



HOUSE OF LORDS

Select Committee on Science and Technology

5th Report of Session 2010–12

Science and Heritage: a follow-up

Report

Ordered to be printed 24 April 2012 and published 11 May 2012

Published by the Authority of the House of Lords

London : The Stationery Office Limited
£price

HL Paper 291

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See Appendix 1

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CONTENTS

	<i>Paragraph</i>	<i>Page</i>
Summary		4
Chapter 1: Introduction	1	5
Purpose and scope of the inquiry	4	6
Methodology	5	6
Structure of the report	6	6
Acknowledgements	7	6
Chapter 2: Roles and Responsibilities	8	7
Research councils	10	7
Science and Heritage Programme	14	8
National Heritage Science Strategy and Forum	17	9
Leadership by DCMS	24	11
DCMS arm's length bodies	26	13
Appointment of a DCMS Chief Scientific Adviser	30	14
DCMS Science and Research Advisory Committee	32	15
Dissemination of best practice	34	16
European Union and international funding	39	17
Private funding	43	18
Chapter 3: Heritage Science Community	46	20
Capacity	47	20
Collaboration	52	21
Independent Research Organisation status	55	22
Public engagement	58	23
Digitisation	61	24
Chapter 4: List of Findings and Recommendations	63	26
Appendix 1: Members and Declaration of Interests		29
Appendix 2: List of Witnesses		31
Appendix 3: Call for Evidence		33
Appendix 4: Abbreviations and Acronyms		34
Appendix 5: Recent Reports from the House of Lords Science and Technology Committee		35

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References in footnotes to the Report are as follows:

Q refers to a question in oral evidence;

Witness names without a question reference refer to written evidence.

SUMMARY

“Heritage science” refers to the “fascinating, rich and diverse range of scientific challenges” associated with conserving movable and immovable heritage. Its significance should not be underestimated. Heritage, through tourism, makes a substantial contribution to the economy (£7.4 billion a year), and the sustainability of that contribution depends on heritage science.

In November 2006, we published a report entitled *Science and Heritage* in which we acknowledged that the UK had a high reputation in the field of heritage science but warned that UK standing was “under threat” and that the heritage science sector was “fragmented and under-valued”. The purpose of this follow-up inquiry is to review how the Government and the heritage science community have responded to the recommendations we made.

In many respects, this is a good news story. Many of the recommendations we made received a positive response, and their impact has been significant and lasting. In 2007, the Arts and Humanities Research Council (AHRC) and the Engineering and Physical Sciences Research Council (EPSRC) launched a Science and Heritage Programme which is widely recognised as having done much to build capacity and develop networks within the community. In 2010, a National Heritage Science Strategy was published, as a result of which a National Heritage Science Forum has been established to take forward the strategy’s objectives.

But there remain a number of outstanding issues. They include issues relating to the dissemination of best practice, Independent Research Organisation status, the sustainability of the digitisation of heritage, public engagement and funding, and we make recommendations in respect of all these matters. Our main concerns, however, are twofold: first, whether adequate steps are being taken to ensure that the progress which has been made following our 2006 report is maintained; and, secondly, the failure of the Department for Culture, Media and Sport (DCMS) to demonstrate adequate leadership in this area.

We received evidence of significant concern that senior heritage scientist posts are being lost and that the sustainability of capacity is at risk. Given the absence of comprehensive data, we recommend that the AHRC, with the Forum, should collect the relevant data and take steps to address capacity issues if they are identified. We also urge the heritage science community to make every effort to ensure that the Forum plays its part as a collective voice and vehicle for leadership.

In 2006, referring to the threat to heritage science, we described DCMS as having “hitherto failed to grasp the scale of this threat”. In an update in 2007, we said that we regretted that DCMS had not taken on board the significance of our recommendations. We continue to be troubled by the leadership role of DCMS. As a result, we recommend that DCMS should set departmental objectives relating to heritage science and its arm’s length bodies should say how they will contribute to them. We also recommend that DCMS should, without further delay, appoint a Chief Scientific Adviser (CSA) to inform and challenge policymaking, and to champion heritage science. Given the contribution heritage makes to the tourism economy and the current economic climate, failure to appoint a CSA would be nothing less than negligent short-termism.

Science and heritage: a follow-up

CHAPTER 1: INTRODUCTION

1. In November 2006, we published our first report (“the first report”) on an area which we termed “heritage science”—a field “where science and the humanities overlap” to inform the conservation of movable and immovable cultural heritage.¹ It is now more than five years since the first report was published. Its impact has been significant and lasting. David Willetts MP, Minister for Universities and Science, Department for Business, Innovation and Skills (BIS), called the first report a “wake-up call”;² and Professor May Cassar, Director of the Science and Heritage Programme, described it as a “watershed”.³ English Heritage observed that the report had “raised the important but hidden role of science in the protection and conservation of UK’s cultural heritage”;⁴ and the Institute of Conservation (Icon) said it “has had a catalytic effect on developments within the heritage science sector”.⁵ We produced a short update in 2007.⁶ In it we applauded the progress that had been made across the heritage and science communities, and made a commitment to keep further developments under review.
2. In many ways, this follow-up inquiry reveals a good news story. Several of the recommendations made in the first report have been taken forward. In 2007, the Arts and Humanities Research Council (AHRC) and the Engineering and Physical Sciences Research Council (EPSRC) launched a joint Science and Heritage Programme. A National Heritage Science Strategy (NHSS) has been developed and, more recently, a National Heritage Science Forum (“the Forum”) has been established. Some areas of concern remain however. In our 2007 update we expressed our regret that the Department for Culture, Media and Sport (DCMS) had failed “to grasp the significance of our recommendations” in the first report,⁷ and this follow-up inquiry has brought to light evidence that DCMS is not providing the heritage science community with the leadership it requires. Professor Cassar, for example, said: “what we lack is high-level political buy-in”,⁸ a view made evident by the continued vacancy of the DCMS Chief Scientific Adviser (CSA) post and uncertainty about the effectiveness of the DCMS Science and Research Advisory Committee (SRAC) in the absence of a CSA.
3. Given the current economic climate, it could be thought (incorrectly, in our view) that heritage and heritage science are luxuries that the country cannot afford. However, a report by Visit Britain published in March 2010, *Investing in success: heritage and the UK tourism economy*, argued that heritage is a major

¹ Science and Technology Committee, 9th Report (2005–06): *Science and Heritage* (HL Paper 256).

² Q 101.

³ Science and Heritage Programme. Professor Cassar acted as Specialist Adviser to our original inquiry.

⁴ English Heritage.

⁵ Icon.

⁶ Science and Technology Committee, 8th Report (2006–07): *Science and Heritage: an update* (HL Paper 168).

⁷ Op. cit. *Science and Heritage: an Update*.

⁸ Q 33.

contributor to tourism, the UK's fifth-largest industry, which Deloitte estimate to be worth £114 billion a year. Visit Britain calculated that the heritage-tourism sector supports approximately 195,000 full-time equivalent jobs and contributes £7.4 billion a year to the UK's gross domestic product. Deloitte Consulting and Oxford Economics estimate that the tourism economy will grow by 2.6% a year in the period 2009–18—"higher than the 0.8% forecast for manufacturing, and similar to the growth rate of the retailing and construction sectors".⁹ This growth is heavily dependent on the preservation of heritage, as 57% of those surveyed in the 2009 Nation Brands Index said that history and culture were strong influences on their choice of holiday destination.¹⁰ John Penrose MP, Minister for Tourism and Heritage, DCMS, acknowledged the importance of heritage to economic growth when he said: "heritage and economic growth are complementary and assist each other, rather than being, as in some people's minds, alternatives".¹¹ In undertaking this follow-up inquiry, we are seeking to ensure that heritage science remains a priority for Government, their arm's length bodies (ALBs), research councils and heritage institutions such as museums, galleries, libraries, historic buildings and archives.

Purpose and scope of the inquiry

4. The purpose of this follow-up inquiry was to review the implementation of the recommendations contained in the first report. As such, we have limited our scope to consider primarily issues which were identified in that report (with the exception of possible sources of funding for the community—a new area which emerged during the course of this follow-up).

Methodology

5. A targeted call for evidence was sent to witnesses who had given oral evidence to the original inquiry. They were asked to provide an update on developments in heritage science and to identify areas which still required attention. The call for evidence is set out in Appendix 3. Fourteen responses were received. Between February and March 2012 we held 7 oral evidence sessions.

Structure of the report

6. In the next chapter we look at roles and responsibilities for heritage science. Chapter 3 considers the heritage science community more generally. Chapter 4 sets out our main findings and recommendations.

