

76

Fig. 1. The future?
The new low oxygen storage
facility in Boston Spa with
automated retrieval system.
© The British Library.



Jane Henderson

Preventive conservation in the UK: the past and the future

Conservation préventive au Royaume-Uni :
passé et avenir

Abstract. *Preventive conservation, the act of caring for objects has always been embedded within conservation. This paper will examine the series of events including government intervention, publications, economics, research and the actions of professionals that have led to the emergence and definition of preventive conservation as a distinct concept within the UK.*

Keywords. *Preventive conservation, UK, history, trends.*

Résumé. *La conservation préventive, le soin apporté aux objets, a toujours fait partie de la conservation. Cet article examine à travers les interventions gouvernementales, les publications, les aspects économiques, les recherches et les actions des professionnels, la chronologie des événements qui ont conduit au Royaume-Uni à l'émergence et la définition de la conservation préventive en tant que concept spécifique.*

Mots-clés. *Conservation préventive, Royaume-Uni, histoire, tendances.*

77

Introduction

The wider concerns of preventive conservation are shaped by the concerns of the entire cultural heritage sector, however within conservation there are specific distinctions that bear discussion. Traditionally collections within art galleries, museums and historic houses have one sphere of influence. In these the publication of Garry Thomson's *The Museum Environment* in the 1970's; the role of the organisations such as the Museums and Galleries Commission (MGC) and the UK's National Trust have shaped the sector. Preventive conservation in the library and archive sector has been defined by the British Standard, BS 5454 '*Recommendations for the storage and exhibition of archival documents*' (1977, 1989, 2000), and the National Preservation Office (NPO) of the British Library. Both the history and future of these two parallel sectors contains elements of mutual influence and elements of distinction.

A brief history of preventive conservation in the UK the role of standards

The past shapes our present and our future. In the UK the core principles of preventive conservation were shaped by several linked experiences. These experiences, including the temporary war-time storage of National collections within Welsh slate quarries (Standing Commission on Museums and Galleries, 1948), the work of specific specialist researchers such as Loe on lighting (1987) or Stolow's work on art in transit from the 60's to the 80's and the increasing availability of technology and energy culminated in the familiar but restrictive standards of 50 or 55% RH \pm 5% and 50/200 lux. These standards described in *The Museum Environment* (1978) were often reproduced without the context and interpretation offered by Thomson, as rules for loans and grants and as standards for students and professionals in the sector. Almost simultaneously the publication of BS 5454 offered a similar set of targets for the archive and library community. These figures dominated the understanding and delivery of preventive conservation for nearly thirty years.

Jane Henderson a œuvré dans le secteur privé et public de la conservation en Pays de Galles et notamment en tant que Conservation Manager for the Council of Museums in Wales. Elle enseigne aujourd'hui à l'université de Cardiff dans le Bachelor of science in Conservation and Master of science in Collections Care and in Conservation Practice et représente la Welsh Federation of Museum and Art Galleries and the Trustee à l'Institut for Conservation (ICON) du Royaume-Uni (hendersonLJ@Cardiff.ac.uk).

Government agencies in the 1990s

In the UK the conservation profession is not regulated by the state but the training of conservators, ownership of collections and funding for conservation are all directed by government [McBride, 2011]. In 1980 the Standing Commission on Museums and Galleries, government advisory body, created a new profile for preventive conservation by calling for the provision of a suitable museum environment to be given a priority [Winsor, 2001]. In 1984 the British Library established the NPO to raise public awareness of preservation and to develop preservation management of library and archive materials in the UK and Ireland. In 1987 the government advisory body, the MGC established the Conservation Unit to advise and support conservation work within museums, art galleries and historic houses. In the late 1990's the Conservation Unit was phased out but the Preservation Office remains, retitled in 2009 the British Library Preservation Advisory Centre.

The Museum and Gallery community

The Conservation Unit had a strong focus on preventive conservation, employing May Cassar as Environmental Adviser in 1989. In this post Cassar produced several milestone publications including *Environmental Management: Guidelines for Museums and Galleries* which widened the discussion to topics such as making the case for conservation, visible storage and energy efficiency all of which have emerged as growing themes within the sector [Cassar, 1995]. Cassar was also instrumental in attracting the Getty Conservation Institute to partner the MGC in offering two intensive training courses on Preventive Conservation in 1993 and 1995 to which conservators in positions of influence were invited to attend. Participants included staff from museum advisory councils, the National Trust, universities, English Heritage and major museums in the UK and Europe. Participants from this course went on to establish the Care of Collections Forum in 1993, the first UK professional body dedicated to preventive conservation issues. This subsequently became the Care of Collections Group of Icon, the UK's professional conservation body. Although the network of preventive conservators was lively, it remained small. A 1993 UK survey found that despite the national museums having 46% of the public sector conservation staff they employed no preventive conservation specialists. Only 21 conservators (2% of the workforce) were identified as being 'preventive conservators' [Winsor and Greenblatt, 1998].

