct nature and contemporary significance of university museums and collections in Europe*, Unpublished PhD thesis, Conservatoire national des arts et métiers, Paris (see <http://correio.cc.fc.ul.pt/~martal>).

² M.C. Lourenço, *idem*.

Lourenço recognizes several factors as having contributed to the present situation³. The current ‘crisis’ is part of a broader intellectual, sociological, political and economic change, initiated by institutional transformations of the university and the general museum sector since the 1960s. Changes in research, new techniques, and the cost of collection maintenance alone have not made university museums and collections ‘endangered species’. Universities themselves are suffering an identity crisis with traditional discipline boundaries vanishing, the integration of ICT, drastic financial cuts and aggressive – market-oriented – international competitiveness. This context has changed what universities expect from their museums and collections. They are expected to play an active role at the interface between the university and its community addressing both general and academic audiences.

At the same time, the increasingly important role of the public and a rise in professional standards and training in museums in general has also had an impact on visitors’ expectations of university museums. This has resulted in moving from a small number of specialised users (mostly students and scholars) towards a wider, non-specialist public with a general interest in the broader subject matter. The fact that these museums have come to primarily focus on the public has had significant consequences for the composition and skills of staff, the role of the object in the collections, and their capacity to select and collect for the future.

The ‘third generation’ university museum: what about the collections?

Many third generation university museums no longer reside within a faculty or department, but have become a central service unit in the university. The relationship between these more public-oriented museums and actively used faculty-based research and teaching collections is less clear. It is also unclear which objects or collections will eventually be subsumed within these third generation museums, when abandoned by their faculty. The question of what should be kept for the future and for what purpose, therefore, has yet to be addressed. Hardly any university or research institute has a well-established position on this issue, let alone a policy. Worldwide, the general picture is one of disposal and dispersion of many collections, meaning that significant parts of our scientific heritage are being lost⁴. Only a limited number of collections are given a second life in another university, research institution or museum and disposal and dispersal are frequently the case⁵. Although it may be difficult to make a well-considered selection and ‘mistakes’ are inevitable, this should not excuse us – UMAC, as well as curators and keepers of research and teaching collections – from the responsibility of developing a policy on what to keep and preserve.

³ M.C. Lourenço, *ibidem*.

⁴ For the fate of the Dutch geological collections, see S.W.G de Clercq, *The ‘Dutch approach’, or how to achieve a second life for abandoned geological collections*, „Museologia”, 2003, 3, p. 27–36.

⁵ Efforts to give collections a second life proved relatively unsuccessful, see S.W.G. de Clercq, 2003, *op.cit.*

‘Silent’ disposals

Over the past 25 years, a great many collections have been disposed. It is my guess that only a small percentage of these disposals have become more widely known and even less have been documented – I designate them here as ‘silent’ disposals. My personal engagement with university museums and collections was triggered by a ‘silent’ disposal in the mid 1970s, when historical teaching collections dating back to the beginning of the Geological Institute of the University of Utrecht (1879), as well as a substantial number of research collections, were abandoned because of budget cuts⁶. This was probably the first major example of the disposal of research and teaching collections from an entire faculty in the Netherlands⁷ – it raised awareness and fuelled pressure on both the university management and the government, subsequently leading to inventories of university collections at a national level⁸. In retrospect, it is interesting to note that costs of maintaining collections – in combination with the space collections occupied and the fact that many were not frequently used – were the reasons given to justify disposal. These collections, however, were amassed and studied with public money and continued to have cultural, scientific and economic value, but this was not considered in the decision to dispose. Only recently the considerable economic value of research collections has been calculated. In his introduction to the Annual Report 2003, the director of the Netherlands’ Geological Survey (NITG-TNO) estimated the accumulated value of their *geodata* to amount to at least 20 billion euros⁹.

The readiness to dispose indicates that decision-makers are not primarily concerned with the intrinsic importance or economic value of these collections, but only with the day-to-day running of their institutions. They may also argue that the disposal of one collection is not dramatic as there are many more around the world.

