



Archives & Records
Association
UK & Ireland

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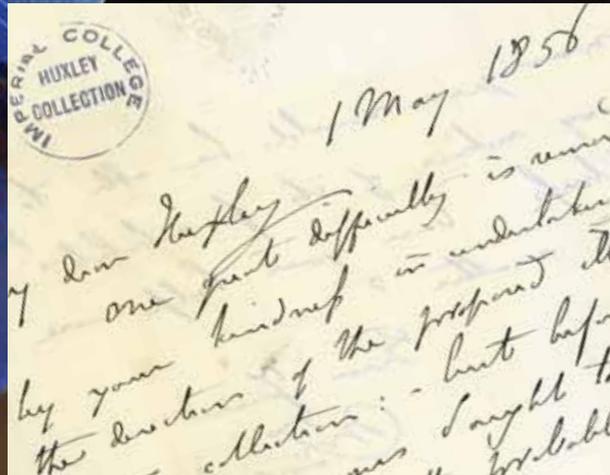
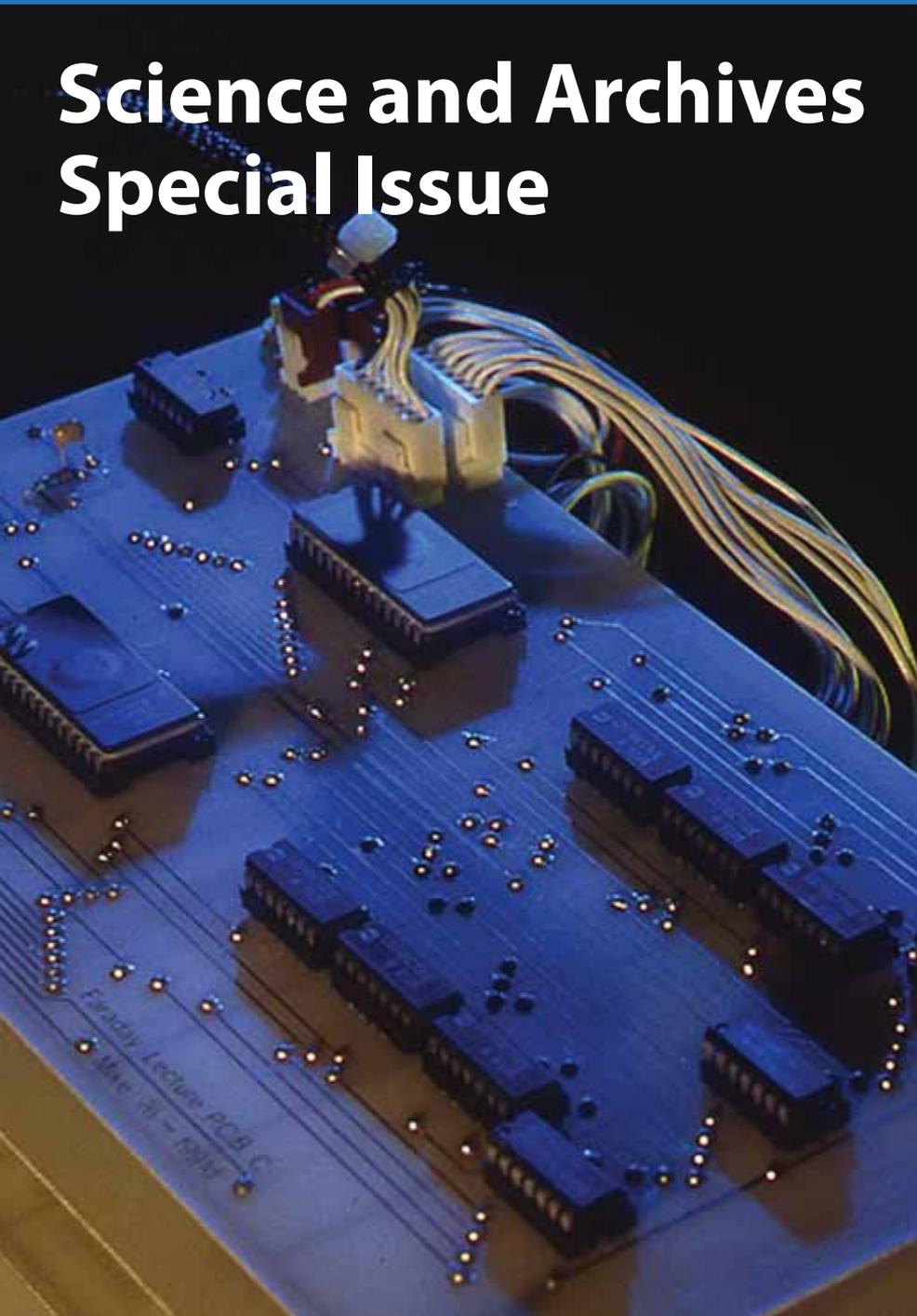
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Science and Archives Special Issue



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Tribute to
John McLintock



The Archives and Records Association (UK & Ireland) is pleased to announce its new Core Training programme.

ARA Core Training courses are high quality, affordable and offered regularly across the regions and nations. They focus on the common skills essential to all of us who work with records - from Audience Engagement to E-Records Management. Each course is supported by ARA funds.

The first eight courses have now been designed. More will follow.

Find out more about ARA Core Training and all other training and development opportunities by clicking on the Training link at www.archives.org.uk or keep in touch through Twitter @TrainingARA

Copyright

This course offers participants practical and relevant training in copyright for archives, and will instil confidence to manage copyright demands in the workplace. Practical workshop sessions, led by copyright experts and archivists with extensive experience in the field, will ensure the opportunity for discussion and provision of advice.

Audience Engagement

The course will cover various aspects of audience engagement, from producing an exhibition to running a successful community-based project. This will be a great opportunity to learn from the experiences of colleagues and to start developing some ideas of your own.

Freedom of Information

The course will cover the basic principles of the Freedom of Information Act as well as exploring some practical case studies. This will be a great opportunity to develop your knowledge about the Act and how to implement it in the workplace.

Archives and Volunteers

The course will cover how best to utilise volunteers in the workplace, from the practicalities of running a volunteer project to the value they can bring to an organisation. This will be a great opportunity for anyone interested in maximising the benefits of volunteering to both their organisation and for the individuals involved.

Digital Preservation

This course will be updated periodically to address the issues archivists face when dealing with born digital material, it will involve case studies and practical first steps. It's a great opportunity to share and receive advice and knowledge about the many aspects of digital preservation.

Data Protection

The course will begin with refresher sessions on the basics of Data Protection. In the afternoon there will be opportunities to discuss best practice and raise queries from your own workplace with an expert panel.

E-records management

This course will provide a solid introduction to e-records management for record keepers who are not managing electronic records on a day-to-day basis. This course is a great opportunity to learn about and share best practice on all areas of the rapidly changing field of e-records management.

New and refurbished Archives Buildings

Whether you are planning a completely new building or hoping to refurbish a part of an existing site this course will provide introduction to the key issues and themes involved in the provision of new and refurbished archives buildings.

The ARA's Core Training programme is supported by Link 51.



Archives & Records Association
UK & Ireland

contents

EDITORIAL

Welcome to the first ever Special Issue on Science and Archives. There are some fascinating pieces this month, and I think you will agree that *ARC Magazine* will definitely need to have other issues focused on science, technology, and medical archives in the future. Our thanks go to everyone who contributed articles on this topic, but most especially to Anne Barrett who compiled these stories and arranged them topically.

Modern science is full of international collaborations, and these stories range from Stanford and New York to Geneva and Sydney. Scientific research encompasses the big and the small from telescopes studying the farthest galaxies, to particle accelerators examining the building blocks of the universe. Articles in this issue include people who discovered electricity, evolution, the human genome, DNA, and did experiments with human intelligence. Scientists are also people, like the rest of us, and collections and documentation of their personal lives and interactions with others is also described here.

Other stories in this issue highlight regional outreach projects and developing new audiences locally. We visit Newcastle and Liverpool, where new-state-of-the-art-archive facilities have been built and are attracting people to archives. In Dublin, librarians and archivists have produced a beautiful, new, full colour, visually appealing guide to their city— it is 140-pages long and highlights art, architecture and design collections. There are training and workshops on securing fundraising for your collections as well as refreshing your professional skills.

We end with a tribute to John McLintock, an active member of ARA, who was well known to people in Scotland, having worked at the Scottish Record Office and Glasgow University. He bravely battled cancer for two years.

One of the contributors writes about how science affects all aspects of our modern lives. As one who has had a child and recently lost a family member to illness (and therefore spent time in hospital this year) one is well aware of how true this is for all of us. While there are the big “sexy” science projects that get lots of press, the documentation of the more mundane aspects of science is not only relevant, it is just as crucial.

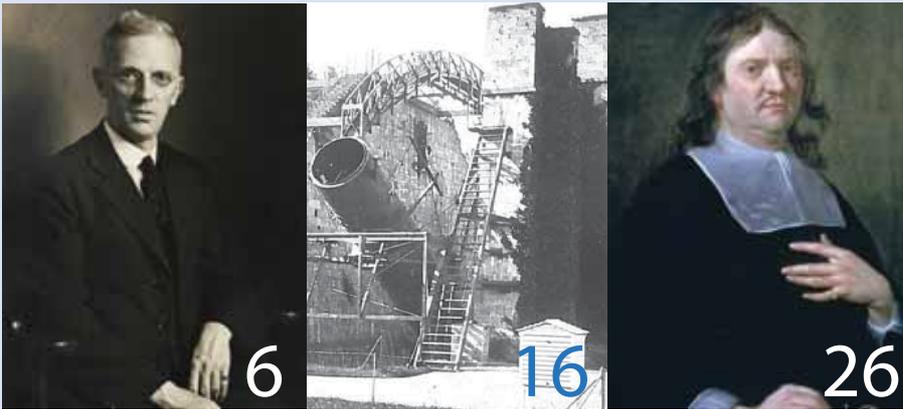
Rose Roberto, Gary Collins, Ceri Forster, Sarah Norman, Ellie Pridgeon, and Richard Wragg.

Correction for July 2013 issue *ARC*:

In the article by Anna-Maria Hajba, *Captain Pat and his camera*, the photo on page 14 is of Reims Cathedral, which was damaged during the Battle of the Marne, not Ypres.

DISCLAIMER

The Archives & Records Association (UK and Ireland) cannot accept responsibility for views expressed by individual contributors to *ARC Magazine*. It is a medium for informing members of news, information and ideas relevant to the profession, including archive conservation. It is not an official guide to procedures, concepts, materials or products.



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Left: Igor Aleksander Neural networks artificial intelligence, photo by Neville Miles, courtesy of Imperial College. Right from top to bottom: Detail of Dinosaur in Manchester Museum from WISRNNet launch event 24 July 2013. The cinema experience at Tyne & Wear Archives and Museums. Detail from letter, Huxley Collection, Imperial College Archives.

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Opening Lines



Cheering Archives

Dr Gerry Slater worked in the Public Record Office of Northern Ireland (PRONI) from 1974 to 2008; he led the institution as Chief Executive and Deputy Keeper from 1999. He is currently policy adviser to the Scottish Council on Archives.

To state the blindingly (and painfully) obvious, archives are short of the 'readies'. Resources are squeezed. A timid archivist might be tempted to do no more than 'hang in there' in the hope of returning to the quieter normality of a blessed past. That is a baseless hope. Nothing will return to where it was before. The political landscape has shifted. Decision makers demand more be done with less. User (and potential user) expectations from services have grown enormously. Technology in its myriad forms has helped feed the sense of accelerated change. Not only must we come to terms with change but we must also seek to get ahead of it and thus control to some degree our own destinies.

Where to begin? Let us think how our interest in this-or-that type of archives or in a particular geographical area can contribute to a much bigger picture. Let us see ourselves and our interests in the context of the whole range of archives, records management

and conservation services across the UK and Ireland. We need to ask some tough questions amid the pressures of everyday working. What can we contribute individually? How can we network better? Above all, how can we co-operate with others within and outside the sector? How can we contribute to improving (and to proving) the impact of our sector? When the financial machete is swinging round us, no-one owes us a budget.