Beyond the nationals, museum strategy was shaped by the Area Museum Councils (AMC). These regional strategic agencies offered support to non-national museums and during the 1990's most AMC's offered preventive conservation advice, encouraged by the Conservation Unit with a stream of relevant publications. However the end of the decade saw a change to the organisation of the MGC and

the AMC's with a reduction in service provision [Winsor, 1998]. As the AMC's reduced their role they assigned their remaining functions in England to 'museums hubs' and a web service *collections link*¹. In Scotland, conservation advice is now offered through a private sector supplier: the Scottish conservation Studio, only Wales has retained a conservation advisor based in the governmental body, CyMAL and this service is offered across museums, libraries and archives².

The library and archive community

Preservation began to appear as a significant issue within the library and archive community in the mid 1980's. In 1988 preservation first appeared as a separate chapter in a core book on librarianship [Bromley, 1988] and in 1991 Feather published the first summary of preservation practice for British libraries [Walker, 2006]. Throughout the 80's and 90s the NPO influenced both practitioners and decision makers. The NPO supported preventive conservation with a series of advisory booklets and a rolling programme of training offered across the UK and Ireland. A change in the perceptions of the relevance of preservation in the library and archives sector has been observed, reporting as having changed image of preservation 'from being a ... highly specialised, expensive, sometimes peripheral set of activities, ... to a central place at the core of collections care,' [LISC, 2004].

In the late 90's the NPO developed a model for the assessment of preservation needs of collections resulting in a UK wide assessment of preservation practice. The NPO used the results to inform their priorities [Walker and Foster, 2006]. However, the survey found that 50% of collections remained in inadequate accommodation and 13% of collections were in unstable condition. The report concluded that 'Significant amounts of material in archives and libraries are at risk now because of poor preservation' [Walker and Foster, 2006]. A similarly bleak picture emerged from the work of the *Archives Task Force*: a major examination of the archive community. The report discusses a 'depressing state of stewardship' despite the efforts of some organisations and notes: 'storage and conservation facilities are poor in most regional areas' [Forde, 2003].

Government agencies have gathered data and offered advice throughout the late 80's and 1990's but awareness alone is not sufficient to ensure the funding necessary to shift the conditions for collections in the UK. Government priorities in the UK are moving away from audit and accountability to the 'Big Society' a nebulous concept which heralds a period of public sector funding cuts tied to calls for flexibility in delivering services. Preventive conservation can offer flexibility but when delivered at a time of recession it may augur a period of lack of investment and the abandonment of expertise.

Fig. 2. Conservation Award winning care of collections project 2005: volunteers learning how to repack objects in the Museum of London's archeological archive.
© The Museum of London.



Unified practice

The museum and library communities came together to produce *Benchmarks in Collection Care for Museums, Archives and Libraries: A Self-Assessment Checklist* [Winsor, 2002], drawing together advice and guidance on three levels of practice for all aspects of collections care. Published in 2002 Benchmarks has retained its relevance throughout the 00's [Norfolk Museums and Archaeology Service 2007, McKeon, 2008] with a revision produced in 2011.

In another act of unification the professional body for conservators in the UK Icon, the Institute of Conservation was founded in 2005 from five separate professional bodies, one of which was the care of collections forum. Icon took on some of the responsibilities of the Conservation Unit, including the Conservation Awards, a scheme introduced in 1994. The Conservation Awards, act as an interesting marker of the sector's pre-occupations, the first round awarded prizes to students, conservation projects and research & innovation. An award for care of collections was introduced in 2005 (fig. 2).