Acknowledgements

7. The membership and interests of the Committee are set out in Appendix 1, and those who submitted written and oral evidence are listed in Appendix 2. We are grateful to all those who assisted us in our work.

⁹ Visit Britain: *Investing in success: heritage and the UK tourism economy*, March 2010.

¹⁰ Visit Britain: *Culture and Heritage Topic Profile*, February 2010.

¹¹ Q 98.

CHAPTER 2: ROLES AND RESPONSIBILITIES

8. A broad range of organisations—museums, galleries, libraries, archives (both national and private), national (DCMS in particular) and local government, arm’s length bodies, funding bodies (including the research councils, higher education funding councils, English Heritage, Scottish Heritage and Cadw), devolved administrations, universities and charities—are involved in heritage science. In our first report, we made a number of recommendations about the roles and responsibilities of these organisations in encouraging a co-ordinated and sustainable approach to heritage science. In this chapter we consider what progress they have made in taking our recommendations forward.
9. We use the term “heritage science community” in this report to refer to researchers and users of heritage science throughout the United Kingdom. Heritage science incorporates research and application of science to conservation problems related to movable heritage (in national and private collections) and immovable heritage (historic buildings and archaeological sites).

Research councils

10. In our first report, we recommended, “for the avoidance of doubt”, that the AHRC should be designated as the lead research council responsible for heritage science.¹² Research Councils UK (RCUK) told us that the “AHRC, endorsed by RCUK, welcomed the opportunity to lead on heritage science and made this a key theme of its Comprehensive Spending Review 2007 submission”.¹³ The British Library commented that the “AHRC has responded enthusiastically to the call to support heritage science. It has invested in interdisciplinary research grants, collaborative research studentships, postdoctoral fellowships and science and heritage research clusters, which have revitalised the heritage science scene”.¹⁴
11. The AHRC *Delivery Plan 2011–15* identifies heritage science as an area for specific support to sustain national capability: “we will ... build capacity in endangered areas of heritage science and enhance the role of culture in economic regeneration by working in partnership with the UK’s world-leading cultural institutions”.¹⁵ The AHRC has also committed to working with European and international partners to develop co-funding opportunities in the field,¹⁶ and is funding four priority theme research programmes, two of which—care for the future and science in culture—are related to heritage science.¹⁷
12. Although the AHRC is the principal research council involved in heritage science, we note that other research councils (in addition to the AHRC and EPSRC) are making a contribution. We were told, for example, that the Economic and Social Research Council “from time-to-time” funds projects

¹² Op. cit. *Science and Heritage*.

¹³ RCUK.

¹⁴ British Library.

¹⁵ RCUK, AHRC: *Delivery Plan 2011–2015*, December 2010.

¹⁶ Op. cit. AHRC: *Delivery Plan 2011–2015*.

¹⁷ Ibid.

in archaeology, anthropology and heritage site management,¹⁸ and the Natural Environment Research Council “lends its expertise and range of skills and facilities for relevant projects, particularly those attached to the Living With Environmental Change programme”.¹⁹

13. **The response of the AHRC to the first report, as lead research council responsible for heritage science, and, in particular, the establishment, in conjunction with the EPSRC, of the Science and Heritage Programme (see paragraphs 14 and 15 below), demonstrate the commitment of the research councils to heritage science. We commend the AHRC and the EPSRC for the actions they have taken.**

Science and Heritage Programme

14. In our first report, we recommended that a time-limited directed programme of research in heritage science should be established.²⁰ In response, the AHRC and the EPSRC launched the Science and Heritage Programme with objectives to:

- “overcome a fragmented research base by developing the hybrid heritage science research discipline;
- develop significant understanding of the relationship between cultural and scientific research questions;
- increase the capacity of heritage science;
- facilitate connections, communication and exchange;
- address national research priorities within an international context; and
- increase public engagement with science and heritage”.²¹

The Programme has received 282 research proposals, of which 39 have been funded, and, according to Professor Cassar, Programme Director, has educated 54 new researchers in the heritage science field.²² Feedback about the Programme’s work so far has been very positive. English Heritage, for example, said that it “has done much to build capacity”.²³ National Museums Scotland said it was “a huge step forward, enabling and stimulating many new projects”.²⁴ The Collections Trust commented that the AHRC, through the Programme, had made “a genuine and lasting contribution to research and understanding”.²⁵ Icon highlighted “the importance of the research funding, the networks and relationships” from participation in the Programme, and the “influx of researchers from a variety of disciplines”.²⁶ National Museums Liverpool said the Programme was “a major boost to the research sector for heritage science, and the collaboration between academic and heritage organisations should ensure that there is a

¹⁸ Q 2.

¹⁹ Ibid.

²⁰ Op. cit. *Science and Heritage*.

²¹ Science and Heritage Programme.

²² Ibid.

²³ English Heritage.

²⁴ National Museums Scotland.

²⁵ The Collections Trust.

²⁶ Icon.

benefit to practitioners in the long term”.²⁷ The Heads of Conservation and Scientific Laboratories in UK National Museums, Galleries and Libraries (“Heads of Conservation and Scientific Laboratories group”) saw the Programme as “welcome and successful” in generating interest and publicity, and considered that it “has been good for the field in general”.²⁸

15. The Programme will be formally reviewed by external consultants when it concludes in 2013.²⁹ Dr Edward Impey, Director, Heritage Protection and Planning, English Heritage, and Sarah Staniforth, Historic Properties Director, The National Trust, called for a second version of the Programme.³⁰ A number of witnesses, for example English Heritage, the Heads of Conservation and Scientific Laboratories group, the Society for the Protection of Ancient Buildings, and National Museums Liverpool, expressed concern about future funding for heritage science research.³¹ When asked about this issue, Professor Rick Rylance, Chief Executive of the AHRC and Chairman of RCUK, told us that the AHRC “will think quite positively about next steps in terms of follow-on funding”.³²
16. **We share the concern expressed by a number of witnesses that funding should be provided to enable the progress achieved to date by the Science and Heritage Programme to continue after 2013 when it comes to an end. We recommend that the AHRC and the EPSRC take steps to ensure that the momentum generated by the Programme is not lost.**

National Heritage Science Strategy and Forum

National Heritage Science Strategy

17. Our recommendation that a “bottom up” national strategy for heritage science be developed was implemented by a steering group chaired by Ms Staniforth, with secretariat support from English Heritage.³³ The group produced three comprehensive reports: *The role of science in the management of the UK’s Heritage*; *Use of science in understanding the past*; and *Understanding capacity in the heritage science sector*, which informed the National Heritage Science Strategy (NHSS), published in March 2010.³⁴ The NHSS was developed in consultation with the heritage science community.³⁵ Icon and the Heads of Conservation and Scientific Laboratories group considered it to be a model strategic plan for other countries to follow.³⁶ In our first report, we had recommended the development of a strategy in order to promote collaboration.³⁷ Dr Impey argued that “getting people and ideas together and

²⁷ National Museums Liverpool.

²⁸ Heads of Conservation and Scientific Laboratories group.

²⁹ RCUK.

³⁰ Q 66, Q 59.

³¹ English Heritage, Heads of Conservation and Scientific Laboratories group, Society for the Protection of Ancient Buildings, National Museums Liverpool.

³² Q 2.

³³ Op. cit. *Science and Heritage*, English Heritage.

³⁴ NHSS: *Our vision and strategy for heritage science*, March 2010.

³⁵ Q 86, Q 184, English Heritage, National Museums Scotland.

³⁶ Icon, Heads of Conservation and Scientific Laboratories group.