In terms of holdings, archives are asset-rich. The great challenge is to bring home that well-known (among ourselves) point to a wider world, including decision makers. We can blow our individual trumpets in the hope that someone hears or we can commit ourselves to something bigger, much bigger. The *Explore Your Archive* campaign – led by the Archives and Records Association and The National Archives - has the potential to cover every aspect of archives, records management and conservation. It might be

described as 'All archival life is here'. Well, all the life will be there if we choose to wade in and fire on all cylinders.

What we need now is something of the spirit, the enthusiasm of the last night of the Proms. Let us raise our voices and with confidence make our contributions. We know that archives have a wonderful story to tell. *Explore Your Archive* provides us with an opportunity to do so collectively.

So let us prepare to delve into the campaign toolkit. Then it's ready, steady, go ... and let's hear the cheers.

.....

Gerry Slater was honoured for his lifetime achievement by the All Party Parliamentary Group on Archives and History in 2013.

Find out more about *Explore Your Archive* at www.nationalarchives.gov.uk/yourtoolkit

Registration Scheme News

New Enrolments

We welcome the following new candidates to the Registration Scheme and wish them good luck with their progress:

Claire McLennan

Archivist, Rotherham Metropolitan Borough Council

Courtney Brucato

Information Access Officer, General Medical Council

Gerald Payne

Collection Access Officer, Lincolnshire Archives

Forthcoming Workshops

Elsewhere in this issue, readers will find information about two events being organised by the Registration Scheme Sub-committee. The first is a 'Blitz-it' workshop designed to give candidates and their mentors a bit of help as they approach the submission of their portfolios. The workshop is aimed at candidates who have been working on their portfolios for 5+ years and will offer advice and motivation. The second event is one of the general Registration Scheme workshops. This time we will be at the Glamorgan Record Office on 28 October. Places at both workshops are limited so please book early to avoid disappointment.

CONTACTS:

General Registration Scheme Enquiries:

registrar@archives.org.uk

Registration Scheme Events Enquiries:

regschemeevents@archives.org.uk

Registration Scheme Admin and Bursaries:

regschemeadmin@archives.org.uk

Registration Scheme Communications Officer:

regschemecomms@archives.org.uk

Registration Scheme Mentor Queries and Advice:

regscheme Mentors@archives.org.uk

Richard Wragg

Communications Officer,
Registration Sub-committee



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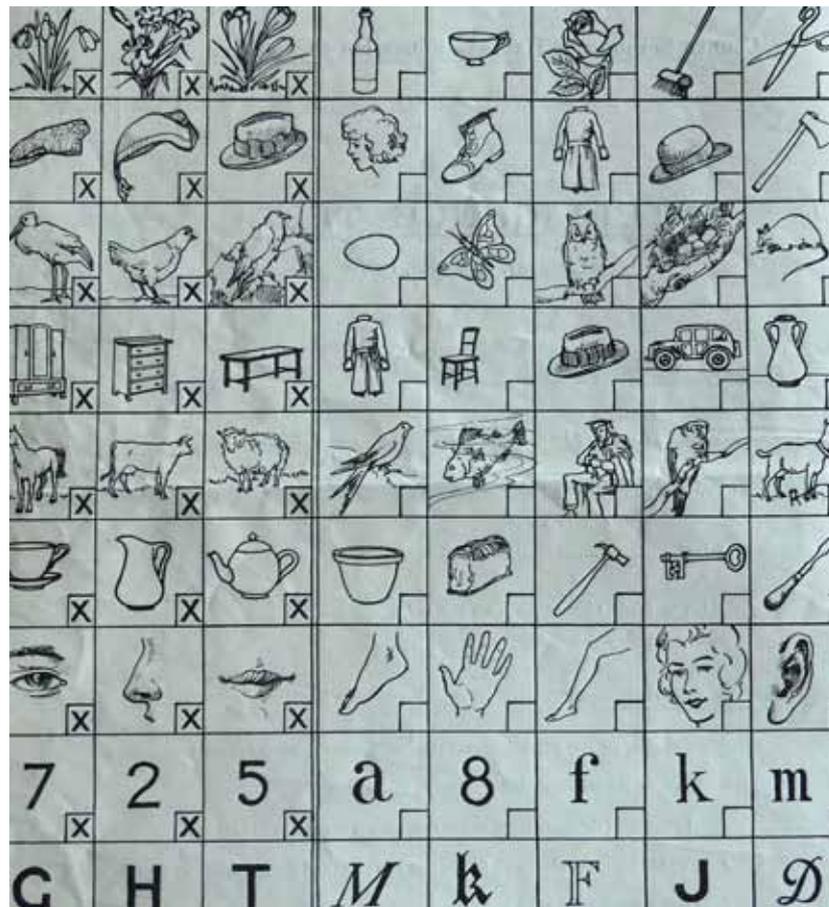
Documenting the Understanding of Human Intelligence

The archivist is often tasked with cataloguing collections regarding subjects of which they have little previous knowledge, and this is particularly true of scientific papers. In my own career, I have found myself cataloguing the papers of a radiographer; an engineer; and, in my current Wellcome Trust funded¹ post, a pioneer in the fields of intelligence, statistics, and education, Professor Sir Godfrey Thomson (1881-1955).

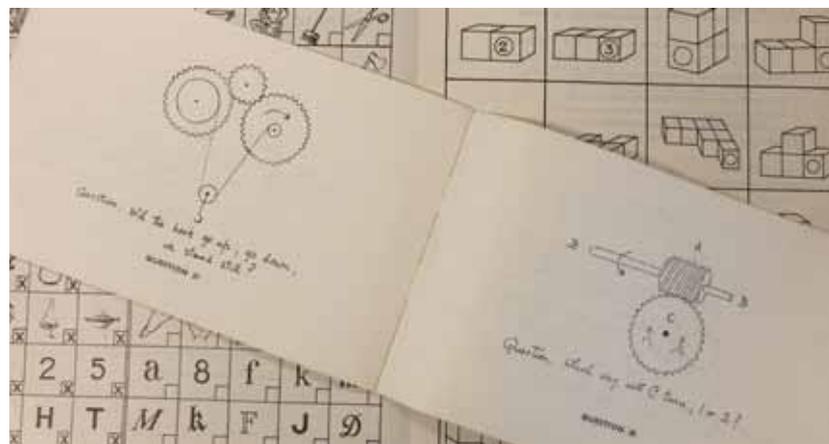
Thomson is the only individual to have held both the Bell Chair of Education at the University of Edinburgh, and the directorship of Moray House College of Education. His papers contain a wealth of information regarding intelligence testing, educational research, and statistics, with correspondents including Carlos Paton Blacker; David Glass, and Karl Pearson. Also included in the collection are Thomson's unpublished lectures, heavily annotated published works, photographs, and artefacts.

With the help of a Research Assistant possessing extensive knowledge of both Thomson's and Scotland's educational research output, I am able to ensure contextual information is captured in the catalogue, and to identify and prioritise key material for item level description. I am also creating summaries of related material around the UK from repositories such as the Wellcome Library to facilitate further study on Thomson.

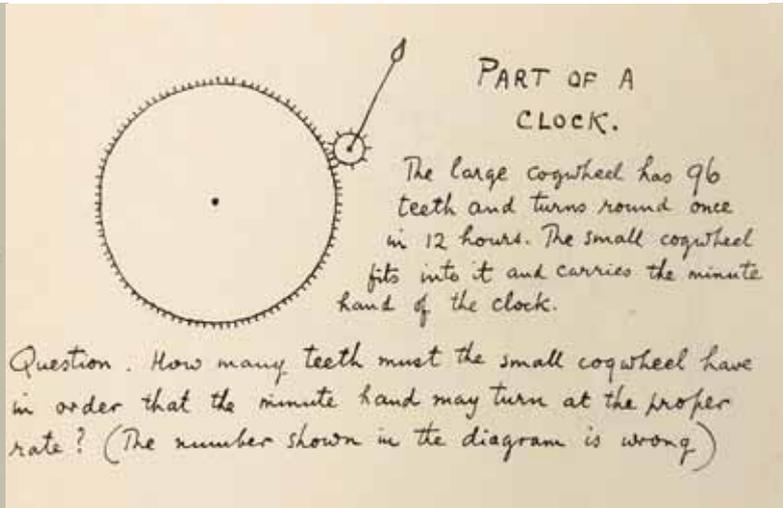
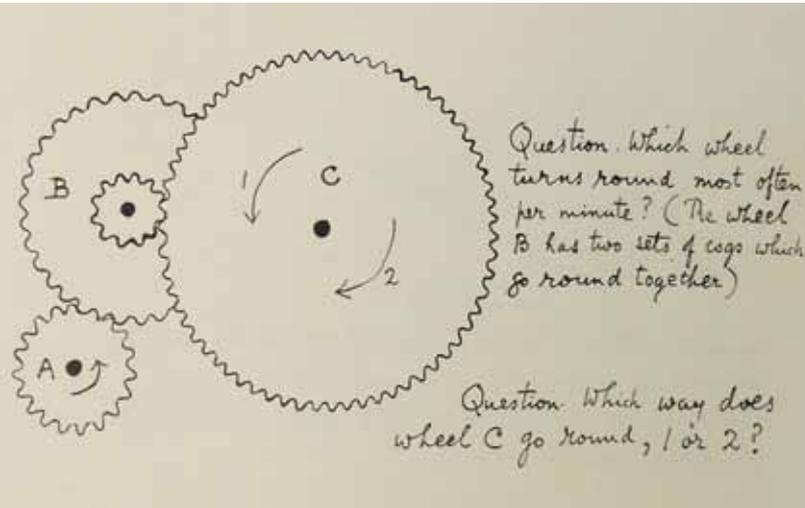
However, the story could have been considerably different. It is no exaggeration to say that Co-investigator and Professor of Differential Psychology, Ian Deary, rescued these papers, discovering them mere weeks before the old Thomson house was sold and subsequently demolished. Their loss would have been considerable – they both challenge the maligned of intelligence testing as prejudicial and



From the County Borough of Halifax intelligence test, 1932



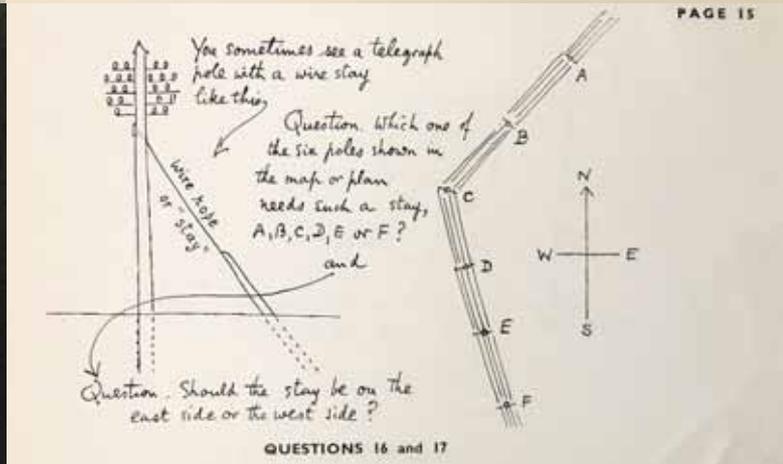
From the County Borough of Halifax intelligence test, 1932; and the Moray House mechanical aptitude test, 1943



Professor Godfrey Thomson, 1936

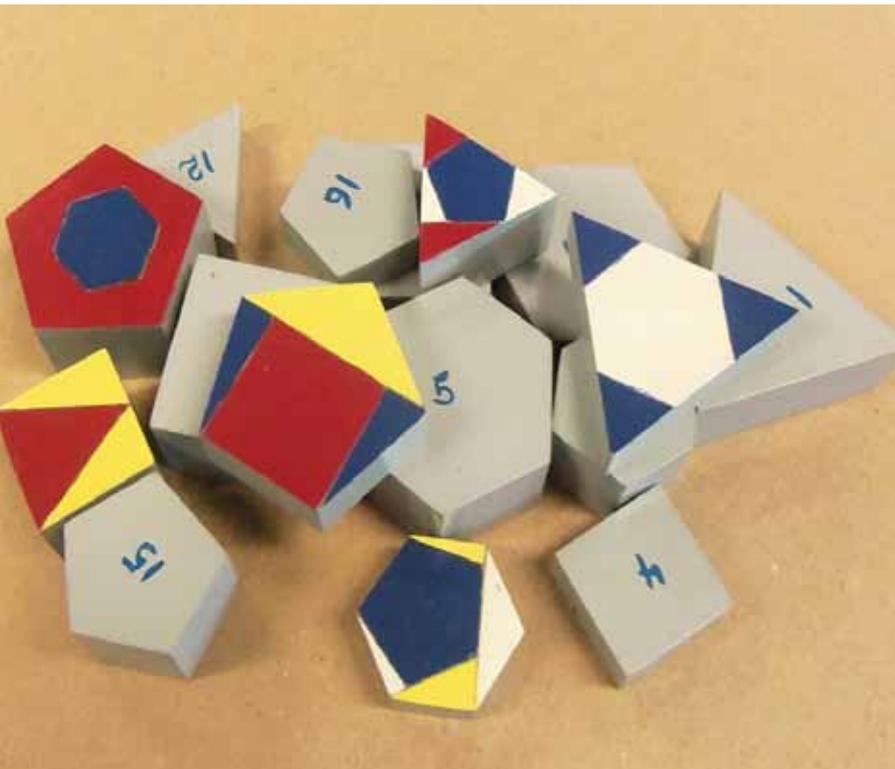
divisive, and, alongside the papers of the Godfrey Thomson Unit, show the processes involved in developing and creating intelligence tests.