Icon also offers a professional accreditation scheme for conservators [Lester, 2002]. Launched in 1992 accreditation is a common recognition scheme for professional practice [Henderson and Dollery, 2000]. The place of preventive conservation in the UK can be illuminated by the evolution of the scheme. Initially, full accreditation was not possible for those carrying out pure preventive conservation practice, then in time a distinct pathway was introduced and finally that distinction was phased out as the scheme evolved from descriptions of practice to standards of competence. Now conservators applying for accreditation are advised to identify a specialism and demonstrate how they assess conservation options and strategies and carry out conserva-

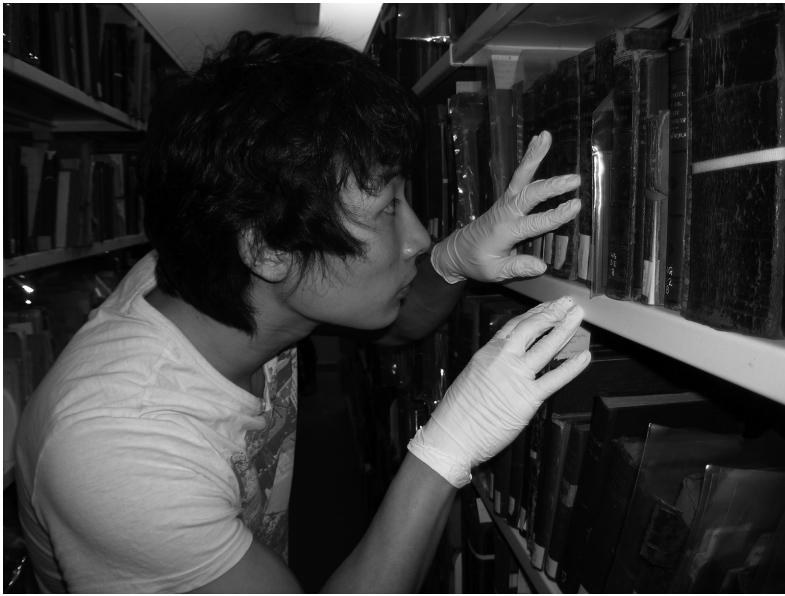
tion measures appropriate to that specialism [Icon, 2011]. Preventive conservation is as core an element of conservation work as any other aspect, with equality and equivalence to intervention.

Formal education and preventive conservation training

There is little data available on the composition of early conservation courses in the UK. As early as the 1980 there were calls for education to consider stabilising collections by the control of the environment [Cronyn, 1980]. In the 1988 survey of conservation training [Giles, 1989] there were no training courses offering specific degrees in preventive conservation. In the late 80's the United Kingdom Institute for Conservation (UKIC) proposed a core syllabus for conservation training that included a module in preventive conservation [Cronyn and Pye, 1988]. In the early 1990's established courses started to convert elements of preventive conservation teaching into formal modules: Durham University in 1990 [Capel, 1993]; Cardiff University in 1991 [Watkinson, 1992]; TCC in (1999). In the same time new degrees emerged with specific elements of preventive conservation such as the MA in Conservation of Wall Painting at the Courtauld Institute (1985) [Park, 1990], the BSc in Restoration Conservation at London Metropolitan University (1992) and Textile Conservation in Southampton (1999).

Degree schemes designed to teach collections care emerged later with the Care of Collections MSc in Cardiff University in 1998 (fig. 3) and an MA in Preventive Conservation at the Lincoln School of Art and Design in 2005. These remain the only two university level preventive conser-

Fig. 3. Student on the MSc Care of Collections degree at Cardiff University. © Cardiff University.



vation courses. Previously the Textile Conservation Centre had offered two ground breaking one year courses in preventive conservation in the late 1970's. Preventive conservation is now accepted as an essential element of conservation teaching. Most degrees recently introduced in the UK include formal teaching in preventive conservation³. Consequently, most emerging conservation professionals in the UK have a solid grounding in preventive conservation.

Preventive Conservation in the UK today

The emergence of preventive conservation has been influenced by resource and political issues. There are some that argue preventive conservation is promoted as a result of the dual negative forces of cuts in resources and a de-skilling of the sector. Others argue that preventive conservation offers best value in increasing the care of collections with limited resources. The second position has gained in dominance throughout the 90's [Walker, 2007] with evidence to support it increasingly being supplied by experience and audit.

The prioritisation of monitoring and auditing the efficiency of organisations has been promoted in the UK public sector. The results are an increase in generation of policies and targets and the formalisation of many aspects of practice. In turn this has influenced the operation of conservation with greater emphasis on audit and planned approaches to conservation work. Preventive conservation fits well in a strategic institution where planned investment can offset future costs. Many of the actions associated with preventive conservations, such as survey and audit have worked well with the political imperative of the 90's and early 00's.