³⁷ Op. cit. *Science and Heritage*.

putting them down in coherent form ... is quite a big achievement”.³⁸ Dr David Saunders, Keeper, Department of Conservation and Scientific Research, British Museum and Dr Siobhan Watts, Head of Conservation Science, National Museums Liverpool, also described the NHSS as a means of bringing the community together.³⁹

18. Whilst the NHSS may be seen as a positive example of what the community can achieve by working together, it is difficult to assess its precise impact for two reasons. First, it does not include milestones or targets against which achievement can be measured. Secondly, it is difficult to separate out the impact of the Science and Heritage Programme in promoting collaboration from that of the NHSS. Simon Cane, Head of Museum Operations, Birmingham Museums and Art Gallery, and Dr Watts both said that the strategy needed to gain buy-in and achieve impact at the community’s leadership level, including boards and funders,⁴⁰ and the Heads of Conservation and Scientific Laboratories group made a similar point: “more time is needed to establish the take-up of its principles within institutions and groups concerned with heritage science”.⁴¹ We agree that “institutional buy-in” will be essential if the strategy is to have a significant impact.
19. **We welcome the development of the NHSS. However, we urge the steering group to underpin NHSS objectives with detailed specifications of the actions required to achieve those objectives, identifying who is responsible for their achievement and according to what timescale. We encourage the National Heritage Science Forum (see paragraphs 20 to 23 below) to take responsibility for ensuring that heritage institutions give “institutional buy-in” to the NHSS objectives and we encourage heritage institutions to consider how they can contribute to the achievement of NHSS objectives.**

Forum

20. One outcome of the NHSS was the establishment of a National Heritage Science Forum (“the Forum”). The purpose of the Forum is to advance the NHSS objectives of:
- “demonstrat[ing] the public benefit of heritage science and increas[ing] public engagement and support for it; and
 - improv[ing] partnership within the sector and with others by increasing collaboration to help practice make better use of research, knowledge and innovation and to enhance resources, funding and skills”.⁴²
- It has taken some time for the Forum to be established. The Forum has now appointed a convenor, Dr Rowena Banerjea, and has received seed money from the research councils.⁴³
21. A number of witnesses described their vision for the Forum. The Heads of Conservation and Scientific Laboratories group saw it as providing “a real

³⁸ Q 64.

³⁹ Q 86, Q 61, Q 184.

⁴⁰ QQ 184–5.

⁴¹ Heads of Conservation and Scientific Laboratories group.

⁴² Op. cit. *Our vision and strategy for heritage science*.

⁴³ QQ 89–90.

opportunity to establish a focus and to address issues of access to heritage science by the community”.⁴⁴ John Penrose MP agreed: “The Forum will be one of the leading opportunities to help to focus ... debate and pull the strands together”.⁴⁵ Nancy Bell, Head of Collection Care, The National Archives, thought that the Forum could provide leadership and help bring together a fragmented community:

“It is early days and we should not put too much pressure on it at this stage. It has the potential to lead the sector and everything is in place to make that happen. More importantly, beyond that operational side—bringing a community together ... —the Forum and the strategy have the potential to affect how research programmes are designed in the longer term”.⁴⁶

Professor Cassar held a similar view: “I think within the sector the National Heritage Science Forum has the potential to champion heritage science, but it is early days yet”.⁴⁷

22. This goal of leading the community is a positive step towards addressing the lack of leadership which we identified in our first report.⁴⁸ However, at present, the Forum does not have terms of reference and a recurring theme which emerged from the evidence we received was that, although the creation of the Forum was welcome, it was still “early days” and the work of the Forum was both hard to define and difficult to evaluate.⁴⁹ Furthermore, to be successful, the Forum will require subscription from a large proportion of the community.
23. **Whilst we acknowledge that the Forum is still only in the early stages of development, we recognise that it has significant potential as a collective voice and vehicle for leadership of the heritage science community, and as a means of stimulating collaboration between members of the community. It is time for the Forum to provide clear leadership and to enable the community to demonstrate that it is committed to acting upon the NHSS as well as discussing priorities.**

Leadership by DCMS

24. In both our first report and the update, we called upon DCMS to include conservation of cultural heritage in its departmental objectives and to provide “moral leadership” to the community.⁵⁰ Since then, DCMS has added “protect our nation’s cultural heritage: preserve museum collections, archives, historic buildings, sites and monuments, and maintain free access to national museums and galleries” to its major departmental responsibilities,⁵¹ and John Penrose MP told us that he saw his role as providing leadership to heritage: “my role as heritage minister ... is to act as the spokesperson and champion for heritage issues across Whitehall where

⁴⁴ Heads of Conservation and Scientific Laboratories group.

⁴⁵ Q 122.

⁴⁶ Q 86.

⁴⁷ Q 38.

⁴⁸ Op. cit. *Science and Heritage*.

⁴⁹ Q 37, Q 86, Q 122.

⁵⁰ Op. cit. *Science and Heritage*, op. cit. *Science and Heritage: an Update*.

⁵¹ DCMS: *Business Plan 2011–2015*, May 2011.

necessary”.⁵² Despite these developments, much of the evidence we received suggested that DCMS was not providing the leadership required to support and promote the community. Icon said: “DCMS appears to have responded the least to the recommendations of the original report and there is no indication of recognition of the importance of heritage science to the preservation of our cultural heritage”.⁵³ National Museums Liverpool were also critical of DCMS: “we have not seen evidence of a change in strategic objectives that has reversed the downgrading of conservation and heritage science”.⁵⁴ The Collections Trust agreed and said that DCMS “will find in the cultural heritage community a willing partner” and that the community would welcome “moral leadership ... even if this leadership cannot be matched with investment at this point”.⁵⁵ When giving evidence, Professor Heather Viles, Professor of Biogeomorphology and Heritage Conservation, University of Oxford, asked the rhetorical question “why am I ignorant of what DCMS does?”,⁵⁶ and made a plea for greater leadership from government:

“We do need a Government champion. We need a department in the Government to take responsibility for this to see not only what important work is being done but what things need to be done in order to make the most of our heritage and to be able to save money to deal with all these problems as the economy is suffering. Science can really help that. We can develop cheaper and more effective and ... sustainable strategies. I think that we need a Government champion, really. That would be an enormous help to all of us both when we negotiate in our individual organisations and when we negotiate as a group”.⁵⁷

DCMS acknowledged that its departmental business plan does not have “a specific objective around conservation”⁵⁸ and English Heritage expressed concern that the business plan did not include “actions or impact indicators relating to [the] protection of ... heritage”.⁵⁹ Professor Cassar said the community lacked political leadership.⁶⁰

25. Those witnesses who were less critical of the leadership role of DCMS focused on DCMS arm’s length bodies (ALBs). Dr Michael Dixon, Director, Natural History Museum, for example, citing the development of the NHSS, argued that DCMS had “championed heritage science”, but went on to suggest that “DCMS’ role in that was perhaps more passive than active because of the way that it operates its arm’s length bodies truly at arm’s length”.⁶¹ Dr Impey also thought that DCMS had “effectively championed heritage science” but similarly referred to the role of ALBs.⁶²

⁵² Q 129.

⁵³ Icon.

⁵⁴ National Museums Liverpool.

⁵⁵ The Collections Trust.

⁵⁶ Q 145.

⁵⁷ Q 136.

⁵⁸ The Government.

⁵⁹ English Heritage.

⁶⁰ Q 33.

⁶¹ Q 57.

⁶² Q 57.

DCMS arm's length bodies

26. DCMS sponsors a number of ALBs through grants-in-aid, which are managed by funding agreements. These bodies include the British Library, British Museum, English Heritage, The National Gallery, National Museum of Science and Industry, Natural History Museum, the Tate, and the Victoria and Albert Museum. In response to our first report, the Government said: “Government delegates responsibility for conservation of cultural heritage to the public bodies that have been established for this purpose” and “it is not for Government ministers to determine how the specific funds allocated to their bodies are to be spent”.⁶³
27. According to the Cabinet Office and Her Majesty's Treasury code of practice, *Corporate governance in central government departments: Code of good practice*, 2011, the funding agreement between an ALB and its sponsor department should include:
- “clear information about the: shared aims and mutual responsibilities, including a management framework and potential rewards and sanctions for meeting or missing performance targets with an agreed tolerance; ... roles and obligations of both the department and ALB, along with expectations of support from the other party”.
- The funding agreements for the period 2008–11 between DCMS and the British Museum, National Gallery and Natural History Museum all contained departmental strategic objectives and priorities, the role the department expected the ALB to play in meeting these, the ALB's key objectives and key performance indicators for measuring performance against these.⁶⁴ But these agreements focused on areas such as numbers of visitors and did not mention heritage science.
28. A new round of funding agreement negotiations is due to take place this year. In evidence, John Penrose MP was open to discussing priorities with the Forum: “I want to have a high-level conversation with them [the Forum] so that we can distil out the right priorities and ensure that collectively we are aiming at the right priorities and the right targets, particularly because in many cases, rightly, some of the research priorities and funding are at arm's length from grubby politicians of all kinds”.⁶⁵ This willingness to discuss priorities should be mirrored in the department's negotiations with its ALBs. The fact that DCMS has delegated responsibility for heritage conservation to ALBs should not preclude such a development.
29. **We recommend that, before the next round of funding negotiations with its ALBs, DCMS sets specific departmental objectives for heritage science related to its departmental responsibility to “protect our nation's cultural heritage”. Similarly, DCMS ALBs should set out how they will help achieve these objectives in funding agreement negotiations with the department. At the appropriate time, fulfilling these objectives should be taken into account in negotiations prior to the next Comprehensive Spending Review.**

⁶³ *Government response to the House of Lords Science and Technology Select Committee Report on Science and Heritage*, January 2007 (Cm 7031).