In Thomson's lifetime his intelligence test production and research unit was referred to as 'Room 70'. It was



All images are from Moray House mechanical aptitude test 1943

here that Thomson and his team of statisticians and educators created the Moray House Tests, which were heavily used in England for secondary school selection. The tests were also used in the Scottish Mental Surveys of 1932 and 1947, organised by the Scottish Council for Research in Education, which tested every child born in 1921 and 1936 respectively. They left behind rich data of which there is no equivalent in the world. Now in the custody of Glasgow University Archive Services, this data has enabled present psychologists at the University of Edinburgh and the University of Aberdeen to follow-up individuals tested in order to undertake pioneering research in cognitive ageing. The tests' predecessors were the Northumberland Tests. In accordance with the democratic aims of the first intelligence tests created in nineteenth century France, Thomson developed these with the objective of ensuring children from underprivileged backgrounds who were lacking in education but possessed 'native wit' or innate intelligence would not be passed over for a secondary school education. Thomson himself came from a poor background in the north east of England, winning scholarships throughout his childhood and eventually gaining a PhD, summa cum laude, under the Nobel Prize winning physicist, Karl Braun.



Blocks used for intelligence testing, mid twentieth



Cards used for intelligence testing, mid twentieth century

Each Moray House Test included different types of mental tasks, some of which Thomson defined as ‘analogies’, ‘classification’, ‘proverbs’, ‘cypher’, and ‘directions’. The tests could take several months to formulate, and there followed a trial period where the questions were tested on groups of children. The trial data was collated and statistically analysed to ensure questions were neither too complicated nor too simple. The tests could have made Thomson a wealthy individual, but he ploughed profit back into the unit to facilitate their continual improvement.

Thomson had faith in the tests as the most democratic form of selection available, but he also believed intelligence was a highly complex entity which was not easily defined or measured. This would explain his 30 year battle with psychologist Charles Spearman, whose ‘Theory of Two Factors’ attributed intelligence to a single, general factor, ‘g’, and a large number of specific mental skills. As an alternative, Thomson provided the ‘bonds’ model, which negated the need for Spearman’s general factor.

Thomson saw the variation of intelligence throughout society as beneficial, believing that intelligence testing should enable educators to put students on the path that best suited their abilities and interests, ultimately producing balanced, satisfied individuals who in turn made good citizens. His collection provides a hitherto unheard yet vital voice which, alongside the records of the Godfrey Thomson Unit and the records of the Scottish Council for Research in Education, allows researchers to evaluate the pivotal role played by the University of Edinburgh, and indeed Scotland, in understanding human intelligence.

Emma Anthony

Godfrey Thomson Project Archivist
Edinburgh University Special Collections

¹The project is funded by the Wellcome Trust’s Research Resources in Medical History Grants Scheme, under the call Understanding the brain.

A Note on Scientific Archives

Working with users of scientific archives, be they historians of science or other enquirers, is interesting, informative and exciting. In drawing out the content of the archives, they illustrate areas not previously obvious – they reveal hidden archives. Their theories shed new light on the nature of the creator of the collection; they extract hitherto unseen things and then disseminate this information. They appreciate the work that goes into cataloguing and making the papers available, and they appreciate knowledgeable archivists! The synergy between archivists and users is clear. Archivists, though, are also users and produce information much as their researchers do. The articles featured here aim to highlight synergies, reveal hidden archives, and discuss professional issues such as cataloguing and outreach. They also give a flavour of the range of scientific archives and how they are used, nationally and internationally.

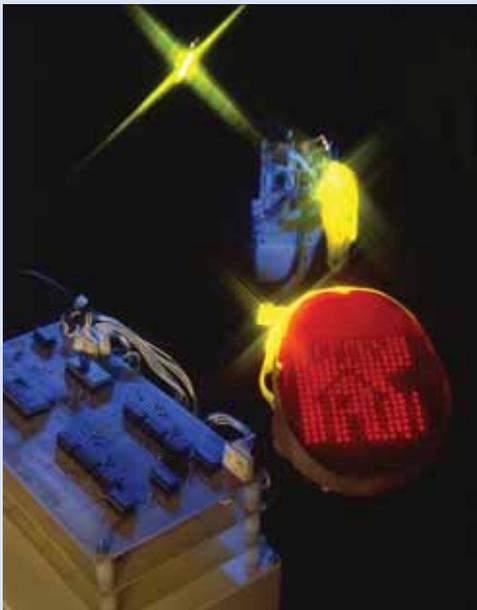
Anne Barrett

Imperial College London

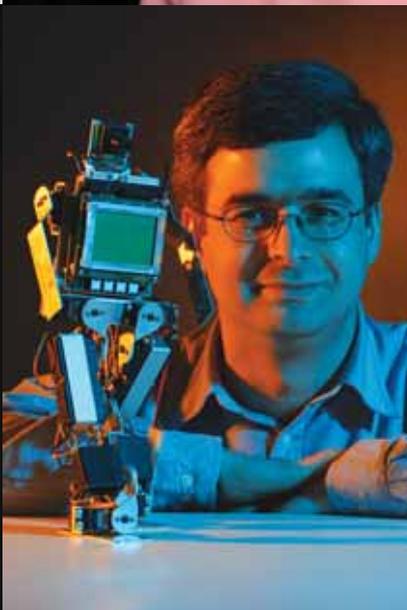
Fibre Optics, photo by Neville Miles



Her Majesty Queen Elizabeth II at Imperial College Centenary Celebrations, 2007, by Neville Miles



Igor Aleksander Neural networks artificial Intelligence, photo by Neville Miles, Imperial College



Robots, photo by Neville Miles



Michele Doughty Physicist, photo by Neville Miles

Points of View

The Archivist

I have often wondered why literary and artistic papers and archives attract large sums when sold, yet scientific archives, however iconic, achieve much smaller sums. Sadly, this attitude is mirrored by funded projects in the archive world; for instance on The National Archive (TNA) website, of the 55 very exciting projects listed by the Pilgrim Trust Review (2006-2011) none are scientific.

Yet science matters to us all – it is integral to our daily lives, and we do need to give it the importance it deserves. Understanding our past is necessary to understanding our present. The phrase, 'On the shoulders of giants', used by Isaac Newton in a letter to Robert Hooke in February 1676, epitomises the very essence of why this institution, the oldest independent scientific society in the world, provides a home for scientific archives, and promotes the importance of science and research today. Science enhances our culture and civilization; without it, could we improve our health and quality of life, support sustainability or drive our economy? In the words of Paul Nurse, the Society's President, 'science influences nearly everything we do, from heating our homes, turning on the TV, using our phone, browsing the internet, to the pill we take for our headache. And science is essential to our economy. Science matters to us all.'

The Society was started by scientists themselves, who found the natural world fascinating, and were prepared to observe, to experiment, to think, and to try to understand, owing allegiance only to scientific truth, and wanting to promote it. The archives left behind, both of the work of the Society itself and the Fellows own archives deposited here, such as their correspondence, notebooks, scientific papers and personal papers, provide an extraordinary record of the development of science for the last 353 years as well as documenting the relationship between the Society and its Fellows, and indeed with other scientists.

To demonstrate the importance of science and its wider interaction in everyday life, the Society is collaborating; currently in a project with St Andrews University, described elsewhere in



T.H. Huxley drawing of he and his wife on honeymoon dredging for sea creatures Huxley Papers, Imperial College.

“
Science enhances our culture and civilization; without it, could we improve our health and quality of life, support sustainability or drive our economy?
 ”

this issue. Another project with Reading University examines the interaction between the Royal Society and literature. The forthcoming (in 2015) 350th anniversary of the publication of 'Philosophical Transactions', the brainchild of Henry Oldenburg who epitomised the public role of the Society as reflected in its correspondence and publications, has led to new cataloguing priorities to ensure the treasure house of papers and correspondence is better known, and will add unique illustrations to the newly developing in-house Picture Library.

.....
Joanna Cordon

The Royal Society

Points of View

Historian of Science

Don't get me wrong: an archive-as-an-archive is clearly of value to historians, and it is so valued. I remember archives I have visited. Even the more accidental have yielded valuable materials for my research; those archives directed with purpose and according to professional standards, can provide much more; the third class of archive, goes further, beyond concern for preserving a set of records and making them accessible and thinks seriously about the people who will visit the archive, especially those who will do so face-to-face, all are a critical part of this interaction. An archive is not just a repository, it is a human relationship and it needs to be cultivated. The visiting researcher – passing through – and the archivist – who works at the archive every day – may start with different purposes. But when an archivist encourages interactions beyond request and retrieval, this transforms the archive into a more intellectually and emotionally satisfying experience for the visitor and for the staff.

Accidental archives: wherever old records accumulate can be a place of value. Even the filing cabinet left behind is not really accidental, is it? The person accumulating materials had reasons for keeping and organizing those papers – or files on a hard drive. Several times I have discovered crucial caches of discarded correspondence in attics or basements, at least one of these caches, fortunately now properly catalogued. It is in human nature that such accidental archives continue to accumulate and both historians and archivists do their best to bring them into a better situation.

Professionally operated archives provide their own joys to visiting researchers. A proper desk, real catalogs, finding aids, staff members who know the collections, add to the aesthetic experience of research and increase its efficiency. However, not all organized archives are operated by people whose purpose is to facilitate access by researchers; archivists can include the secretive, the hierarchical, the hoarder, and others. I leave them aside as the sorts that the best archivists would like to banish as eagerly as any researcher. So to the best among archives: where staff, knowledgeable and solicitous, want to know what each researcher seeks and want to connect the researcher and the records. Most interaction consists of requests and document retrieval. Visitors are happy when this interaction is efficient and cheerful. Archivists are happy when visitors know what they are looking for.

The third level of archive does all of the above plus, encourages interaction and understanding of each



Edward Fenner, York University, Canada. He is researching Van de Graaff, of generator fame.

“
An archive is not just a repository, it is a human relationship and it needs to be cultivated.
”

other's motivation, via a shared tea room; lunch-time talks, conferences, workshops, and exhibitions. I think of the Huntington Library California, the Royal Society of London's Centre for History of Science, and the Chemical Heritage Foundation Philadelphia. The History Programs at the American Institute of Physics endeavor to meet this standard, too. All these archives preserve collections and help researchers find the material they need in those collections, but all do more, too, and that is what makes them stand out. At AIP, our additional actions include exhibits (both in display cases and on the web), highlighting parts of the collections, using social media sites to broaden audience, organizing conferences, and sponsoring lunch talks and evening lectures for the public. These make the archive a more human and attractive place to visit – and word gets around. Researchers find more reasons to visit archives that do more.