Current levels of preventive conservation provision

There has been no workforce survey in the last decade so any discussion of staff in preventive conservation is arguable. In most museums the 'conservator' may find their time largely committed to preventive conservation and administrative tasks. It appears as if the numbers of preventive conservation specialists has increased. Many of the national museum's have staff in a preventive conservation role whether in dedicated posts or as part of the conservation science departments. The acceptance of this function appears to be the norm⁴. The reason for this can be illustrated by an English Heritage report on the success of their collections care staff who have made '*Considerable progress... towards improving collections care at EH*, with only 17.57 FTE staff working over 115 sites with 480,800 objects [Xavier-Rowe and Fry, 2010]. The National Trust, although currently undergoing a significant restructuring, has retained a high profile in the preventive conservation community with an increasing focus on the sustainability aspects of collections care [Staniforth, 2010].

Trends that affect conservation as a whole will also directly and indirectly influence the priorities of preventive conservation. It is worth reviewing some core topics from conservation and examining how they have shaped preventive conservation.

A trend developing in the 1990's and dominating the 00's was placing conservation in the public eye. The award for communicating conservation was introduced in 1985 and many were inspired by the ground breaking preventive conservation exhibition: *Stop the Rot* in 1993 (fig. 4) [Brooks and Cane, 1994]. Public accessibility has been a key feature of survival under the Blair government (1997-2007) and in times of Lottery funding. The introduction of a National Lottery increased funding to the heritage sector in general and to some preventive conservation projects, notably the research-led programme of conservation and environmental protection of the ss Great Britain [Watkinson and Lewis, 2004] and the NEWSPLAN initiative to preserve unique and fragile local newspapers collections in libraries [Walker, 2007]. A requirement of lottery funding has been to demonstrate clear public benefit evidenced with signs of participation and demand from local communities. The HLF is able to provide millions of pounds for large scale building projects leading to the growth in accessible storage projects, such as the Glasgow Museums Resource Centre requiring preventive conservators to develop strategies for storage that also includes visitors. Preventive conservation has also benefited tangentially as museums remaining open during construction have generated a wave of research into measuring, quantifying and responding to particulate damage and vibration [Erimen *et al.*, 2000]. The need to demonstrate that preventive conservation can offer public benefits remains a challenge to some, and the community in the UK still feels the need to debate whether making collections accessible is in some fundamental way in conflict with their preservation [UCL, 2009].

Conservation cannot avoid the rigours of scrutiny prompted by the world recession, and the increasingly competitive and aggressive environment was seen as one factor that led to the closure of the Textile Conservation Centre in 2009 after 34 years of teaching. This, in turn, led to the research and publication by a leading UK political think tank of *It's a Material World: Caring for the public realm* [Jones and Holden, 2008]. This publication advocated a shift away from describing conservation in terms of the technical processes related to objects and towards describing conservation as involving people interacting with cultural heritage. Preventive conservation cannot ignore the message from the current UK government that the cultural sector must expect to work harder to provide the evidence of value [O'Brien 2010]. Whether it is possible for preventive conservation to avoid the rigours of recession by a closer alignment to the current values of the political elite, [Drysdale and Richmond, 2010] or whether confrontation becomes the

order of the day is not yet apparent. What is clear is that the way that preventive conservation concerns are presented is becoming as important as the concerns themselves. PAS 197, a standard for collections management in the UK states that 'Successful collections management is about balance, the balance between access and preservation, between the needs of collections and the people who use them', (BSI 2009). Conservators are learning how to measure and describe the benefits and impact that preventive conservation can offer (PAC, 2011) in terms they hope will find favour with politicians. Part of this trend has been a recent increase in interest in how to describe the significance of collections and defining significance is becoming an important tool of collections care to accompany data on risk and collections condition [Xavier-Rowe and Fry, 2010; BSI, 2009; CyMAL, 2010].

81

Fig. 4. Stop the Rot Exhibition. © S. Cane.



Research

Fortunately the concerns of the preventive conservator have not all been politics and language: conservators in the UK continue to carry out and respond to research on an international level with preventive conservation concerns holding a high profile. The sector received a much welcome boost by the publication in 2006 of the House of Lords Science and Technology Select Committee report on Science and Heritage. This report concluded that there was a compelling need for a comprehensive national strategy for heritage science which in turn led to two major initiatives.

In one the Arts and Humanities Research Council (AHRC) and the Engineering and Physical Sciences Research Council (EPSRC) opened an eight million pound funding stream for science and heritage in 2008 (AHRC, 2011). Projects include research topics such as corrosion control and flood risk modeling and the results are eagerly awaited in the sector. On-going research programmes, such as those supported through the AHRC help us to ensure that resources are targeted at areas that can be most effective. Luxford has shown that pollution and humidity may contribute as much to damage to silk as light [Luxford *et al.*, 2009], and research on disaster planning reminded us that over a third of UK museums libraries and archives had experienced a 'disaster' in the previous five years yet only 50% of archives had a completed disaster control plan [Matthews, 2006].