⁶⁴ *British Museum Funding Agreement: 2008–2011, National Gallery Funding Agreement: 2008–2011, Natural History Museum Funding Agreement: 2008–2011*.

⁶⁵ Q 114.

Appointment of a DCMS Chief Scientific Adviser

30. In 2007, Dr Dixon, as interim DCMS CSA, published a review entitled: *The appointment of a Chief Scientific Adviser (CSA) to DCMS: A review and recommendations* (“the 2007 review”). The review had been commissioned by DCMS in response to our first report and an Office for Science and Innovation report. In it, Dr Dixon said:

“the role of CSA is to ensure that robust scientific evidence exists where it is necessary, that proper processes to assess the future impact of science and technological change are built into future policy and that there is proper scoping, quality assurance and evaluation of research undertaken within the Department and its sponsored bodies. ... DCMS has considerable extant expertise in social science and economics and access to wider expertise in these areas through central government services ... but it lacks scientific expertise in other areas that impact on policy”.⁶⁶

In 2008, Mrs Anita Charlesworth was appointed as DCMS CSA. She left in 2010. Mrs Charlesworth has not been replaced.⁶⁷ Many witnesses expressed regret that a new CSA has not been appointed, including the British Library, Heads of Conservation and Scientific Laboratories group, Icon, National Museums Liverpool, National Museums Scotland and Professor Rylance.⁶⁸ Dr Dixon said the absence had been “somewhat detrimental”;⁶⁹ and English Heritage said it meant the department lacked a champion for heritage science and the department was insufficiently staffed “to act as an intelligent customer of science”.⁷⁰ In response, DCMS said that it was exploring options for “a workable solution” appropriate to its “scale and needs”.⁷¹ John Penrose MP explained: “we have to ensure that we are dealing with the realistic position and the resources that we have”.⁷²

31. We remain of the view that, despite changes to the remit of DCMS following the 2010 general election and associated restructuring, DCMS requires a CSA for the reasons set out in the 2007 review. DCMS is the only government department which does not have a CSA to offer challenge and scientific advice to policy making.⁷³ A DCMS CSA would also be able to act as champion of heritage science, thereby addressing, in part, the need for leadership for the heritage science community. We acknowledge the point made by DCMS about scale and limitation of resources. However, in accordance with a recommendation we made in our recent report on the role and functions of departmental CSAs,⁷⁴ we would have no difficulty in supporting the appointment of a DCMS CSA on a part-time basis. **Given**

⁶⁶ Dr Michael Dixon: *The appointment of a Chief Scientific Adviser (CSA) to DCMS: A review and recommendations*, June 2007.

⁶⁷ English Heritage.

⁶⁸ British Library, Heads of Conservation and Scientific Laboratories group, Icon, National Museums Liverpool, National Museums Scotland, Q 23.

⁶⁹ Q 57.

⁷⁰ English Heritage.

⁷¹ The Government.

⁷² Q 103.

⁷³ Science and Technology Committee, 4th Report (2010–12): *The role and functions of departmental Chief Scientific Advisers* (HL Paper 264).

⁷⁴ *Ibid.*

the importance of heritage science to the sustainability of the contribution heritage makes to the economy (see paragraph 3 above), failure to find the resources to enable the appointment of a CSA would amount to negligent short-termism. The CSA post has been vacant since 2010—more than sufficient time for DCMS to find “a workable solution”. We recommend that DCMS appoints a CSA without further delay.

DCMS Science and Research Advisory Committee

32. In 2009, Mrs Charlesworth, as DCMS CSA, established the DCMS Science and Research Advisory Committee (SRAC).⁷⁵ SRAC meets quarterly and is currently chaired by Dr Dixon of the Natural History Museum.⁷⁶ DCMS told us that, at present, SRAC is used to “access expert scientific advice” in the absence of a CSA, and that the role of SRAC is to “identify those scientific issues that, now or in the future, will have the greatest impact on DCMS sectors, understand their implications and ensure that culture, media and sport in the UK are best placed to benefit from developments in science, technology and engineering”.⁷⁷ The terms of reference of SRAC are to:
- “provide Ministers, senior DCMS officials and, through the DCMS Advisory board, the Department’s sponsored bodies with advice on the implications of developments in science and technology for the department’s policies and priorities;
 - identify the potential impact of wider government policy on science in the DCMS sectors; and
 - identify generic scientific issues which will have an impact across several DCMS sectors and share practice”.⁷⁸

A number of witnesses questioned the effectiveness of SRAC. Icon queried how DCMS and SRAC interact in the absence of a DCMS CSA—given, as Professor Cassar explained, the CSA was the “conduit of the advice from the committee to the department”.⁷⁹ Professor Rylance suggested that the SRAC had not maintained its “energy and reach”. He went on: “... nor does it have the energy that it had in its earlier inception when Anita Charlesworth set it up. So there are issues around the functionality of that committee”.⁸⁰ Professor Cassar, a member of SRAC, told us that she had asked DCMS about what the department expected to get from SRAC—she had not received an answer.⁸¹ We note, in particular, that no witness was able to point to a concrete example of a policy which SRAC had influenced⁸² (although Professor Rylance was able to suggest that it had sparked the beginning of research in areas including ageing and climate change).⁸³

⁷⁵ The Government.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ DCMS: *DCMS Science and Research Advisory Committee: Terms of Reference*, 2009.

⁷⁹ Icon and Q 38.

⁸⁰ Q 23.

⁸¹ QQ 43–44.

⁸² Q 81.

⁸³ Q 27.

33. **The evidence suggests that, in the absence of a departmental CSA, DCMS is not able to act as an effective “intelligent customer” of the scientific advice which SRAC has the potential to provide. This reinforces the importance of our recommendation that a DCMS CSA should be appointed without further delay.**

Dissemination of best practice

34. In our first report, we recommended that the Museums, Libraries and Archives Council (MLA) “review and consolidate the sources of scientific guidance available for collections-based conservators”.⁸⁴ The Government response said that dissemination of best practice was not the MLA’s responsibility, but that the MLA worked with others “to develop specific projects that contribute to promote best practice in conservation”.⁸⁵ The MLA was abolished with effect from October 2011. Although some of its responsibilities were transferred to The National Archives and the Arts Council for England,⁸⁶ the strategic priority contained in the MLA’s funding agreement of “establishing a world class and sustainable sector—promoting innovation, modernisation and best practice” does not appear to have been transferred.⁸⁷
35. Despite this, we were given some recent examples of dissemination of best practice. Historic Scotland and English Heritage publish Inform guides and technical advice notes on their websites.⁸⁸ Jacqueline Ridge, Keeper of Conservation, National Galleries of Scotland, gave another example in the area of environmental standards for collection care. She considered that “one of the reasons why that is a particular area that is embedding itself on a very practical level is because it is engaged with at all levels within an organisation”.⁸⁹
36. Dissemination of best practice, however, continues to cause concern. The British Library, Icon and National Museums Liverpool described dissemination as piecemeal.⁹⁰ According to English Heritage, practitioners outside universities have difficulties accessing literature.⁹¹ Dr Watts agreed: “the specialist scientific publications that heritage scientists might be publishing [in] are not as easily accessible to museums”.⁹² The British Library noted the limited number of peer-reviewed journals in the area and explained the difficulties for “the average conservator” because science papers are published in literature “not covered by the usual conservation abstracting bodies”.⁹³ Professor Viles offered one potential solution: an interdisciplinary journal “that straddles the science and practitioner

⁸⁴ Op. cit. *Science and Heritage*.

⁸⁵ Op. cit. *Government response*.

⁸⁶ The National Archives.

⁸⁷ *Museums, Libraries and Archives Council Funding Agreement 2006–08*.

⁸⁸ Q 138.

⁸⁹ Q 178.

⁹⁰ British Library, Icon, National Museums Liverpool.

⁹¹ English Heritage.

⁹² Q 178.