And I should say, as a historian who needs archives and who must pick and choose among projects, I choose the ones that take me back to places I have enjoyed!

.....
Greg Good, History Programs

American Institute of Physics
.....

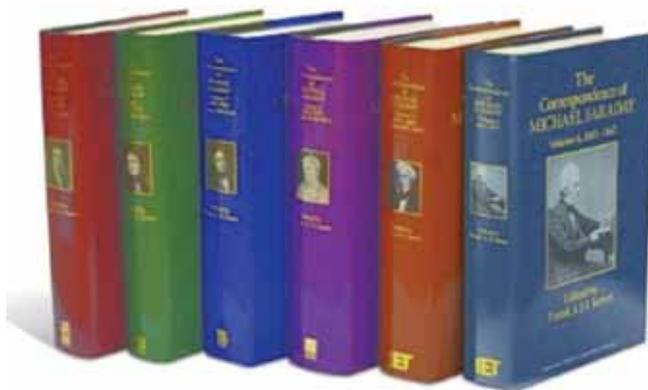
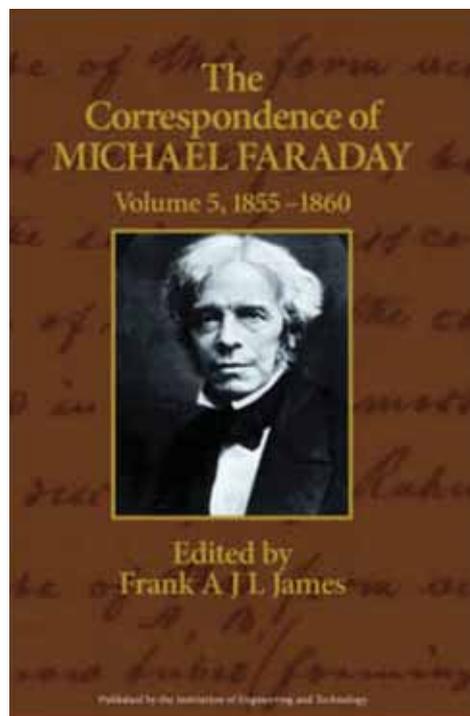
Correspondence Projects

Publishing the Correspondence of Michael Faraday (1791-1867)

Shortly after I began work at the Royal Institution, in the early 1980s, I became aware that the letters of the nineteenth century natural philosopher and chemist Michael Faraday were scattered in a large number of archives round the world and that there was no easy way of accessing them in a coherent manner. Since Faraday is such a crucial scientific figure with his discoveries of electro-magnetic rotations and induction (the principles of the electric motor, transformer and generator) as well as his formulation of the field theory of electro-magnetism, which in the hands of Maxwell and Einstein became and remains a cornerstone of modern theoretical physics, it seemed to be highly undesirable that his letters should be so inaccessible. Thus I decided to embark on a project to publish all of Faraday's surviving letters that I could locate (ultimately from more than 260 archives), both those he wrote and those he received. I think at the start I thought this project would take about 10 years; 25 years later I published the sixth and final volume in 2012.

These volumes contain 5053 letters of which nearly three quarters were previously unpublished in any form. Aside from providing a coherent narrative of Faraday's life, these letters cast light on his scientific discoveries, his lecturing, his role in administering science, and his religious life (he belonged to a small Christian sect called the Sandemanians). But, perhaps most significantly, they show Faraday's centrality to the Victorian state in his provision of scientific advice during the middle third of the nineteenth century. For instance nearly 20% of his letters written after 1836 deal with lighthouse matters in his capacity as scientific adviser to Trinity House; the scale and significance of this work for Faraday was simply not apparent before all his correspondence was published.

Of course the project to publish Faraday's letters covered the period during which the development of information and communication technology not only altered the mode of production of the volumes (although not the final product), but also



how archival research is conducted. Instead of waiting a month or more for postal correspondence with archives to deliver photocopies of manuscripts, e-mail attachments allowed images of documents to be sent far more quickly, sometimes within a day. Electronic catalogues of archives provided references to letters which could not have been located using paper-based catalogues and this goes a long way to account for the appendix in the final volume of 306 letters that should have been published in earlier volumes. Although such

technology makes archival material more easily available, nevertheless such access in and of itself does not provide the necessary critical apparatus to help understand the content and context of the letters. Thus projects to publish the correspondence of other scientific figures, such as those of Humphry Davy and John Tyndall currently in preparation, will continue to flourish.

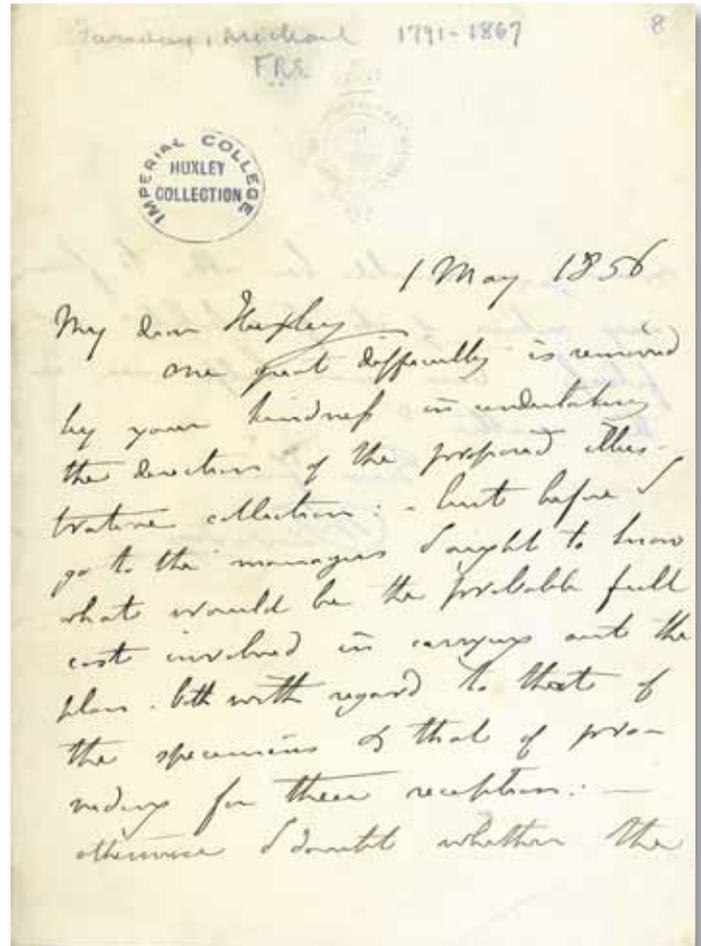
All six volumes of Faraday's correspondence have now been published electronically. <http://digital-library.theiet.org/content/books/ht/c?order=letter>.

The sixth and final volume (covering 1860-1867, undated and earlier letters) of my edition of the Correspondence of Michael Faraday has now been published. Further details can be found at:

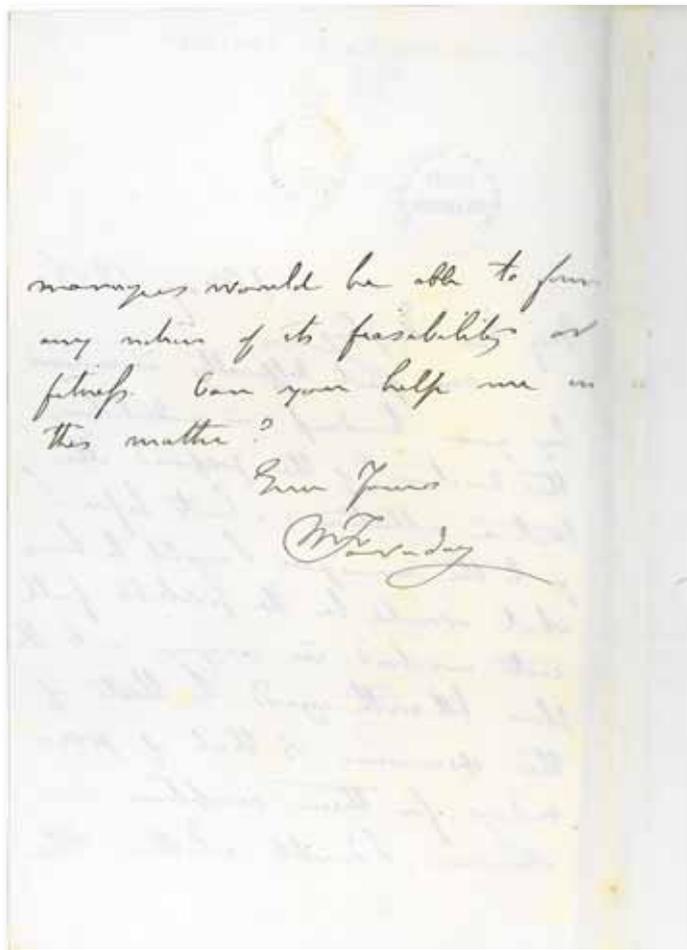
<http://www.theiet.org/resources/books/history/cmfv6.cfm>

Frank James

Professor of the History of Science Royal Institution



Huxley letter from Michael Faraday May 1 1856, recto, Royal Institution B Huxley 16.8



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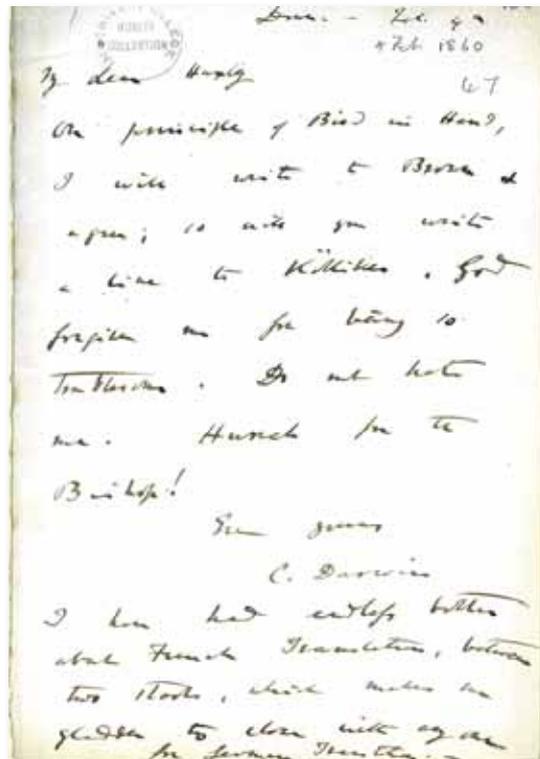
The Darwin Correspondence Project

Around half of the surviving 15,000 letters written by or to Charles Darwin are in the Darwin Archive at Cambridge University Library, but, in the nature of correspondence, the rest are spread around the world in collections ranging in size from several hundred at the American Philosophical Society to individual letters still in private hands.

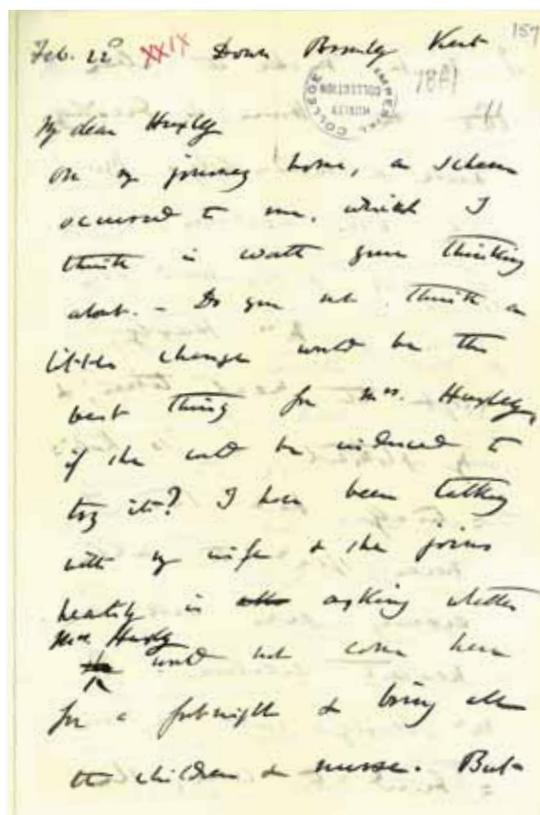
Letters are an integral part of Darwin's scientific legacy. He used correspondence both as a medium for gathering data and for discussing work in progress, so his letters are of unparalleled importance in tracing the development of his ideas, both those that he published and those, perhaps even more interesting, that died a quiet death. Individual letters cover far more than simply Darwin's own science, however. The size of the corpus makes it a valuable source for nineteenth-century attitudes to a range of social phenomena, and among his two thousand correspondents are men and women from diverse backgrounds whose contributions to knowledge can be traced solely through the survival of this evidence.