The accumulative effect of this process, however, results in the loss of a considerable proportion of the global scientific heritage without any vision or idea of its importance and potential value. These acts of neglect are unacceptable in terms of professional museum management – they violate ICOM’s Code of Ethics¹⁰ – and are scientifically, culturally and economically irresponsible. In a large majority of countries, the massive and uncontrolled dispersal of scientific heritage takes place against the background of the absence of an integrated overview of the composition, content, scale and importance of their national scientific archive, based on a survey of what exists at the national level¹¹. In Europe for example it is not even known how many universities

⁶ S.W.G de Clercq, 2003, *op.cit.*

⁷ For a general overview of the situation in Europe, see M.C. Lourenço, 2005, *op.cit.*

⁸ LOCUC, 1985. *Rapport landelijke inventarisatie universitaire collecties, 1985*. Landelijk Overleg Contactfunctionarissen Universitaire Collecties & Ministerie van Onderwijs en Wetenschappen, Den Haag; „Advies betreffende de bedreigde universitaire collecties”, Rijkscommissie voor de Musea en Commissie van Advies voor de Natuurhistorische Musea, 1986.

⁹ H. Speelman, *Bericht van de Instituutdirecteur, „Jaarverslag”, 2003*, p. 24–48. Nederlands Instituut voor Toegepaste Geowetenschappen TNO.

¹⁰ See <http://icom.museum/ethics.html>

¹¹ Australia, the UK and the Netherlands are the only countries with a reasonably complete overview of their university collections at national level.

there are, let alone the number of their museums and collections. Lourenço estimated 13,000 European university museums and collections¹².

Collections as scientific archives

The question of what should be kept needs a broader context of the accumulated value and relevance of the information contained in the collections as part of the global archive of human knowledge. The material archive of our scientific endeavours should be regarded, used, staffed and financed in the same way as we regard our ‘paper’ archives. Selection, de-accessioning, keeping and providing access, are genuine archival functions. The recently published guidelines by the Council of Europe¹³ can serve as an example. However, we cannot treat all research collections in the same way. The nature of objects varies across disciplines, as does their associated information. In some fields – like scientific instruments and medicine – the information is scarce, scattered and lacks standardisation. Other fields – notably natural history and archaeology – use a worldwide, standardised nomenclature and have developed independent international accessibility projects¹⁴.

Dispersions and disposals will continue unless we develop a coordinated strategy of academic archive preservation. Close collaboration with potential future users, including scientists, historians of science, cultural heritage specialists and archivists is required. However, collaboration *per se* does not ensure global implementation. While most of the bigger collections may be represented, many smaller collections cannot afford to participate. The same will probably be the case for interdisciplinary collections (such as anthropology). A standardised survey is required to develop a useful overview in the first instance. It should build on pre-existing knowledge derived from surveys already developed in some countries and from existing structures. This can only be tackled through international action. We should a) establish the whereabouts and potential quality of the collections (survey), and b) raise the questions that future users may pose. In a second stage, we need to: c) set up an organizational structure that is easily accessible for future users, and d) has a sound financial structure. I will now address each of these four points.

Whereabouts and potential quality of the collections

A discipline-specific approach has been discussed in the ‘Dutch Approach’¹⁵. A global approach is taken by UMAC’s Worldwide Database of University Museums & Collections, which currently holds over 2,000 records. The Database is illustrative of

¹² Europe including Russia. See M.C. Lourenço 2005, *op.cit.*

¹³ C. Kecskeméti & I. Székely, *Access to archives: A handbook of guidelines for implementation of Recommendation No R(2000)13 on a European policy on access to archives*, Council of Europe Publishing, Strasbourg 2005.