⁹³ The British Library.

communities”.⁹⁴ Professor Cassar said this option was currently being explored with publishers.⁹⁵

37. Mr Cane of Birmingham Museums and Galleries suggested that there was an absence of leadership in this area: “I do think there is ... a need—and this is where a higher level of lobbying would be useful—to engage the leaders of the institutions in the issue, because there is not always the desire to engage the longer term challenges around the care of the heritage that they provide because we are so often focused on very short-term goals with short-term funding issues”.⁹⁶ Dr Dixon agreed that the community needed to “find ways of linking ... up” because “individual institutions are spending money from their government grant-in-aid pursuing their objectives” and institutions, such as the Natural History Museum, of which Dr Dixon is Director, could and should roll out their research findings to other collections with similar objects.⁹⁷
38. With improved institutional leadership, more imaginative mechanisms for linking up the sharing of best practice could be developed (such as the creation of a virtual centre).⁹⁸ We note that the aim of Icon is “to advance knowledge and education in conservation and achieve the long term preservation and conservation of cultural heritage”, which it does “by providing guidance, advocacy, training and education opportunities and by uniting the conservation profession and the wider heritage community”.⁹⁹ Given this and Icon’s recent publication of a *National Conservation Education and Skills Strategy*, we consider them to be best placed to take on this leadership role. **We encourage Icon to develop their website to contain an up-to-date online catalogue of scientific literature relevant to heritage science, where possible including abstracts, which should be accessible to all heritage scientists and users of this research across the UK.**

European Union and international funding

39. European Commission Framework Programmes (FP) for research have provided some funding for UK heritage science research.

TABLE 1

European Commission Frameworks 5–7: funding for heritage science¹⁰⁰

Framework	FP5 1998–2002	FP6 2003–2006	FP7 2007–2013 (figure up to 2010)
Funding (Euro)	39, 175, 997	17, 782, 581	31, 464, 435

⁹⁴ Q 138.

⁹⁵ Q 51.

⁹⁶ Q 177.

⁹⁷ Q 66.

⁹⁸ Q 138.

⁹⁹ www.icon.org.uk.

¹⁰⁰ European Commission Directorate-General for Research and Innovation: *Survey and outcomes of cultural heritage research projects supported in the context of EU environmental research programmes*, 2011.

Table 1 above gives an indication of the levels of funding in the last three frameworks for heritage preservation through specific programmes: Energy, Environment and Sustainable Development (FP 5), Cultural Heritage and Conservation Strategies (FP 6), and Environment (FP 7). These figures do not include all European funding for heritage science research activities because some are funded through other initiatives (for example, digital cultural heritage can be funded through ICT programmes).

40. Cultural heritage does not feature as a theme for FP8 (Horizon 2020).¹⁰¹ We note that the National Trust, which has previously lobbied for frameworks to include cultural heritage, has not done so for FP8,¹⁰² and witnesses could not offer an example of UK-led lobbying for its inclusion.¹⁰³ Given the significant concerns expressed about future funding for heritage science,¹⁰⁴ we query why this is the case and would urge the community as a whole to translate their concerns about funding into lobbying efforts at an European Union (EU) level.
41. David Willetts MP said that BIS, as the department responsible for leading the UK's negotiations for the FP, was "very busy at the moment in the lead-up to Framework Programme 8",¹⁰⁵ and John Penrose MP said that he was "very happy to ensure that we are punching at our weight or above it in Europe".¹⁰⁶ We were pleased to hear these assurances. We invited DCMS, however, to explain explicitly what efforts it had made to secure a reference to cultural heritage in FP8. In reply, the department suggested that heritage science might fall within some of the other themes in FP8, and referred to collaborative efforts between the AHRC and EU funding agencies.¹⁰⁷ We are concerned that DCMS is not able to point to any efforts it has made to promote the inclusion of heritage science in FP8. **We recommend that DCMS and BIS make the case for the inclusion of heritage science in FP8 (Horizon 2020). We encourage the heritage science community and research councils to make every effort to secure funding for heritage science from EU sources.**
42. Other possible sources of funding for heritage science include COST (European Cooperation in Science and Technology), the European Research Council, the European Science Foundation, the Global Heritage Fund, the Heritage Lottery Fund, the Humanities in the European Research Area Network, and the United Nations Educational, Scientific and Cultural Organisation.

Private funding

43. Other sources of funding for heritage science are philanthropic and industry funding. Ms Staniforth suggested that the UK could learn lessons from the model for private funding and philanthropy of the Getty Conservation Institute in the United States of America, which is funded by private

¹⁰¹ Q 57, Q 148.

¹⁰² Q 67.

¹⁰³ Q 66, Q 116.

¹⁰⁴ Q 71, Society for the Protection of Ancient Buildings, National Museums Scotland, Q 83, Heads of Conservation and Scientific Laboratories group.

¹⁰⁵ Q 117.

¹⁰⁶ Q 113.

¹⁰⁷ Letter from John Penrose MP.

donations.¹⁰⁸ Professor Viles also commended the example, although she suggested that a UK specific model would have to be developed rather than attempting to “directly borrow” the Getty model.¹⁰⁹ Research councils have previously developed private partnership funding whereby industry and research councils co-fund a programme of research,¹¹⁰ and some universities also have particular expertise in attracting private funding for their museums.

44. John Penrose MP told us that DCMS were prioritising a “philanthropic agenda” and that they “have been trying to ensure that heritage claims its place at the philanthropy table much more strongly”.¹¹¹ He said this involves helping the community “raise their profile” and “talking to leading lights in the public, private and third sectors to try to get the heritage voice in philanthropy to be given a higher profile”.¹¹² We welcome these assurances although question the Government’s conviction given the announcement of limits on tax relief in the April 2012 budget.¹¹³ Dr Watts described what the community could gain from philanthropic funding: “there is incredible potential if you are fundraising around a specific, spectacular heritage item. There is that sense of discovery and excitement that can be used for fundraising”.¹¹⁴ Dr Dixon, however, expressed a concern that “soft money” would not be a reliable source of funding for the community.¹¹⁵ We acknowledge the force of Dr Dixon’s point but our intention is simply to highlight philanthropy as a potential source of additional funding. Digitisation of heritage, which we consider further below, provides an example of an area which could be further developed as a source of private funding.
45. **Philanthropic and industry funding has the potential to make an important contribution to meeting heritage science funding needs. We urge the Forum to explore the possibility of obtaining private, possibly matched, funding—consulting, where appropriate, bodies (such as university museums, the research councils and the Getty Conservation Institute) which have demonstrated an effective track record in this area. We also recommend that DCMS make every effort to increase private (both philanthropic and industry) funding for heritage science and to communicate these efforts to the community.**

¹⁰⁸ Q 71.

¹⁰⁹ Q 142.

¹¹⁰ <http://www.rcuk.ac.uk/Publications/policy/framework/casestudies/Pages/Collaborativefunding.aspx>.

¹¹¹ Q 123.

¹¹² QQ 123–124.

¹¹³ HM Treasury: *Budget 2012*, March 2012.

¹¹⁴ Q 194.

¹¹⁵ Q 66, Q 71.

CHAPTER 3: HERITAGE SCIENCE COMMUNITY

46. In this chapter we consider aspects of the heritage science community, including capacity, collaborative efforts, Independent Research Organisation (IRO) status, public engagement and digitisation efforts.

Capacity

47. We received a range of differing evidence about capacity in the heritage science community. Some witnesses suggested that there has been a decline in the number of senior heritage science posts which has impacted adversely on career planning for those heritage scientists who are at an earlier stage in their careers. Icon said: “in many respects resources in terms of scientists in post in heritage organisations is weaker than [at] the start of the [Committee’s first] report. Senior posts in major institutions have been lost and only a small proportion of scientists are currently focusing on preservation research”. They continued: “The Science and Heritage Programme has built capacity but the outlook for the scientists it has trained and introduced to the field is quite bleak”.¹¹⁶ Professor Cassar made a similar point about future opportunities for new researchers: “employment opportunities are limited and there is a grave risk that the talent and skill developed in the UK will find its fulfilment abroad”. She said that “in the short term there is evidence that heritage science posts are being lost and that experienced researchers are taking early retirement. The potential setback may outweigh recent gains because of the added value of the senior researchers that the sector risks losing”.¹¹⁷ The British Library said: “although new young scientists have been attracted into heritage science, and many active heritage researchers are reaching retirement age, young scientists are not able to move into the vacated posts. This is largely because of the freeze on public sector recruitment”.¹¹⁸
48. The NHSS steering group published a report in September 2009 entitled *Understanding capacity in the heritage science sector* which gave an “estimate of the numbers of people undertaking heritage science” and attempted “to identify areas where the sector currently lacks staffing or experience”. The study identified subject specific capacity issues, such as a lack of building material analysts for the built historic environment, and suggested measures to enhance future capacity. However, given that the study did not measure numbers against previous workforce levels and has not been updated, we have been unable to use it to assess the alleged decline in the size of the heritage science workforce. National Museums Liverpool said they could not afford to fill their Head of Research post which was vacated in 2010.¹¹⁹ Dr Saunders observed that the Victoria and Albert Museum and Tate had reduced the size of their permanent science staff.¹²⁰ Ms Ridge said Glasgow Museums had reduced their number of science-dedicated staff and Mr Cane said Birmingham Museums and Galleries had also lost scientific capacity.¹²¹

¹¹⁶ Icon.