The Darwin Correspondence Project has spent the last 40 years locating, transcribing, researching, and publishing every possible letter. Their definitive thirty-volume edition, *The Correspondence of Charles Darwin* (Burkhardt et. al., Cambridge University Press) will be complete by 2022: volume 20, covering the year 1872 has just been published. Print was the only medium of dissemination available at the beginning of the project, but since 2006 the letters have also been progressively published online (www.darwinproject.ac.uk). The internet has expanded the potential audience far beyond anything that could have been anticipated, and has provided opportunities for demonstrating that a body of Victorian correspondence can have unexpected usefulness in science education at all levels: teaching resources for 11-16 year olds complementing the UK national curriculum in science, English, history, and RE, explore topics from insectivorous plants to slavery in resources for an undergraduate course on "Getting to Know Darwin" which covers almost every aspect of Darwin's biological work in collaboration with Harvard; materials supporting informal, lifelong learning are being developed. A particularly strong theme in both is the role of women in scientific practice, a role which the private nature of correspondence reveals in a way that more formal records often do not.

Collaboration with Cambridge University's Digital Library released transcriptions and images of over one thousand letters Darwin exchanged between 1882-1882 with his closest friend, the botanist Joseph Dalton Hooker (see: <http://cudl.lib.cam.ac.uk/collections/darwinhooker>). Seeing the manuscripts, provides a dimension that no mark-up can completely



Huxley letter from Charles Darwin inviting Mrs Huxley and the children to stay. Huxley papers 5.157, Imperial College Archives



Huxley letter from Charles Darwin. Will write to Bronn regarding Haeckel's publication. Asks Huxley to write to Kolliker. Huxley papers 5.105, Imperial College Archives

capture, enhancing the sense of direct engagement with the material - but if anyone wonders why researchers also want transcripts, they should first try to read the handwriting.

Perhaps the chief and lasting value of making his letters publicly accessible lies in humanising Darwin himself, dispelling the myth of the lone genius, and replacing both the idol and the demon of popular imagination, with a family-minded man with an infectious sense of humour, for whom good scientific practice - careful observation, well-designed experiments, an open mind, and the constant testing to destruction of his own theories - was of paramount importance.

Alison Pearn

Darwin Correspondence Project
University Library, Cambridge



Screenshot of <http://www.darwinproject.ac.uk/>

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Scientific Discovery

The Leviathan of Parsonstown

The 3rd Earl of Rosse (1800-1867), William Parsons, was a scientist and mathematician whose great interests were astronomy and the reflecting telescope.

In 1789, Sir William Herschel built the most significant telescope in the world at Slough, Berkshire, but had left no written records of its construction after his death in 1822.

The Earl of Rosse carried out countless experiments before deciding that an alloy of copper and tin was the perfect mix to construct the mirror and the correct optical shape of the telescope. In 1845, he built his giant telescope with a mirror 6 feet in diameter. It was, and still is, an enormous feat of engineering.

The telescope was placed in a large pit in the grounds of Birr Castle, Co Offaly, central Ireland. It was held by chains, two stone walls each of seventy feet in length being constructed, to keep it stable. The telescope was named the Leviathan of Parsonstown and would become the largest telescope in the world until the Mount Wilson telescope in California was built in 1917.

The telescope proved to be of incredible optical quality and highly detailed astronomical information was gained regarding the Moon, Jupiter, Saturn and Mars. Indeed, astronomical research was advanced

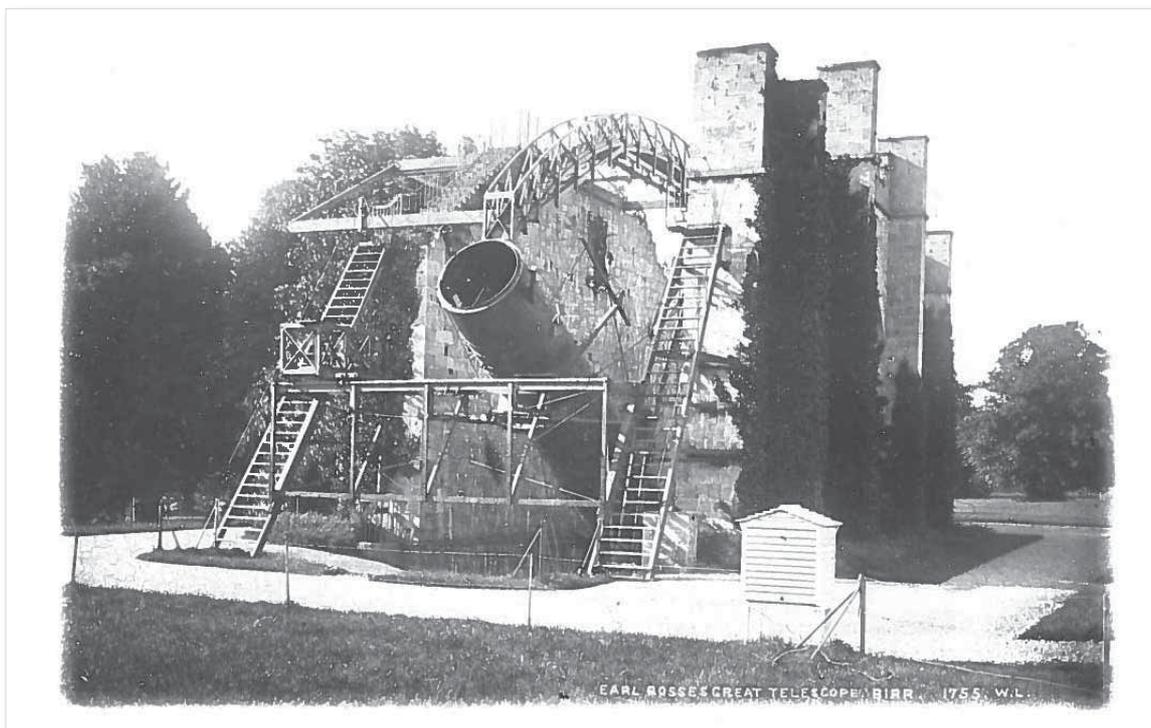
hugely by the Earl of Rosse's studies of nebulae and stars. The nebular hypothesis at that time was that planets and stars were formed by gravity and giant clouds of cosmic gas and dust. Rosse discounted that stars were completely gaseous but that they consisted of large amounts of such fine stars that telescopes were not sufficiently advanced to identify them. Rosse's claims had major cosmological and philosophical implications regarding the composition and origin of the universe. However, he could not sufficiently establish scientific results to resolve the issue once and for all.

The Rosse papers at the Public Record Office of Northern Ireland (PRONI) consist of correspondence of the 3rd and 4th Earl's notebooks containing astronomical observations and calculations on lunar radiant heat, polarisation of moon light, position of nebulae and their reference numbers, observations on the Moon, Jupiter and Saturn, extensive collection of astronomical drawings, charts and papers presented to the Royal Dublin Society. The papers are available on microfilm with the PRONI reference number MIC 512 and are open to the public. The original papers are with the current Earl of Rosse.

Brett Irwin

PRONI

The Leviathan
of Parsonstown,
National Library
of Ireland



Hidden Archives

Scientific Archives: An essential research tool in establishing the cultural significance of science

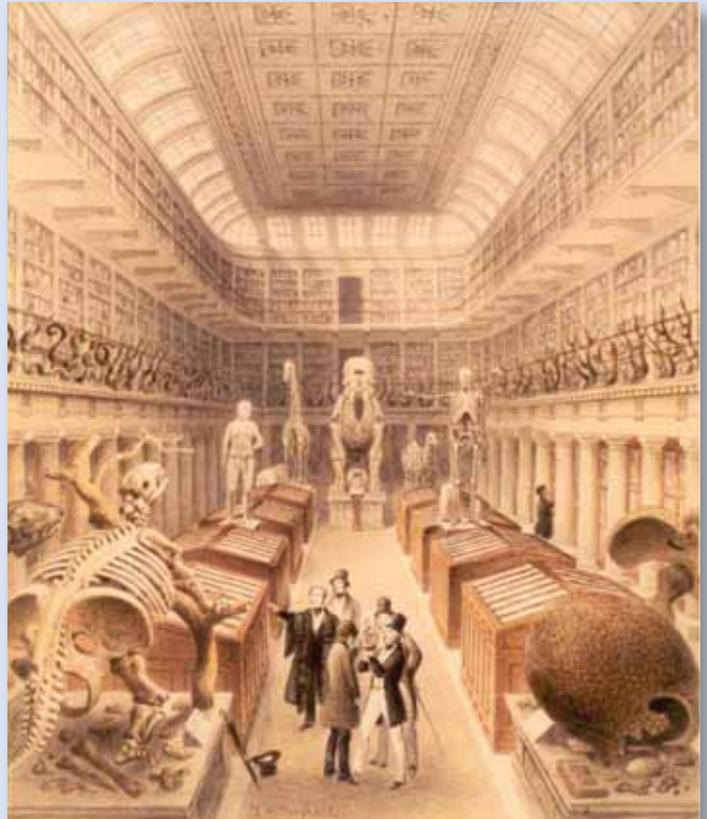
In the last 30 years literary and cultural historians have increasingly examined the role of science within literature, as well as the cultural embeddedness of science itself. They have recognized that it makes little sense to impose retrospectively our own more clearly defined sense of what constitutes the scientific and the literary—and their putative polarization into C. P. Snow’s famous ‘Two Cultures’—onto the different circumstances of the eighteenth and nineteenth centuries, when science writing, particularly in fields such as geology and natural history, was regularly endowed with an aesthetic or fictive dimension and formed an integral element of literary culture. Scientists who were attentive to the rhetorical dimensions of their own writing were frequently keen readers of literature, and often shared their absorption in novels and poems in letters, diaries, or lists of reading.

Scientific archives have been essential research tools in establishing the cultural significance of science, as well as its practitioners’ close involvement with the literary culture of their day. In particular, archival materials have been vital to the use of methods from the field of the history of the book, which focus on reconstructing the historically specific reading practices of particular individuals and groups, in the study of science.

“
Scientists...were keen readers of literature, and often shared their absorption in novels and poems in letters, diaries, or lists of reading.
 ”

The Victorian comparative anatomist Richard Owen, for instance, numbered Dickens, Thackeray, George Eliot, Tennyson, Carlyle and R. D. Blackmore amongst his closest friends and acquaintances, and it is clear that he read their works with great enthusiasm and enjoyment. He was an especially devoted reader of the nascent format of serialized fiction, and regularly stayed up late to devour the latest monthly installments of Dickens’s *Nicholas Nickleby* or Thackeray’s *Vanity Fair*.

Besides establishing the taxonomic category Dinosauria and founding the Natural History Museum in South Kensington,



T.H. Shepherd, pencil and watercolour view of Richard Owen showing visitors around the Hunterian Museum c.1842 RCSSC/P 318 Courtesy of the Hunterian Museum at the Royal College of Surgeons of England

Owen is famous (or rather infamous) for his virulent opposition to Darwinism and he is regularly perceived as a malevolent enemy of everything that is enlightened and secular.

However, Owen’s extensive literary reading and warm friendships with leading Victorian writers, much of the evidence for which is contained in the collections of his correspondence in the archives of the Royal College of Surgeons and the Natural History Museum, cast him in a considerably more positive light and help to amend those triumphalist narratives of scientific progress predicated on Darwinism that painted him as narrow-minded and spitefully prejudiced. Scientific archives hold valuable and often little-used material that illuminates the wider non-scientific culture of particular periods, while, as in the case of Owen, this broader cultural perspective can also add new dimensions to our understanding of science.