The other initiative prompted by the House of Lords report was the creation of a steering group charged with developing a national vision and strategy for heritage science. After a series of investigations, consultation and reports the steering group summarised their findings in two strategic aims concentrating on demonstrating the 'public benefit of heritage science' and 'increasing collaboration' within the sector. It is interesting to reflect that the conclusion of this body of work has returned to the recurring themes of communication and collaboration.

Fig. 5. Digitisation at the British Library. © The British Library.



Within the library and archive community there have been two strands of research with specific relevance for preventive conservation, mass de-acidification [Rhys Lewis, 2001], and digital preservation. Research into the problems of acidic paper found that there were significant collections at risk in the UK and that regional initiatives supported by the British Library were the best way to progress (fig. 5). Research on the loss of digital information and preservation policies, identifying life cycle costs for the preservation of digital information (Life 2011) and the archiving of web sites has taken off in the UK. The significance of digital preservation is represented by the establishment of the Digital Preservation Coalition in 2001 and the instigation of a conservation award in 2004. In 2005 Walker (2007) reported that in the UK more than £130 million of public money had been spent on digitisation projects, but that these projects were fragmented and required coordination to deliver more effective results. Digital preservation is not a concern in the UK alone and the future of this line of research must consider international partnerships, standardisation and co-operation.

Recurrent calls have been made for the development of national strategies for preservation [Foot, 1997; NPO, 2001; Winsor, 2001; Resource, 2002; Walker, 2006]. Yet despite the enthusiasm for national strategies the political agenda has slipped away and no national strategy has ever emerged [Walker, 2007]. One element of the demands for coordinated strategies has been to raise the possibility of shared storage (fig. 6), for example for Scottish academic libraries [Walker, 2007] or Welsh archaeological archives [Henderson and Parkes, 2004], and any coordination of preservation activities and strategies that has emerged has done so on a regional or UK home nation basis [Walker, 2007; CyMAL, 2010; Scurl, 2011].

The future

Conservation is a tiny part of the slightly more significant culture and heritage sector and preventive conservation is an even smaller fraction. Preventive conservation is tied to the future of conservation as a profession and as a subject area and is buffered by the same forces. The future of preventive conservation seems inextricably tied to both the survival of conservation and a valuing of the cultural heritage (fig. 6 see p. 76).

Sustainability and standards

In the years of 00's sustainability has grown in focus for society and conservators are showing an increased interest in sustainability issues and its impact on their practice [Silence, 2009; O'Dwyer, 2009; De Silva and Henderson, 2011; Lambert and Henderson, 2011]. The main focus has been on cross referencing priorities for a sustainable environment with acceptable and realistic levels of environmental control for collections. In response to this topic being raised by the Bizot Group meetings, the National Museums Directors Group (NMDC) in the UK set up a working group to consider how to make environmental standards 'more intelligent' and promote passive control and good design



What's in Store?

Towards a Welsh strategy for the management of, and access to, the archaeological evidence of our past

Fig. 6. The What's in Store report.
© The Council of Museum in Wales,
details of Llyn Cerrig Bach plaque.
© National Museum of Wales.

over air conditioning [NMDC, 2011]. This type of initiative is gaining ground [Staniforth, 2010], and it is only a matter of time before the environmental guidance of BS 5454:2000 that has held so much sway in the late 20th century will be revised. A new Publicly Available Specification (PAS) for environmental conditions for cultural collections is in development which aims to 'provide an updated set of requirements for the environmental conditions for cultural collections in the UK [BSI 2011].

Another concern is considering the impact on cultural heritage of climate instability. Continuing freak weather events put collections at greater risk from flood and rising temperatures will encourage the spread of previously unseen insect pests. Many argue that climate change is a greater threat to collections than all of the more familiar agents of decay and that it is the responsibility of those in preventive conservation to act now to reduce this impact.

Internationalism

There continues to be a general drift toward integration of Europe and a resistance from the UK in participating in that movement [Hassard, 2008]. Nonetheless it is hard to consider the development of conservation in the UK without considering alongside this the international development of preventive conservation. The ICCROM initiative for team work in preventive conservation led Ulster museum to conclude that effective preventive conservation required cooperation underpinned by knowledge, skills and respect, [McGreevy, 1999]. The ever increasing integration of the European Union will lead to greater harmonisation of standards and through joint funding of research to the shared development of new ideas and refreshed practice. Debates about education and training will continue with the UK preferring to recognise competence and knowledge: out of line with European moves to recognising institutions and

time spent in education. No doubt some compromise will emerge, but perhaps it will take some time!