¹¹⁷ Science and Heritage Programme.

¹¹⁸ British Library.

¹¹⁹ National Museums Liverpool.

¹²⁰ National Museums Liverpool, Q 95.

¹²¹ QQ 203–204.

Ms Staniforth summed up her view as follows: “the outstanding issue now is ... the sustainability of the expertise”.¹²² Witnesses accepted, however, that much of the evidence for a drop in capacity was anecdotal.¹²³

49. In contrast, English Heritage said: “evidence collected during the development of the National Heritage Science Strategy suggests that the threat to the maintenance of the science base for heritage science is not as great as has been suggested: the pattern of provision has been changing, but overall capacity has not declined significantly”.¹²⁴ They accepted, however, that “the continuing reductions in public expenditure may have an effect on total capacity” and expressed concern “about gaps in expertise that have resulted from some of the changes in provision, and also by related weaknesses in knowledge transfer resulting from poor succession strategies”.¹²⁵ David Willetts MP said: “[the] research councils are not aware of any evidence that would suggest that this is happening” but conceded that “that may just tell us that the evidence is limited—we accept that the heritage science workforce is not measured”.¹²⁶
50. The conflicting views and lack of data suggests that capacity needs to be measured. This will allow the efforts of the AHRC to build capacity to be evaluated. Dr Saunders said: “One thing that we have perhaps been taught by this whole process of working with the DCMS is the need to be able to put numbers to things that we know instinctively ... then potentially to convert it into the long-term cost to society of not taking action”.¹²⁷
51. **Although new scientists have been attracted into heritage science there is some concern about the loss of senior posts and long-term maintenance of capacity in the field. We recommend that the AHRC, as lead research council responsible for heritage science, should ensure that steps are taken to assess and monitor the health of the discipline. We anticipate that this will be an area of work to which the Forum will wish to make a contribution. If these concerns prove to be founded, we recommend that DCMS, the research councils, the Forum and heritage institutions take appropriate action to ensure that the long-term health of heritage community is assured.**

Collaboration

52. In our first report we described heritage science as a “fragmented sector”, and highlighted the lack of collaboration between academic researchers, conservation scientists and practitioners.¹²⁸ During this follow up inquiry, we received some evidence of an increase in collaboration. Dr Dixon suggested that the NHSS was an attempt “to provide ... coherence” in what was a “very disaggregated field”.¹²⁹ The Science and Heritage Programme appears to have promoted collaboration through research clusters and networking

¹²² Q 59.

¹²³ Q 152–153, Q 188, Q 203.

¹²⁴ English Heritage.

¹²⁵ Ibid.

¹²⁶ Q 120.

¹²⁷ Q 95.

¹²⁸ Op. cit. *Science and Heritage*.

¹²⁹ Q 59, Q 57.

funding, and has encouraged and received a number of collaborative applications.¹³⁰ The Heads of Conservation and Scientific Laboratories group observed “an expansion of a multi-disciplinary approach in this field, and the creation of new collaborations and closer links”.¹³¹ Specific examples of academic-heritage institution partnerships include partnerships between Birmingham Museum and Art Gallery, English Heritage and the British Museum on the Staffordshire Hoard programme, and National Museums Liverpool’s work with the universities of Bath, Bradford, Bournemouth and Liverpool.¹³² We note also that the Heads of Conservation and Scientific Laboratories in UK National Museums, Galleries and Libraries meet regularly to discuss issues of shared interest.¹³³

53. Fragmentation, however, remains an issue. The Heads of Conservation and Scientific Laboratories group, for example, said: “there is little evidence of great expansion of heritage science facilities to end-users in the wider sector of smaller-scale and regional cultural and heritage institutions”, although they expressed a hope that the Forum would afford opportunities for this.¹³⁴ Professor Cassar argued that there was a “lack of a heritage science mission within institutions”.¹³⁵ Mr Cane, Ms Ridge and Dr Watts, our panel of local and devolved heritage institutions representatives, set out an innovative vision for future collaboration within the community. They proposed regional centres to identify and pool both resources and expertise; identifying challenges and problems, and working together to research solutions using each other’s facilities.¹³⁶
54. **We commend the efforts which have been made by the heritage science community to increase collaboration. We encourage the heritage science community to explore how they can best work together to share resources, expertise and experience throughout the UK. Given the objectives of the NHSS, we anticipate that the Forum will wish to assist in promoting these collaborative efforts.**

Independent Research Organisation status

55. The research councils introduced the concept of IRO status to replace academic analogue status in 2006. IRO status allows those organisations which are not Higher Education Institutions, and which meet certain criteria, to apply for research council funding.¹³⁷ The application process requires organisations to demonstrate significant levels of funding from other sources and a threshold of in-house scientific research.¹³⁸ Atti Emecz, Director of Communications, Information and Strategy, EPSRC, told us that 15 organisations, such as national museums and galleries, now have IRO status (primarily with the AHRC).¹³⁹

¹³⁰ RCUK.

¹³¹ Heads of Conservation and Scientific Laboratories group.

¹³² Q 172, Q 163.

¹³³ Q 69.

¹³⁴ Heads of Conservation and Scientific Laboratories group.

¹³⁵ Q 51.

¹³⁶ Q 158, Q 162, Q 189.

¹³⁷ RCUK: *Eligibility for Research Council Funding*, revised October 2011.

¹³⁸ *Ibid.*

¹³⁹ Q 14.

56. We received evidence of difficulties encountered by organisations which would otherwise benefit from IRO status. National Museums Liverpool currently have IRO status with the AHRC; however, they said that they risk losing this status due to staff cuts (resulting from budget cuts) which may limit their ability to generate sufficient research to retain that status.¹⁴⁰ The British Library said “we believe that more museums and galleries have not sought IRO status ... because most do not have enough sufficiently-qualified staff actively involved in research to meet the research councils’ criteria for eligibility”.¹⁴¹ Ms Ridge explained the difficulties for those organisations which do not have IRO status: “if you are not within the group of IROs, it makes true collaboration on a level playing field extremely difficult, and the danger is you become a very passive partner even though the questions for heritage science remain”.¹⁴²
57. We considered whether the criteria for IRO status should be lowered. Mr Cane thought not: “It is quite clear you have to have a certain level of capacity, knowledge and understanding to be able to obtain that status, and I think that is appropriate”.¹⁴³ We agree. **However, we acknowledge that there is an issue for those organisations which are unable to access funding because of their ineligibility for IRO status. We encourage organisations within the heritage science community who would like IRO status to explore whether it would be possible to develop consortia, perhaps on a regional or thematic basis, to apply as a collectivity for IRO status and bid for funding. The research councils should offer assistance to any group of organisations considering forming a consortium to help them achieve IRO status.**

Public engagement

58. Our first report highlighted the potential for heritage science to help engage the public with science, engineering and technology (SET).¹⁴⁴ The (then) Government did not support our recommendation that Icon receive funding “to become the focus for the use of heritage science projects to promote public engagement with SET as a whole” on the grounds that the Office of Science and Innovation’s policy was to fund public engagement through the research councils and National Academies.¹⁴⁵
59. We received some evidence of recent individual efforts to promote public engagement with heritage science. For example, the Natural History Museum hosts Nature Live events between scientists and the public about, amongst other topics, conservation of heritage objects, and Alison Richmond, Chief Executive of Icon, spoke favourably of National Museums Liverpool’s Conservation Science Investigations programmes which allowed members of the public to see conservation of objects from an archaeological dig, within a shopping centre.¹⁴⁶ The National Museums Scotland considered that, generally, “high levels of public interest have been

¹⁴⁰ National Museums Liverpool.

¹⁴¹ British Library.

¹⁴² Q 167.

¹⁴³ Ibid

¹⁴⁴ Op. cit. *Science and Heritage*.

¹⁴⁵ Op. cit. *Government response*.