¹⁴ For example LINNE, presented in the Uppsala UMAC Conference (M.A. Mares, *LINNE: Legacy infrastructure network for natural environments*. Unpublished talk given at UMAC Annual Conference, Uppsala, 25 September–1 October 2005); BioCASE, a transnational network of biological collections (<http://www.biocase.org/>), and the GBIF, Global Biodiversity Information Facility (<http://www.gbif.org>).

¹⁵ S.W.G. de Clercq, 2003, *op.cit.*

how collaboration and a modest budget can result in a valuable resource. It is a global Directory of University Museums and Collections for UMAC, researchers, students, and the general public¹⁶. To date non-university research collections have deliberately been excluded, but the database could serve as a model for further development, including international agreement on classification and collections assessment. Further developments could be tackled by establishing discipline-based international projects and/or use the experience of comparable projects at the national level (UK, Germany, the Netherlands). *Universeum*, the European network of academic heritage¹⁷ could also provide an umbrella organisation.

Questions from future users

In this respect, the situation also varies between disciplines. Thomson indicated some unexpected problems that can be resolved by using old collections¹⁸. A renewed interest in different disciplines for different reasons is emerging. In zoology, modern techniques use organic material to reconstruct past environmental conditions, triggering a reevaluation of historic collections¹⁹. History of science needs objects as material evidence²⁰. Following the success of the European Science Foundation Network 'New perspectives on the enhancement of the European scientific heritage'²¹, a follow-up ESF-programme entitled 'European Scientific Heritage and Public Engagement with Research' (ESHPER) has been prepared. These initiatives bridge the traditional gaps between museums, archives and libraries and stress the importance of establishing Scientific Heritage Studies as a new discipline that will allow a better understanding of the use of collections for the history of science.

Organisational structure

As noted above, collaborative action is needed to halt the loss of scientific heritage. Existing structures do not guarantee a representative, useful and accessible archive of scientific research. Small third generation u-museums, in particular, are neither equipped nor inclined to take on the task. Their commitment to the general public requires a different professional specialisation. Although not impossible, it is unlikely that the archival function can be performed by the third generation museum, unless it is

¹⁶ See the database at <http://publicus.culture.hu-berlin.de/umac/database.html>. For details see C. Weber & M.C. Lourenço, UMAC Worldwide Database [in:] P.B. Tirrell (ed.), *Proceedings of the third conference of the International Committee for University Museums and Collections (UMAC)*, 2005, p. 43–46. Sam Noble Museum of Natural History, University of Oklahoma, Norman, OK.

¹⁷ The network *Universeum*, 'Academic Heritage and Universities: Responsibility and Public Access', was created in April 2000 by 12 of the oldest European universities. See <http://www.universeum.de>.

¹⁸ K.S. Thomson, 2002. *Treasures on Earth: museums, collections and paradoxes*. Faber & Faber, London. A recent example is the essential contribution to the reconstruction of the 1918 influenza virus based on samples of lung tissue kept for almost 80 years as described in J.K. Taubenberger, A.H. Reid, R.M. Lourens, R. Wang, G. Jin & T.G. Fanning, 2005. Characterization of the 1918 influenza virus polymerase genes; *Nature* 437, p. 889–893.

¹⁹ E.g. D.A. Rocque & K. Winker, 2005. Use of bird collections in contaminant and stable-isotope studies. *Auk* 122: 990–994.

²⁰ The workshop *Curating 20th Century Science*, Universiteitsmuseum in Utrecht, the Netherlands, 17–18 October 2005, with the Scientific Instruments Commission.

²¹ M. Beretta (ed.), 2005, *From Private to Public: natural collections and museums*. Science History Publications, Watson Publishing International, Sagamore Beach, MA.

big and resourceful. It is, therefore, unlikely that universities will give their third generation museum an archival task covering all collections, as this would include a whole range of discipline-specific collection management and accessibility issues. It makes no sense for each museum to keep a bit of everything.