Conclusion

Preventive conservation is now an accepted and mainstream part of the UK cultural heritage community. It is generally seen to offer best value for conservation in financially challenging times. To survive, preventive conservation must demonstrate it's relevance to the public and its value to politicians: in the UK the sector has worked hard to ensure this is possible. Demands for the establishment of a national focus for conservation emerged as early as 1984 [Winsor, 2001] but have slipped away and as the responsibility for cultural heritage has been devolved it seems unlikely that any government-led UK national strategy can emerge in the next decade.

It could be argued that the 1980's were a decade of standards development, the 90's offered a more reflective period of survey, audit and accountability, the 00's have been concerned with evidence based decisions and sustainability. So for the next ten years how will preventive conservation be defined? Will it have a greater international perspective brought about by the dominance of the internet coupled with a far greater emphasis on sustainability in practice? Only time will tell.

Acknowledgements

I would like to thank Peter Winsor, David Watkinson and Phil Parkes and the many colleagues that have supplied me with information in the preparation of this paper: Jean Brown, Sharon Cather, John Greenwood, Diane Gwilt, Frances Lennard, Caroline Peach, Alex Schouvaloff, Sue Thomas, and Library staff of the Amgueddfa Cymru-National Museum Wales.

Foot Notes

1. Renaissance, for details of current provision, see <http://www.mla.gov.uk/what/programmes/renaissance/>

2. Museums Galleries Scotland website: <http://www.museumsgalleriesscotland.org.uk/what-we-do/collections-development/caring-for-collections/>
For information about CyMAL's collections adviser see <http://wales.gov.uk/topics/cultureandsport/museumarchiveslibraries/cymal/collections/?lang=en>.

3. MPhil in Textile Conservation at Glasgow University launched in 2010; MSc Conservation Practice Cardiff University launched in 2010; MA in Conservation of Archaeological and Museum Objects Durham University launched in 2009.

4. A selection of National Museums now describing preventive conservation roles.

British Museum
http://www.britishmuseum.org/the_museum/departments/staff/conservation_and_science.aspx

The V&A http://www.vam.ac.uk/res_cons/conservation/conservation_staff/science_staff/index.html

The Natural History Museum
<http://www.nhm.ac.uk/research-curation/staff-directory/palaeontology/g-comerford/index.html>

The National Museum of Scotland
http://www.nms.ac.uk/collections_research/collections_departments/conservation_and_analytical.aspx

The National Museum Wales,
Gwilt D pers com
The Tate
<http://www.tate.org.uk/conservation/science/about.htm>

The National Maritime Museum
http://www.nmm.ac.uk/upload/doc/NMM_Organisational_Chart.doc

All sites accessed 14/02/11

Bibliography

AHRC, 2011, <http://www.ahrc.ac.uk/FundingOpportunities/Pages/ScienceandHeritage.aspx> (accessed 15/02/11)

Bromley, D., 1988, *British Librarianship and Information Work, 1981-1985: Special Libraries, Materials, and Processes*, Library Assn Pub Ltd.

BSI, 2011, *PAS 198, Specification for environmental conditions for cultural collections*, London:

- <http://shop.bsigroup.com/PAS-198/> (accessed 15/02/11)
- BSI, 2009, *PAS 197:2009 PAS 197 Code of practice for cultural collections management*, British Standards Institute.
- Brooks, M., Cane S., 1994 Creating an exhibition on museum conservation 'stop the rot' York castle museum, in Sage (ed.), *Exhibitions and conservation preprints of the conference held at the royal college of physicians*, Edinburgh 21-22 April 1994 SSCR, p. 35-44.
- Caple, C., 1993, *The Development of Managerial and Communication Skills in Conservation Trainees*; The Durham Experience, in *ICOM-CC Tenth Triennial Conference, Washington DC. 1993, Preprints*, p. 715-720.
- Cassar, M., 1995, *Environmental Management Guidelines for Museums and Galleries*, Museums and Galleries Commission, London.
- Cronyn, J., 1980, The potential of archaeological conservation, in Keen (ed.), *Conservation Archaeology and Museums*, UKIC occasional paper N° 1, 1980, London, p. 8-9.
- Cronyn, J., Pye, E., 1988, The training of conservators: unity in diversity, in Todd, V. (ed.), *Conservation today: The proceedings of the 30th anniversary conference of UKIC*, London, p. 21-23.
- CyMAL, 2010, *A museums strategy for Wales*, CyMAL, The Welsh Assembly Government, available on line: <http://wales.gov.uk/docs/drah/publications/100615museumsstrategyen.pdf>
- De Silva, M., Henderson J., 2011, Sustainability in Conservation Practice, *The Journal of the Institute of Conservation*, Icon, London. [in press]
- Drysdale and Richmond, 2010, *Listening and talking: Conservation advocacy in hard times*. [unpublished paper]
- Eremin, K., Adams, S. & Tate, J., 2000, Monitoring of Deposited Particle Levels Within the Museums of Scotland: During and After Construction, *The Conservator* 24, UKIC London, p. 15-23.
- Foot, M., 1997, Towards a National Preservation Policy, *63rd IFLA General Conference, Conference programme and Proceedings*, August 31- September 5, 1997 available on line: <http://archive.ifla.org/IV/ifla63/63foom.htm> (accessed 22/2/11)
- Forde, H., 2003, *Resource Archives Task Force Theme 4: Stewardship A think piece report for Resource: The Council for Museums, Archives and Libraries on behalf of DCMS*, Resource, London.
- Giles, M., 1989, *Conservation training An initial survey of full time course in the United Kingdom*, Museums and Galleries Commission, London.
- Hassard, F., 2008, Continuing professional development and surrender of culture to technology in the field of heritage preservation, *Icom Committee for conservation*, p. 540-546.
- The House of Lords, 2006, *Science and Technology Committee 9th Report of Session 2005-06 Science and Heritage, HL Paper 256*, published by the Authority of the House of Lords London: The Stationery Office Limited. Available on line: <http://www.publications.parliament.uk/pa/ld200506/ldselect/ldscitech/256/256.pdf>
- Henderson, J., Dollery, D., 2000, Growing Pains - The Development of a Conservation Profession, *Tradition and Innovation: Advances in Conservation*, IIC, Melbourne, p. 88-91.
- Henderson, J., Parkes, P., 2004, *What's in Store?: Towards a welsh strategy for the management of and access to, the archaeological evidence of our past*, Council of Museums In Wales, Cardiff.
- Icon 2011, PACR scheme available on line: www.icon.org.uk/index.php?option=com_content&task=view&id=5&Itemid=6 (accessed 15/02/11)
- Jones, S., Holden, J., 2008, *It's a material world caring for the public realm*, Demos, London.
- Lambert, S., Henderson, J., 2011, The carbon footprint of museum loans: A pilot study at Amgueddfa Cymru-National Museum Wales, in Dr. Janes, R., (ed.), *Museum Management and Curatorship*, Routledge. [in press]
- Lester, S., 2002, Becoming a profession: conservation in the UK, *Journal of the Society of Archivists*, 23 (1) p. 87-94 Revised version available on: <http://www.sld.demon.co.uk/qualprof.pdf>.
- Life, 2011, <http://www.life.ac.uk/> (accessed 21/02/2011)
- Lisc, 2004, *Stewardship today: A Position Paper* submitted to CyMAL, February 2004. [unpublished report]
- Loe, D., 1987 Preferred lighting conditions for the display of paintings with conservation in mind, *Lighting Pre-print: A Conference on Lighting in Museums, Galleries and Historic Houses*, 36-49 Lighting Developments, Bristol.
- Luxford, N., Thickett, D., Wyeth, P., 2009, Preserving silk: Reassessing deterioration factors for historic silk artefacts, in *Proceedings of the Combined (NZ and AUS) Conference of the Textile Institute. 15-17 April 2009*, Dunedin, New Zealand, The Textile Institute.
- Matthews, G., 2006, *Safeguarding heritage at risk: disaster management in United Kingdom archives, libraries and museums. UK survey results - summary*, Loughborough University, available on: <http://www.lboro.ac.uk/departments/dis/disresearch/heritage%20at%20risk/Uksurveyresults.pdf> (accessed 23/02/11).
- McGreevy, J., 1999, pers com.
- McBride, P. T., 2011, The impact of professionalism on conservation practice and heritage policy in the United Kingdom, *Icom-CC preprints of the 16th triennial Conference Lisbon, Portugal*. [ICOM-CC in press]
- McKeon, S., 2008, Bexley Local Studies & Archive Centre, 2008, Collection Management Action Plan, 2008-2013, London Borough of Bexley, <http://www.bexley.gov.uk/index.aspx?articleid=10656> (accessed 15/02/11)
- Norfolk Museums and Archaeology Service 2007, Conservation and Collections Care Policy, Norfolk Museums Service <http://www.norfolkartsforum.co.uk/view/NCC082577> (accessed 15/02/11).
- NMDC 2011, <http://www.nationalmuseums.org.uk/> (accessed 15/02/11)
- NPO 2001, *A national preservation strategy for library and archive collections in the United Kingdom and Ireland: principles and prospects*, National Preservation Office London, available on line: <http://www.bl.uk/blpac/pdf/national.pdf> (accessed 14/02/11).
- O'Brien, D., 2010, *Measuring the value of culture: A report to the Department for culture media and sport*, DCMS London.
- O'Dwyer, D., 2009, Sustainable Display-Can conservation needs, design and sustainability ever be reconciled? Unpublished paper from the BM conference Going Green.
- Park, D., 1990, The Courtauld Institute of Art/Getty Conservation Institute Course in the Conservation of Wall Paintings: the curriculum of a specialist postgraduate course, in *The Graduate Conservator in Employment: Expectations and Realities* (Proceedings of the Interim Meeting of the Working Group on Training in Conservation and Restoration of ICOM-CC), Amsterdam 1990, 1-23.
- PAC, 2011, Impact: redefining the measurement of collection care, Preservation Advisory Centre Conference, 15 February 2011, accessed online <http://www.bl.uk/blpac/impact.html> (accessed 21/02/11)
- Resource, 2002, *Preserving the past for the future: towards a national framework for collections management*, Resource, London.
- Rhys-Lewis, J., 2001, *The Enemy Within! Acid Deterioration of Our Written Heritage*, available on line: <http://www.bl.uk/blpac/pdf/enemy.pdf>
- SCURL, 2011, Shared Preservation in Scotland; Introduction <http://scurl.ac.uk/pastprojects/spis/introduction.html> (accessed 22/02/11).
- Silence, P., 2009, *Green task force survey summary report*, available on line: <http://www.conservation-us.org/index.cfm?fuseaction=Page.ViewPage&PageID=995AIC> (accessed 15/02/11).
- Standing Commission on Museums and galleries, 1948, *Third report: The war years and after*, HMSO London.
- Staniforth, S., 2010, The Museum Environment think Globally Act Locally Presentation to the Life without Air conditioning conference organised by the University Museums group available on line: <http://www.umg.org.uk/wp-content/uploads/2010/12/SES-Think-Globally-Act-Locally.ppt#272,1>. Life without air