.....
Gowan Dawson

Senior Lecturer Victorian Studies Centre
 University of Leicester

Hidden Archives

Hidden Archives

The Centre for Scientific Archives (CSA) focuses on the archives of distinguished contemporary British scientists and engineers. However, working with this group of archives has led me to think about how they cannot be merely classified as 'scientific archives'. Usually a scientist's archive consists not only of papers relating to his research, but also records other diverse aspects of his entire life from childhood onwards. Scientists, of course, are not just interested in science. This has led me to consider the identification and use of 'hidden archives'. Not hidden in the sense of physically hidden or locked away, but hidden as in concealed amongst the more expected 'scientific archives'. The archive of Sir Gareth Roberts, recently catalogued by the CSA and now deposited at the University of Sheffield Library, is one example. Initially Sir Gareth was a physicist, later his impact on the landscape of higher education in Britain was huge. His archive includes the records of research assessment reviews he led in the UK and overseas and of a government funded review into increasing the supply of scientists and engineers. Earlier in Sir Gareth's life his childhood diaries document the preoccupations of a child growing up in the 1950s (football and television!) So Sir Gareth's archive is a resource, not only for historians of science, but also for individuals interested in the development of higher education funding and the history of childhood. Another example is that of Sir Denis Rooke's archive, a current CSA project. Sir Denis was an engineer and Chairman of British Gas, his interest in classical music leading him to becoming Chairman of the London Festival Orchestra in the 1990s, leaving a wealth of material relevant to the history of British orchestras.

The archive of another CSA collection, the biochemist Richard Syngé (Trinity College Cambridge), includes his parents' correspondence during World War I and a long series of his mother's diaries recording details of domestic life from 1915 to 1937.



Not unexpectedly, the majority of current users of the archives of scientists are academics interested in a scientist's specific discipline, but, as I have illustrated, the archives of scientists are relevant to a much wider user base. As archivists it is in our interests to get the maximum value and use out of the archive resources in our care. Not only may parts of an archive be unexplored and under-utilised but, even quite well known archives can benefit from lateral thinking to identify wider uses. An artist recently consulted the Charles Babbage archive at the Science Museum Archives, intending to use Babbage's mathematical calculations to perform a robotic dance piece. A scientist's archive can be a rich research source for disciplines outside the history of science. Online catalogues and controlled vocabulary are critical for identifying 'hidden archives', manual systems rely on the archivist's personal collection knowledge, whereas digital catalogues ensure that 'hidden archives' are much easier to find.

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Emily Naish

Archivist, Centre for Scientific Archives

Hidden Archives

Finding Science

Science is in any archive! It is found across all collections and in unexpected places. Over the past year I have been finding the science and developing a public engagement programme around it at London Metropolitan Archives.

A great starting point is one of Britain's famous seventeenth century scientists, Robert Hooke. The LMA holds his diary, which dates from 1672 to 1680. It is a great source for finding out about the man, who he met and his numerous trips to Jonathan's Coffee House. But there is plenty more science integrated within other collections.

What we have found is science and engineering practice in a real life context. For example, in the 1870s the City of London held an open competition to build a bridge across the River Thames that would ease congestion and not disrupt the flow of river traffic. The LMA has the competition entries (plans and visualisations), including the winner, Tower Bridge. In this context, we ask, 'do these designs work?' What are structures and how are the forces being distributed? What are the materials used? Tower Bridge may appear to be made of stone, but it is in fact a steel structure with beams running vertical, horizontal and at angles to create strong towers that will take the extra force of a lifting bridge. All this is replicated with models for school and adult groups.

The Lyons collection is a business archive that encompasses the late nineteenth and twentieth centuries and food science is at its core, especially in the post war demand for mass food production. Lyons established a laboratory in Hammersmith, and developed a range of mass produced foods, including ice cream. Here we are looking at temperatures, freezing points and changing states. We demonstrate this by actually making ice cream, which takes less than 5 minutes!

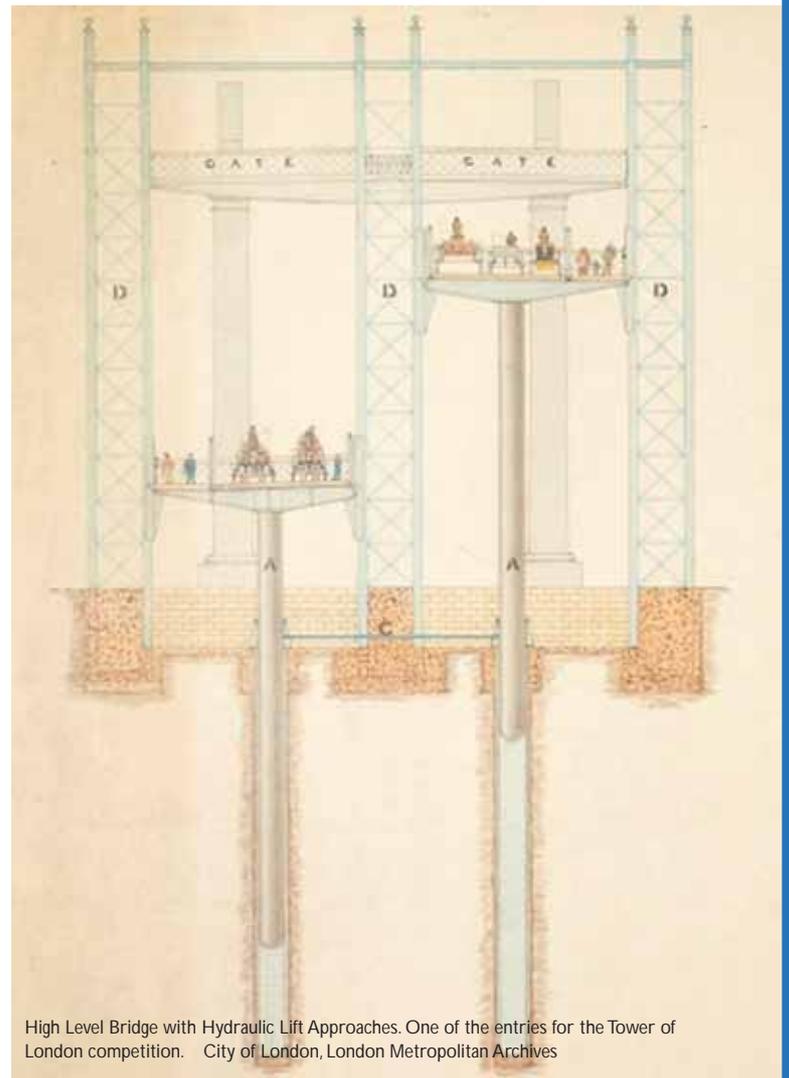
Public Health also runs across the archive. The LMA has hospital records including the Elizabeth Garrett Anderson Hospital, Guy's Hospital and the St Thomas' Hospital (Florence) Nightingale Collection. The Metropolitan Water Board collection gives us a unique insight into the independent water companies as they responded to legislation requiring them to extract clean water from above the tidal Thames. Using newspaper reports on dirty water, epidemiological maps and records of disease such as cholera, we are able to piece together the stories of

epidemics in London. For our Summer College 2013, we will use these resources to put A-level science students through a game where they, as public servants, engineers and medical professionals, face an unknown disease spreading rapidly across the capital.

In the future, LMA will be developing more science programmes. The LMA has large maps plotting the outbreaks of smallpox and the movement of patients to smallpox hospitals. We are looking at post war vaccination, which is pertinent with recent lapses in immunization. Plus, the Archive has much around light, optics and photography. All this will be brought into the public eye with the focus on science.

Howard Bengé

Development Officer London Metropolitan Archives



High Level Bridge with Hydraulic Lift Approaches. One of the entries for the Tower of London competition. City of London, London Metropolitan Archives

Big Science

The Human Genome Archive Project

As a collecting repository the Wellcome Library is constantly building on its collections from a wide range of individuals and organisations. A new transformative Library strategy from 2009 put targeted collecting at the heart of the Library's activity, to make it more proactive and strategic with new acquisitions.

The Human Genome Archive Project is just one example of our targeting collecting in action. This two-year project, which began in January 2012, is surveying relevant material created during the Human Genome Project (HGP) and encouraging its preservation for future generations.

The HGP was a hugely ambitious international project involving hundreds of people to sequence the 3 billion base pairs of DNA in human cells. Applying archival theory to such a complex and recent event, (the finished sequence was published in 2004) has been an interesting challenge. The approach that we chose is based on the Minnesota Method of archival surveying, appropriately suited to the proactive collecting of a scientific project with broader societal relevance.

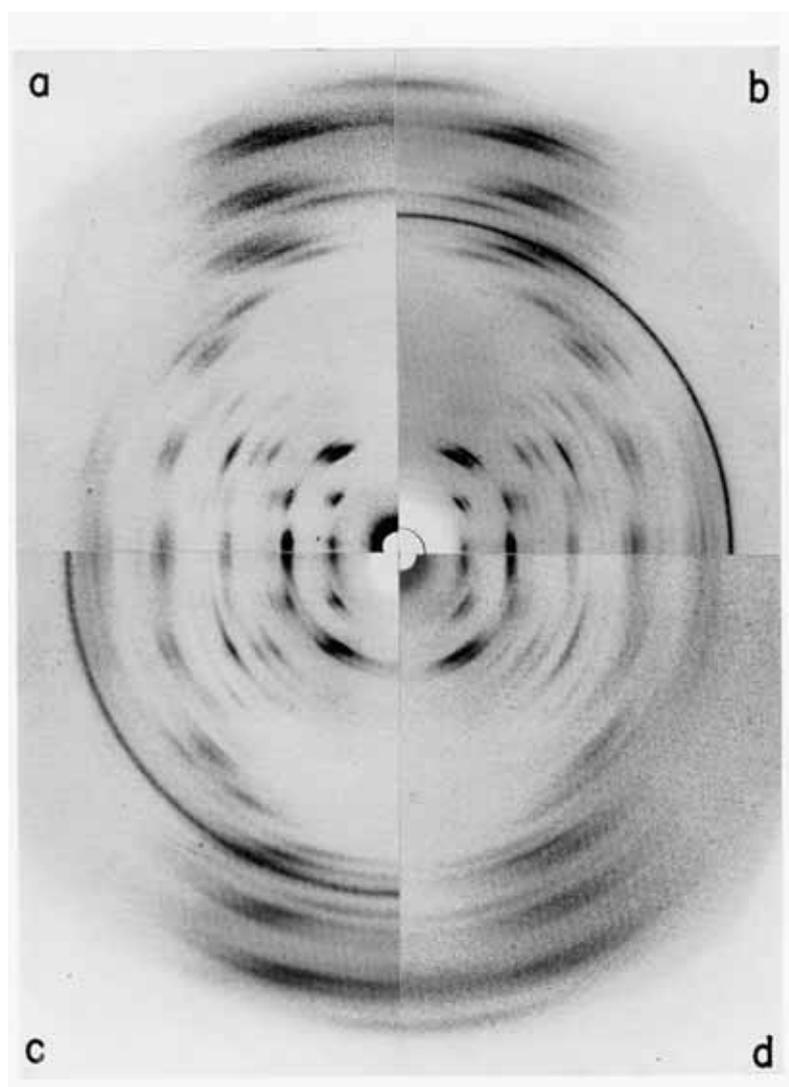
Our surveying approach has four main stages: defining the survey scope to maintain focus, but allowing flexibility; analysing existing collections in recognised repositories; considering the broader context of the HGP and how these records might be dispersed; prioritising key individuals and organisations of interest. This approach has led us away from concentrating on distinguished individuals to better reflect how modern science is performed. Therefore focussing on emerging inter-disciplinary networks, patterns of collaboration and research teams.

Working with active scientists has been time consuming and complicated. There have been concerns about sensitive material, particularly

for electronic records, and it is too soon for end-of-career reflection. However, it has created an opportunity to engage with scientists to gather greater contextual information and prevent the destruction of material at key risk points. We are planning on applying this approach in the future, although not on the current scale.