Collections will continue to be offered for disposal as research moves on and incidental actions²² provide no more than temporary solutions because they fail to address the structure of the problem. Keeping the 'material archive' accessible for future use requires the development of a permanent structure with acknowledged professional standards and criteria for object selection. This should be a structure that is well rooted and embedded in the academic community. It will be a mix of traditional museum and archive, with specific characteristics that identify it as a structure in its own right, equivalent with and in addition to museums, archives, monuments and libraries. This '*scientific material archive*' – that should encompass all research and teaching collections, including the historical collections of scientific institutions, could have the characteristics of the 'collection centre' as described by Spalding²³ (Table 1).

Table 1 – 'Scientific Material Archive' adapted here for the purposes of scientific heritage archives from the 'Collection Centre' as proposed by Spalding²⁴

'Scientific Material Archive'		
Scope	Uses	Context
Encompassing all aspects of heritage: – core tasks research and teaching; by discipline, international context; – collecting, selection, disposal, preservation, conservation, etc.; – digitisation, access and use of research documentation	For the use of: – research & teaching; – presentation to academic & general public; – public accountability, public understanding of research, participation in public debate	Should be: – firmly based within the university and other scientific institutions; – be part of a national and international network

Financial structure

The establishment of a 'scientific material archive' as an independent heritage system (not necessarily concentrated in a single building) and keeping it running successfully is an expensive exercise. In order to guarantee, stimulate and optimize the re-use of available data preserved in the 'material archive', it would be unwise to charge future users the full costs. This would also deny the responsibility of those who did the original research that produced the collections, as well as the general public interest of keeping the material available for the future and the economics of unforeseen uses. Costs could be divided into three components: a) selecting the material, bringing it in

²² As described in S.W.G. de Clercq, 2003, *op.cit.*

²³ J. Spalding, *The Poetic Museum. Reviving Historic Collections*, Prestel, Munich–London–New York 2002.

²⁴ J. Spalding, *idem.*

good shape and digitisation; b) keeping the material available for future use; c) allowing the use and providing research facilities. These costs are to be shared by: those who establish the ‘material archive’, the general public, and those that use it in the following ways:

a) selection: this would be the responsibility of the researcher, and can be easily financed according to the „the polluter pays” – principle by putting a fixed percentage on each research project, which can be compared with the „removal contribution” on each newly purchased car or washing machine.

b) keeping: taking into account that the future user is unknown, as is the moment when (if ever) it will be used, this would be a public responsibility;

c) actual use: these costs should be part of the cost of the research programme.

Concluding remarks: awareness and action

The creation of UMAC in 2001 marked the recognition of university museums by the museum sector. One of the goals set by UMAC was to attain comparable recognition from the academic world. UMAC’s Working Group on ‘Recognition’ was established to raise awareness of university museums among politicians, university administrators and other stakeholders. In order to achieve recognition, it does not suffice to simply complain about the lack of support and funding, but it is important to show and communicate success. The linkage between bird-flu and the 1918 pandemic could only be established because samples were kept in a museum. In preparing this paper, I found it difficult to find well-documented evidence of such success stories, although there are certainly many.

An important step may be the adoption by the Council of Europe of the ‘Recommendation on Governance and Management of University Heritage’, encompassing specific recommendations on policies, legislation, governance and management, finance, access, professional training, research, awareness raising, relations with local communities, and international cooperation²⁵. The Recommendation provides arguments and political legitimacy for university museums and collections worldwide. It asks university administrations „to consider all parts of the heritage of a higher education institution as falling under their ultimate legal, administrative and moral responsibility” and calls for dedicated funding of university heritage in the budget of higher education institutions. It is now up to us to see that our governing bodies act accordingly.

²⁵ The Recommendation was adopted unanimously on 7 December 2005. The full text is available at <http://wcd.coe.int/ViewDoc.jsp?id=946661&BackColorInternet=9999CC&BackColorIntranet=FFBB55&BackColorLogged=FFAC75>. See also S. Bergan, *in press*. Council of Europe adopts Recommendation on university heritage. „Museologia”, vol. 4.