- conditioning, University Museums Group (accessed 14/02/11)
- Thomson, G., 1978, *The Museum Environment*, Butterworths, London.
- UCL, 2009, <http://www.ucl.ac.uk/conservation-c-22/conference>
- Walker, A., Foster, J., 2006, *Knowing the need: A report on the emerging picture of preservation need in libraries and archives in the UK*, National Preservation Office London available on line: <http://www.bl.uk/blpac/pdf/knowing.pdf> (accessed 21/02/11)
- Walker, A., 2006, Preservation, in Bowman, J., (ed.), *British Librarianship and Information Work 1991-2000*, Aldershot, Ashgate available on line: <http://www.bl.uk/blpac/pdf/bliwa.pdf> (accessed 15/02/2011)
- Walker, A. 2007, Preservation, in Bowman, J., (ed.), *British Librarianship and Information Work 2001-2005*, Aldershot, Ashgate available on line: <http://www.bl.uk/blpac/pdf/bliwb.pdf> (accessed 15/02/11)
- Watkinson, D., 1992, Conservation and University education: Cardiff conservation BSc, in White, R., (ed.), *Archaeological conservation: training and employment*, UKIC London, p. 6-10.
- Watkinson D., Lewis M., 2004, ss Great Britain iron hull: modelling corrosion to define storage relative humidity. *Metal 04 Proceedings of the international conference on metals conservation. Canberra Australia 4-8 October 2004*, p. 88-103. National Museum of Australia.
- Winsor, P., 1998, The 1996 Care of collections survey, Chapter 3 of *Museum Focus: Facts and figures on museums in the UK, Issue 1, 1998*, Museums and Galleries Commission, London.
- Winsor, P., Greenblatt, R., 1998 *Conservation and collections care provision in the UK: Service provision in the institutional sector*, Museums and Galleries Commission, London.
- Winsor, P., 2002, *Benchmarks in Collection Care for Museums, Archives and Libraries. A Self-assessment checklist*, Resources, London.
- Winsor, P., 2001, Government and the development of conservation in the United Kingdom, *The Journal of the Institute of Paper Conservation*, volume 25, p. 21-32.
- Xavier-Rowe, A., Fry, C., 2010, *State of EH Collections Report*, Internal document English Heritage.