Jenny Shaw

The Wellcome Library



DNA_composite

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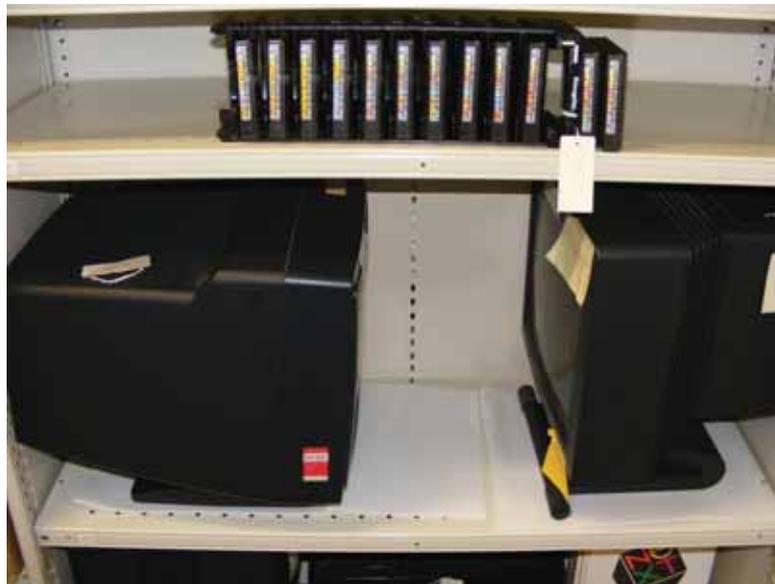
The Stanford Linear Accelerator Center Archives and History Office

The idea for a two-mile linear accelerator at Stanford University was conceived in 1956, proposed in 1957, and authorized by the United States (US) Congress in 1961. Initially called "Project M," the venture was renamed "The Stanford Linear Accelerator Center" (SLAC) in August of 1960, and "SLAC National Accelerator Laboratory" in 2008. SLAC is owned by the United States government, and is operated for the US Department of Energy by Stanford University. Its present-day mission is to design, construct and operate state-of-the-art electron accelerators and related experimental facilities for use in high-energy physics, synchrotron radiation and laser research.

SLAC's expertise in the acceleration of electrons, theoretical physics, the design and construction of particle detectors, lasers, cosmology, materials and environmental sciences, biology, chemistry and alternative energy research, enables its researchers to pursue answers to basic questions about the structure of matter and about the fundamental forces that operate in our universe. To date, three Nobel Prizes in Physics have been awarded for research conducted at the lab.

The archival effort at SLAC began as the laboratory's 1987 "History Project," a records survey in administrative groups throughout the lab. Identification of important records was followed by creation of an inventory database for records collections, and by the inauguration of a physical archive of important records no longer needed for current business. The records survey was supplemented with an oral history program to gather information not fully documented in the available records. SLAC's History Project officially became the "SLAC Archives and History Office" (AHO) in 1989.

Challenges facing the present-day SLAC Archives and History Office are both physical and intellectual. "Getting the goods," that is—getting materials deposited in the archives—fits both categories. Our large community of international users is fluid, with varying affiliations, sources of support, and connections to SLAC. As such, they pose a unique challenge for the archival program. Many of them create records that belong to them personally or to their home institutions, but some of them create records that are appropriate for inclusion in the archives at SLAC. In sorting out what belongs where, we emphasize



A small pilot project electronic records: documentation of SLAC's early web site: the first in the United States. Working with the SLAC "Web Wizards" who developed and maintained the site in the early 1990s, the Archives and History Office has collected, arranged and preserved the electronic and hardcopy documentation of the site. Shown above are the computers on which the site was originally run, as well as SLAC's earliest surviving website data tapes. (CREDIT: SLAC photo) (This work supported by the U.S. Department of Energy under contract number DE-AC02-76SF00515)

the importance of preserving significant records in the appropriate repository – whether at SLAC or at another institution. We work with records liaisons, individual researchers, collaboration committees, administrative associates, computer center staff, and sometimes the SLAC Facilities staff, to locate records; identify, appraise and collect abandoned records; and explain to all relevant parties what records should be retained and when they should be retired.

The most significant intellectual challenge we face is that posed by electronic records. SLAC has been at the leading edge of some developments in computing in physics, and an early adopter in others. The archives has a large backlog of experimental data tapes, plus volumes of new born digital materials. While computer scientists working with the lab's experimenters wrestle the issues of data archiving, the SLAC archives deals with preserving an equally intimidating constellation of experimental collaboration electronic technical notes, newsletters, email messages, design drawings, and specifications.

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Jean Deken

SLAC Research Library

Big Science

Scientist in his office. Image courtesy of Anita Hollier



CERN - The European Organization for Nuclear Research, Switzerland

The recent discovery of the Higgs boson attracted plenty of media attention, so you may already know that CERN has the world's largest particle accelerator and that the Large Hadron Collider is one of the coolest places in the Universe (-271°C). You may also have guessed that it provides some interesting archival challenges.

CERN was created in 1954 with a view to pooling resources depleted after World War II, allowing European scientists to share the increasing costs of particle physics research. For many historians the political and sociological implications of such a large international organisation are as interesting as the science, and the Archive aims to preserve records on all aspects of CERN. As with many organisations, the Archive was established when a historical milestone (in our case the 25th anniversary) prompted the decision to write a history – and the discovery that dedicated scientists aren't necessarily all that interested in managing their records! Division leaders were asked to make source material available to the Archive and to appoint Divisional Records Officers to facilitate the collection of historical records in future.

The Archive now comprises one linear kilometre of files, including letters, memos, reports and other records of the CERN Council, the Directorate and the various departments, experimental collaborations and committees. It also contains the scientific archive of Wolfgang Pauli (1900-1958), who won the Nobel Prize for Physics in 1945 for his exclusion principle, and whose uncompromising scientific rigour earned him nicknames including 'the conscience of physics' and 'the scourge of God!' The collection includes Pauli's correspondence with Einstein, Bohr, Heisenberg and many others, plus notes and manuscripts, books, reprints,

photographs and various personal items, such as the baptismal cup given by his godfather, Ernst Mach. The Archive is open to researchers within and outside CERN, and has a part-time staff of two people (1.5 FTE).

Archiving of CERN's public web pages is carried out in partnership with the Internet Memory Foundation, but the Archive has yet to get to grips with the wider challenge of long-term preservation of electronic records. At CERN these include not only the administrative records and working documents of over 2,000 employees plus the 10,000 visiting scientists who use CERN's facilities each year, but also the 15 petabytes of data produced annually from particle collisions. The highly specialised task of handling these data is carried out by the IT Department, and the experimental collaborations are developing data preservation and access plans to ensure open access to selected data in the future. Raw data are incomprehensible without the supporting information required for analysis, and outstanding questions include not only the technical issues of presenting the data in a meaningful way and ensuring their long-term viability, but also the very real challenge of how to meet the additional costs of doing so. More information is available in the Status Report Towards a Global Effort for Sustainable Data Preservation in High Energy Physics at: <http://arxiv.org/pdf/1205.4667>.

Please visit our website to find out more about the CERN Archive.
<http://library.web.cern.ch/library/Archives/Welcome.html>

Anita Hollier
 CERN Archive

Big Science



AIP Reading Room

History Programs at the American Institute of Physics

Joe Anderson describes the synergistic relationship of the AIP History Programs: the Niels Bohr Library & Archives and Center for History of Physics, which recently celebrated their 50th anniversary. In 2012, the AIP received a \$3 million donation from the Avenir Foundation to establish the Endowment Fund for the R. Joseph Anderson Directorship of the Niels Bohr Library and Archives. This third endowment from Avenir, honours Joe's two decades of service to AIP and provide vital resources to support AIP's leadership in preserving the heritage of modern physics.

Over the past 50 years, The American Institute of Physics' (AIP)'s history programs have become a significant resource for science historians around the world. In addition to preserving the history of modern physics, the library houses exemplary book, oral history, and photograph collections, and preserves the historical records of AIP and its Member Societies. The Library also works to preserve the papers of physicists at their home institution archives and serves as a clearinghouse for information on collections worldwide. In addition, The Center for History of Physics presents lectures, symposia, and workshops, and creates popular web exhibitions that receive millions of visits each year, please see aip.org/history/.

The common mission of the History Programs is to preserve and make known the history of modern physics and allied sciences. The Center for the History of Physics encourages institutions worldwide to preserve the papers of their physicists and physics programs and offering grants and advice; maintaining the International Catalog of Sources for History of Physics and Allied Sciences (ICOS) as a clearinghouse of information on history of physics, astronomy, geophysics and allied science resources worldwide; and conducting and publishing the results of documentation research. The Library has a significant book collection, large holdings of photographs and oral histories, and is the official repository of the records of AIP and its

Member Societies. It also serves as a repository of last resort for important “orphan” collections that can’t be placed in other archives. There is a large book and print collection and The Library and Archive has several online projects. Please see aip.org/history/icos. From the 1960s on, a signature program of records, of 10,000 archival collections, oral histories, and other primary sources from 900 repositories worldwide.

Emilio Segrè Visual Archives (<http://photos.aip.org/>)
The Emilio Segrè Visual Archives (ESVA) comprises over 30,000 historical photographs and other visual materials, most of which are cataloged and available online. The collection is richest in portraits of modern scientists but also includes images of laboratories, observatories, telescopes, accelerators, and other equipment.

AIP Archival Collections (<http://www.aip.org/history/nbl/archivalcoll.html>)
The archival collections consist of the historical records of AIP, its Member Societies, “orphan” collections of personal papers of physicists such as Samuel Goudsmit and Frederick Meggers, biographical manuscripts, institutional histories, audio-visual materials, and small collections of materials such as course and laboratory notebooks.

Oral history interviews (<http://www.aip.org/history/nbl/oralhistory.html>)
The Library’s oral history collection includes over 3,000 hours of audio from more than 1,500 physicists, astronomers, and related scientists that range in date from the early 1960s to the present. The interviews offer unique insights into the lives, work, and personalities of modern physicists. Most of the interviews have been transcribed.

From the 1960s on, the AIP has a signature program of records, of 10,000 archival collections, oral histories, and other primary sources from 900 repositories worldwide. Among them:

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Joe Anderson

American Institute of Physics

Use of Science Archives in Theses

Publishing the *Philosophical Transactions* – book trade history in the Royal Society Archive

This is a newly-launched, AHRC-funded project to investigate the publishing history of the *Philosophical Transactions of the Royal Society*, which celebrates its 350th anniversary in March 2015 and is by common consent the first scientific journal. Though *Phil Trans* has been critically important for historians of science investigating (among other things) the changing form and rhetoric of the research article, the emergence of scientific disciplines, and the outlines of scientific communities, the archives that lie behind the journal also constitute an important and untapped resource for the history and geography of the book trade. The continuity of *Phil Trans* down to the present affords the opportunity for a unique study of the trade in learned periodicals from the handpress period to the digital age. The Royal Society's archives contain records from the entire span of the journal's history, covering its production, advertising, and distribution. These records take the form of cash-books, statutes, distribution registers, minutes of meetings, letters between editors and contributors, records of payments to illustrators, engravers, printers and papermakers, and booksellers' accounts. On the editorial side, there are thousands of referee's reports, personal and business correspondences of successive editors, results of committee deliberations, and reflections in the Society's various Councils and Committees on the form, purpose and promotion of the journal as the position of *Phil Trans* shifted over time, from a sui generis innovation in the world of print to one learned journal among thousands.