¹⁴⁶ Natural History Museum, Q 75.

maintained”.¹⁴⁷ Ms Bell suggested that the Science and Heritage Programme has helped engage the public through its innovative research outputs such as videos, podcasts, social media and mobile telephone applications.¹⁴⁸ The National Museums Liverpool were frustrated by a perceived lack of leadership in public engagement.¹⁴⁹ This frustration was expressed in the midst of confidence that heritage science “has the potential to connect people with their heritage”. Dr Watts explained: “we have seen this at the Anglo-Saxon CSI centre in Sittingbourne, based in a shopping centre, where people were brought in, trained as volunteers and shown how science helps us understand our heritage”.¹⁵⁰ Dr Saunders agreed that there was a lack of co-ordination in public engagement: “it is fair to say that the contributions to public engagement have been largely through individuals, organisations and groups, rather than any concerted effort”.¹⁵¹ The British Library suggested that, with the appropriate resources, they could meet the leadership need in this area.¹⁵²

60. **Public engagement with heritage science provides a mechanism for stimulating interest in SET. We commend the activities that have been undertaken in this respect and urge the community to work together to plan programmes for public engagement, avoiding overlap and sharing resources wherever possible.**

Digitisation

61. In our first report we endorsed the findings of a National Audit Office report which criticised the lack of a framework for digitisation of records across museums, libraries and archives.¹⁵³ We encouraged the community to develop commercial partnerships with relevant industries.¹⁵⁴ Digitisation does not refer exclusively to digitising archives and manuscripts; it also involves digitising heritage objects through methods such as 3D modelling.¹⁵⁵ The potential revenue stream from commercial partnerships for digitisation has been explored by a number of institutions to good effect—we received evidence of initiatives undertaken by The National Archives, Natural History Museum and the British Library.¹⁵⁶ However, there is still no national digitisation framework nor a strategy to ensure that digitised assets are sustainable—the former recommended in our report and both recommended at an EU level.¹⁵⁷ Ms Bell suggested that any digitisation strategy would quickly become dated and Dr Dixon said that an international approach was needed because of the international significance of many of the collections held in the UK.¹⁵⁸ Ms Bell identified the risk of digitisation not being

¹⁴⁷ National Museums Scotland.

¹⁴⁸ Q 75, Q 31.

¹⁴⁹ National Museums Liverpool.

¹⁵⁰ Q 194.

¹⁵¹ Q 75.

¹⁵² British Library.

¹⁵³ Op. cit. *Science and Heritage*.

¹⁵⁴ Ibid.

¹⁵⁵ Q 162.

¹⁵⁶ Q 94, Natural History Museum, The British Library.

¹⁵⁷ Op. cit. *Science and Heritage*, European Commission: *Digitisation and online accessibility of cultural material and digital preservation*, August 2006.

¹⁵⁸ Q 73.

sustainable¹⁵⁹ For example, the New Opportunities Fund's (NOF) Digitisation Programme, worth £50 million, funded 147 digitisation projects with the aim of "digitising existing material that could be used as educational content in a broad lifelong learning perspective". Eighty percent of the projects digitised what the NOF termed "cultural enrichment" content. Thirty percent of all the projects failed to meet the programme requirement to "keep the[ir web]sites live for three years post-programme".¹⁶⁰ The Collections Trust argued that the "lack of a joined-up strategy is undoubtedly resulting in inefficiency, duplication and the creation of a generation of unsustainable digital assets" resulting in "the taxpayer ... not receiving value for money" and institutions "failing to capitalise on opportunities for public/private partnership with the commercial sector".¹⁶¹

62. We remain of the view that a national digitisation framework is needed to address issues of sustainability, the prevention of duplication and loss of digital records, and to stimulate a potentially lucrative income stream. David Willetts MP told us: "One of the projects that we are interested in is the virtual handling of documents and materials. In terms of commercial partners, it is possible that there will be players in the I[nformation] T[echnology] industry who could work alongside us. This is a very helpful line of questioning and perhaps jointly we could undertake to see if we could find greater commercial interest in working with us".¹⁶² We welcome this. **We recommend that DCMS and BIS, with the involvement of the Forum, facilitate the development of a digitisation framework to promote and manage digitisation of cultural heritage.**

¹⁵⁹ Q 94.

¹⁶⁰ Education for Change: *The [New Opportunities] Fund's ICT Content Programmes; Final Evaluation Report*, March 2006.

¹⁶¹ The Collections Trust.

¹⁶² Q 119.

CHAPTER 4: LIST OF FINDINGS AND RECOMMENDATIONS

Research councils

63. The response of the Arts and Humanities Research Council (AHRC) to the first report, as lead research council responsible for heritage science, and, in particular, the establishment, in conjunction with the Engineering and Physical Sciences Research Council (EPSRC), of the Science and Heritage Programme, demonstrate the commitment of the research councils to heritage science. We commend the AHRC and the EPSRC for the actions they have taken (paragraph 13).
64. We share the concern expressed by a number of witnesses that funding should be provided to enable the progress achieved to date by the Science and Heritage Programme to continue after 2013 when it comes to an end. We recommend that the AHRC and the EPSRC take steps to ensure that the momentum generated by the Programme is not lost (paragraph 16). (**Recommendation 1**)

National Heritage Science Strategy and Forum

65. We welcome the development of the National Heritage Science Strategy (NHSS). However, we urge the steering group to underpin NHSS objectives with detailed specifications of the actions required to achieve those objectives, identifying who is responsible for their achievement and according to what timescale. We encourage the Forum to take responsibility for ensuring that heritage institutions give “institutional buy-in” to the NHSS objectives and we encourage heritage institutions to consider how they can contribute to the achievement of NHSS objectives (paragraph 19). (**Recommendation 2**)
66. Whilst we acknowledge that the Forum is still only in the early stages of development, we recognise that it has significant potential as a collective voice and vehicle for leadership of the heritage science community, and as a means of stimulating collaboration between members of the community. It is time for the Forum to provide clear leadership and to enable the community to demonstrate that it is committed to acting upon the NHSS as well as discussing priorities (paragraph 23). (**Recommendation 3**)

DCMS and its arm’s length bodies

67. We recommend that, before the next round of funding negotiations with its arm’s length bodies (ALBs), the Department for Culture, Media and Sport (DCMS) sets specific departmental objectives for heritage science related to its departmental responsibility to “protect our nation’s cultural heritage”. Similarly, DCMS ALBs should set out how they will help achieve these objectives in funding agreement negotiations with the department. At the appropriate time, fulfilling these objectives should be taken into account in negotiations prior to the next Comprehensive Spending Review (paragraph 29). (**Recommendation 4**)
68. Given the importance of heritage science to the sustainability of the contribution heritage makes to the economy, failure to find the resources to enable the appointment of a Chief Scientific Adviser (CSA) would amount to negligent short-termism. The CSA post has been vacant since 2010—more

than sufficient time for DCMS to find “a workable solution”. We recommend that DCMS appoints a CSA without further delay (paragraph 31). (**Recommendation 5**)

69. The evidence suggests that, in the absence of a departmental CSA, DCMS is not able to act as an effective “intelligent customer” of the scientific advice which its Science and Research Advisory Committee has the potential to provide. This reinforces the importance of our recommendation that a DCMS CSA should be appointed without further delay (paragraph 33).

Dissemination of best practice

70. We encourage Icon to develop their website to contain an up-to-date online catalogue of scientific literature relevant to heritage science, where possible including abstracts, which should be accessible to all heritage scientists and users of this research across the UK (paragraph 38). (**Recommendation 6**)

European Union funding

71. We recommend that DCMS and the Department for Business, Innovation and Skills (BIS) make the case for the inclusion of heritage science in European Commission Framework Programme 8 (Horizon 2020). We encourage the heritage science community and research councils to make every effort to secure funding for heritage science from European Union sources (paragraph 41). (**Recommendation 7**)

Private funding

72. Philanthropic and industry funding has the potential to make an important contribution to meeting heritage science funding needs. We urge the Forum to explore the possibility of obtaining private, possibly matched, funding—consulting, where appropriate, bodies (such as university museums, the research councils and the Getty Conservation Institute) which have demonstrated an effective track record in this area. We also recommend that DCMS make every effort to increase private (both philanthropic and industry) funding for heritage science and to communicate these efforts to the community (paragraph 45). (**Recommendation 8**)

Capacity

73. Although new scientists have been attracted into heritage science there is some concern about the loss of senior posts and long-term maintenance of capacity in the field. We recommend that the AHRC, as lead research council responsible for heritage science, should ensure that steps are taken to assess and monitor the health of the discipline. We anticipate that this will be an area of work to which the Forum will wish to make a contribution. If these concerns prove to be founded, we recommend that DCMS, the research councils, the Forum and heritage institutions take appropriate action to ensure that the long-term health of heritage community is assured (paragraph 51). (**Recommendation 9**)

Collaboration

74. We commend the efforts which have been made by the heritage science community to increase collaboration. We encourage the heritage science community to explore how they can best work together to share resources,

expertise and experience throughout the UK. Given the objectives of the NHSS, we anticipate that the Forum will wish to assist in promoting these collaborative efforts (paragraph 54). (**Recommendation 10**)

Independent Research Organisation status

75. We acknowledge that there is an issue for those organisations which are unable to access funding because of their ineligibility for Independent Research Organisation (IRO) status. We encourage organisations within the heritage science community who would like IRO status to explore whether it would be possible to develop consortia, perhaps on a regional or thematic basis, to apply as a collectivity for IRO status and bid for funding. The research councils should offer assistance to any group of organisations intending to form a consortium to help them achieve IRO status (paragraph 57). (**Recommendation 11**)

Public engagement

76. Public engagement with heritage science provides a mechanism for stimulating interest in science, engineering and technology. We commend the activities that have been undertaken in this respect and urge the community to work together to plan programmes for public engagement, avoiding overlap and sharing resources wherever possible (paragraph 60). (**Recommendation 12**)

A UK digitisation framework

77. We recommend that DCMS and BIS, with the involvement of the Forum, facilitate the development of a digitisation framework to promote and manage digitisation of cultural heritage (paragraph 62). (**Recommendation 13**)

APPENDIX 1: MEMBERS AND DECLARATION OF INTERESTS

Members:

Lord Broers
 Lord Crickhowell
 Lord Cunningham of Felling
 Baroness Hilton of Eggardon
 Lord Krebs (Chairman)
 Baroness Neuberger
 Lord Patel
 Baroness Perry of Southwark
 Lord Rees of Ludlow
 Earl of Selborne
 Baroness Sharp of Guildford (co-opted)
 Lord Wade of Chorlton
 Lord Warner
 Lord Willis of Knaresborough
 Lord Winston

Declared Interests

Lord Broers
Trustee, British Museum

Lord Crickhowell
None

Lord Cunningham of Felling
None

Baroness Hilton of Eggardon
None

Lord Krebs
Principal, Jesus College, Oxford
Chairman, Visitors of the Oxford University Museum of Natural History

Baroness Neuberger
None

Lord Patel
None

Baroness Perry of Southwark
None

Lord Rees of Ludlow
None

Earl of Selborne
Acting Chair, Living With Environmental Change

Baroness Sharp of Guildford
Chair, Advisory Board for the AHRC/EPSRC Strategic Research Programme on Science and Heritage
Member, Temporary Advisory Group, National Heritage Science Forum

Lord Wade of Chorlton
None

Lord Warner
None

Lord Willis of Knaresborough

None

Lord Winston

Faculty member, Imperial College London

Director, Reach Out Lab

Chancellor, Sheffield Hallam University

Council Member, University of Surrey

A full list of Members' interests can be found in the Register of Lords' Interests:

<http://www.parliament.uk/mps-lords-and-offices/standards-and-interests/register-of-lords-interests/>

APPENDIX 2: LIST OF WITNESSES

Evidence is published online at www.parliament.uk/hlscience and available for inspection at the Parliamentary Archives (020 7219 5314)

Evidence received by the Committee is listed below in chronological order of oral evidence session and in alphabetical order. Those witnesses marked with * gave both oral evidence and written evidence. Those marked with ** gave oral evidence and did not submit any written evidence. All other witnesses submitted written evidence only.

Oral evidence in chronological order

- | | | |
|----|------------|---|
| * | QQ 1–30 | Professor Rick Rylance, Chief Executive of Arts and Humanities Research Council and current Chair of Research Councils UK |
| * | | Mr Atti Emezc, Director of Communications, Information and Strategy, Engineering and Physical Sciences Research Council |
| * | QQ 31–55 | Professor May Cassar, Director, Science and Heritage Programme. |
| * | QQ 56–73 | Dr Edward Impey, Director, Heritage Protection and Planning, English Heritage |
| ** | | Sarah Staniforth, Historic Properties Director, National Trust |
| * | | Dr Michael Dixon, Director, Natural History Museum |
| * | QQ 74–95 | Nancy Bell, Head of Collection Care, The National Archives |
| * | | Alison Richmond, Chief Executive, Institute of Conservation |
| * | | Dr David Saunders, Keeper, Department of Conservation and Scientific Research, British Museum |
| * | QQ 96–129 | The Rt Hon David Willetts MP, Minister for Science and Universities, Department for Business Innovation and Skills |
| * | | John Penrose MP, Minister for Tourism and Heritage, Department for Culture, Media and Sport |
| * | QQ 130–155 | Professor Heather Viles, Professor of Biogeomorphology and Heritage, University of Oxford |
| ** | QQ 156–206 | Simon Cane, Head of Museum Operations, Birmingham Museums and Art Gallery |
| * | | Jacqueline Ridge, Keeper of Conservation, National Galleries of Scotland |
| * | | Dr Siobhan Watts, Head of Conservation Science, National Museums Liverpool |

Alphabetical list of all witnesses

- ** Birmingham Museums and Art Gallery
- British Library
- * British Museum
- Collections Trust
- * Department for Business, Innovation and Skills
- * Department for Culture, Media and Sport
- * Engineering and Physical Sciences Research Council
- * English Heritage
- * Heads of Conservation and Scientific Laboratories in UK National Museums, Galleries and Libraries group
- * Icon (Institute of Conservation)
- * National Galleries of Scotland
- * National Museums Liverpool
- * National Museums Scotland
- ** National Trust
- * Natural History Museum
- * Research Councils UK
- * Science and Heritage Programme
- Society for the Protection of Ancient Buildings
- The Courtauld Institute of Art
- * The National Archives
- * Professor Heather Viles

APPENDIX 3: CALL FOR EVIDENCE

December 2011

The following email was sent to those who gave oral evidence to the original inquiry:

In 2006, the Lords Science and Technology Committee published a report entitled *Science and Heritage*, 9th report of session 2005–06, HL Paper 256. An update was published in October 2007 (8th report of session 2006–07, HL Paper 168).

The Committee has decided to undertake a short follow up of its report. To this end, I would be grateful if you could provide an update, from your perspective, of developments since the publication of the Committee's original report, both successes and, where recommendations have not been followed, any adverse consequences. Submissions of no longer than six pages are encouraged.

I would be grateful if you could provide your evidence by **Tuesday 31 January**. In accordance with usual practice, your evidence will be published on the Committee's Internet page.

APPENDIX 4: ABBREVIATIONS AND ACRONYMS

AHRC	Arts and Humanities Research Council
ALBs	Arm's length bodies
BIS	Department for Business, Innovation and Skills
COST	European Cooperation in Science and Technology
CSA	Chief Scientific Adviser
DCMS	Department for Culture, Media and Sport
EPSRC	Engineering and Physical Sciences Research Council
EU	European Union
FP	European Commission Framework Programme
Icon	The Institute of Conservation
IRO	Independent Research Organisation
MLA	Museums, Libraries and Archives Council
NHSS	National Heritage Science Strategy
NOF	New Opportunities Fund
RCUK	Research Councils UK
SET	Science, Engineering and Technology
SRAC	Science and Research Advisory Committee

APPENDIX 5: RECENT REPORTS FROM THE HOUSE OF LORDS SCIENCE AND TECHNOLOGY COMMITTEE

Session 2006–07

- 1st Report Ageing: Scientific Aspects—Second Follow-up
- 2nd Report Water Management: Follow-up
- 3rd Report Annual Report for 2006
- 4th Report Radioactive Waste Management: an Update
- 5th Report Personal Internet Security
- 6th Report Allergy
- 7th Report Science Teaching in Schools: Follow-up
- 8th Report Science and Heritage: an Update

Session 2007–08

- 1st Report Air Travel and Health: an Update
- 2nd Report Radioactive Waste Management Update: Government Response
- 3rd Report Air Travel and Health Update: Government Response
- 4th Report Personal Internet Security: Follow-up
- 5th Report Systematics and Taxonomy: Follow-up
- 6th Report Waste Reduction
- 7th Report Waste Reduction: Government Response

Session 2008–09

- 1st Report Systematics and Taxonomy Follow-up: Government Response
- 2nd Report Genomic Medicine
- 3rd Report Pandemic Influenza: Follow-up

Session 2009–10

- 1st Report Nanotechnologies and Food
- 2nd Report Radioactive Waste Management: a further update
- 3rd Report Setting priorities for publicly funded research

Session 2010–12

- 1st Report Public procurement as a tool to stimulate innovation
- 2nd Report Behaviour Change
- 3rd Report Nuclear Research and Development Capabilities
- 4th Report The role and functions of departmental Chief Scientific Advisers