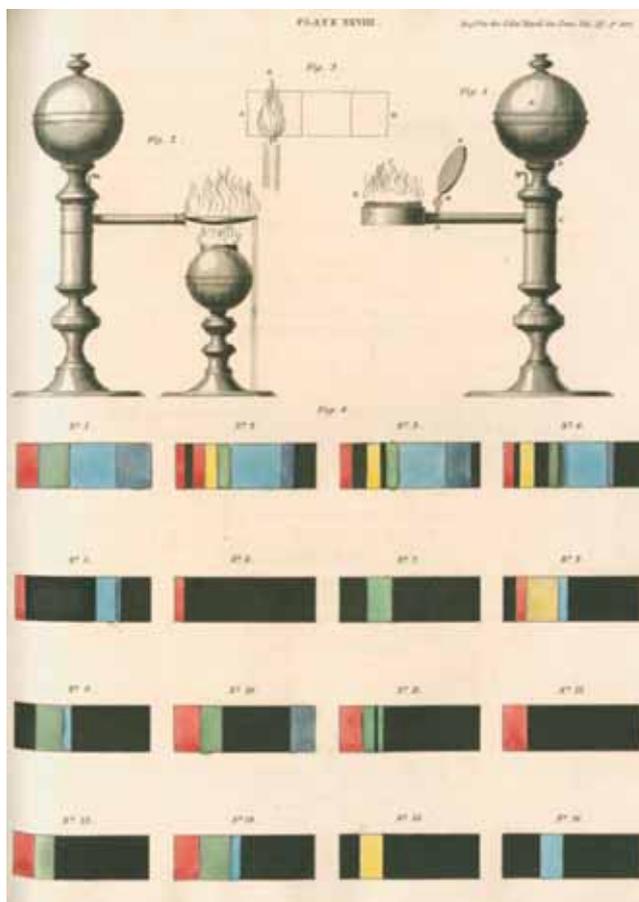
In addition to a uniquely complete and focussed set of quantitative data on the book trade from 1665, these records will supply us with material to sketch the geographical reach of *Phil Trans* and its manufacture, and to trace in detail for the first time the origins and development of the peer review process, now the cornerstone of all scholarly and scientific publishing.

Dr Noah Moxham

Postdoctoral Research Fellow
University of St Andrews



Noah Moxham and Royal Society Image of extract from *Phil Trans*



An early colour illustration: William Home Lizar's engraving of filtered spectra, 1823

Use of Science Archives in Theses

Tracing the Development of British Geography through the Bartholomew Archive

Historians of science and historians of geography are well aware of the value of archives. We often evaluate archives based on their extent (how many coherent records can we get our hands on?) and their continuity (is there a series of ledgers relating to a specific topic or individual?). In reality, we know that no single archive is ever complete. Archives are characterised by gaps and diversions, which can make any study on the history of science challenging. Yet archives are essential to our understanding of how particular scientific disciplines have developed, both over time and in particular locations throughout the world.

My view of archives and their imperative utility for historians of science and of geography is based on my research in the archive of John Bartholomew & Son, a map-maker and publisher in Edinburgh, Scotland between c.1880–c.1990. The Bartholomew Archive is held at the National Library of Scotland (NLS) in Edinburgh and holds hitherto unexamined data on maps and mapmaking in the period of the firm's activities. For me, the Bartholomew Archive was a source for considering the development of geography in the period 1870–1930. I did this, specifically, by studying the publishing of Bartholomew's school atlases, which were produced for pupils in Britain and other parts of the Empire. The content and style of school atlases are indicators of the trends pervading the teaching and progress of geography in schools and its moulding by specific individuals in the universities. The Bartholomew Archive's collections also elucidate the personal and business connections between Bartholomew (as mapmaker), certain educational publishers, and individual geographers and other professionals involved in the production of these texts. The materials of interest in the Bartholomew Archive include, correspondence ledgers, revealing detailed conversation between atlas producers; day books and invoice books, listing the number of maps and atlases produced on a daily basis; a printing record, which highlights the firm's daily output of maps and



John George Bartholomew, 1860-1920.
Photograph by Julie McDougall

atlases; and proof maps and atlases that elucidate the editorial processes in map and atlas publishing. There is much more archives can tell us about science's practitioners and their practices over time and space, about how knowledge was communicated to various audiences, and about the ways in which science was received (read, reviewed and put to use).

..... Dr Julie McDougall

Postdoctoral Research Fellow, University of St Andrews
.....



Duncan Street foyer Bartholomew. Photograph by Julie McDougall

Science Archives in Digital Age

Science Archives at the edge of the Empire

Despite living in a historically post-colonial and archivally post-custodial world, it still feels that Australia is a long way from the centre of things. However the issues we seek to tackle regarding the preservation of memory, transcend both the geographical and cultural divides that hold us apart.

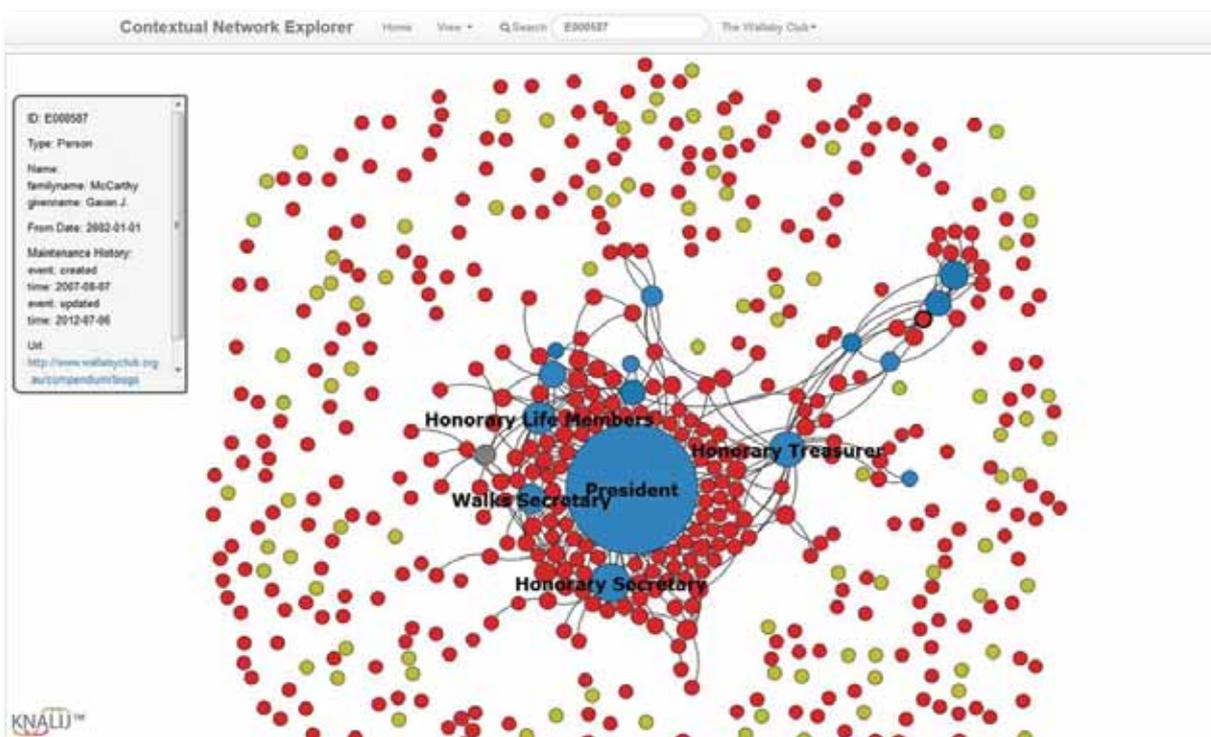
The eScholarship Research Centre at the University of Melbourne (ESRC, 2007-) has been building on the work of the Australian Science Archives Project (ASAP, 1985-1999) and the Australian Science and Technology Heritage Centre (Austehc, 1999-2006) to help ensure that archives of science and technological development undertaken in Australia are not lost and forgotten. To do this we began a national register of the archives of science in 1987, with an initial focus on the records of individuals.

This data has extended to cover organisations, and historical publications and is the Encyclopedia of Australian Science. [<http://www.eoas.info/>] Furthermore, what we call the context entity data is exported as Encoded Archival Context xml (EAC-

CPF), placed in a repository and harvested by the National Library of Australia for use in their Trove resource discovery service.

The data is also available for others to harvest under the same Creative Commons license. The primary requirement is attribution for our contributions. This work has evolved over the last 28 years under my direction. This period spans the introduction of the personal computer, the web and development of standards to enable the effective use of these technologies for archival and public knowledge purposes. Therefore, we have developed an archival processing tool, the Heritage Documentation Management System (HDMS) and a generic version of the system that underpins the Encyclopedia of Australian Science, the Online Heritage Resource Manager (OHRM).

We still see the true digital age as being somewhere in the future, while we live in the 'digital transition' period. We will know we have arrived when all the infrastructure elements needed to create, collect and



Contextual network map of the entities in the Wallaby Club OHRM



Home page for the Encyclopedia of Australian Science

preserve knowledge are digital, and hard copy is created for secondary purposes. In that context we also see our tools and the associated standards development as being in transition and constantly evolving to meet both current and future needs.

One principle has to underpin all this: that content we collect at any point must be able to transition between systems and be available to others at any time. In this we have had some success. The original content collected for the register of the archives of science in Australia in 1987 is still viable and accessible through the Encyclopedia of Australian Science. For further reading see: McCarthy, Gavan and Evans, Joanne "Principles for archival information services in the public domain", *Archives and Manuscripts*, vol. 40 no. 1 March 2012, pp. 54-67 (ISSN 0157-6895) [DOI:10.1080/01576895.2012.670872]

Gavan McCarthy

Associate Professor and Director of the eScholarship Research Centre
University of Melbourne

Science Archives in Digital Age

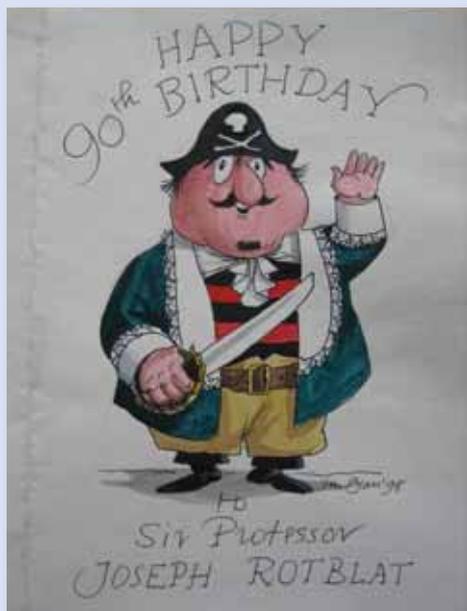
Cataloguing at The Centre for Scientific Archives: issues in working remotely

The Centre for Scientific Archives (CSA) specialises in cataloguing the archives of prominent scientists on behalf of the institutions that will eventually hold them. Work is carried out at the CSA's offices, using the standards and conventions of the originating institution. The archives are appraised, catalogued, packaged and boxed. This method and working remotely from the eventual 'home for the archives' brings challenges, shown through the following case study.

The archives of Sir Joseph Rotblat (1908 – 2005), a nuclear physicist and peace campaigner belong to the Churchill Archives Centre, in Cambridge (CAC). Rotblat was a founder member of the Pugwash Conferences which bring together leading scientists in the interests of peace and international understanding.

In this case, there were issues with cataloguing technology and systems CAC used and it took a long time to perfect the data export procedure. CAC use an Access-based system ('Cantab') shared across Cambridge colleges, from which data became available online using a system called 'Janus' (janus.lib.cam.ac.uk; for a small sample of catalogue data for the Rotblat collection see RTBT 5). It would have proved highly complex to establish and maintain a live link to Cantab, therefore CSA is working on sending to Cambridge a stand-alone version of Cantab, for onward migration into the CAC catalogue. However, achieving this proved more complicated than anticipated.

Since the collection is large (several person-years' work to complete), Excel's flexibility is ideal for initial cataloguing and data sorting; setting up a field structure to reflect that of Cantab is simple. However, version incompatibility disallowed migrating direct from Excel into CAC's version of Cantab. Although migrating into the standalone version of Cantab was reasonably straightforward using the standard Access migration function, the email systems in use (at both



Pugwash cartoon for Rotblat Birthday Greeting, artist and creator John Ryan.

ends) would not accept Access files, even when zipped. To resolve this problem, CSA has resorted to sending a CD with data though the post.

Data in the CAC system can be published online using standard Cantab to Janus export, carrying out spot checks and minor editing within Cantab before publishing proved useful. A small sample of genuine data (50 records) was checked, so staff at CSA are reasonably confident in the several thousand records catalogue produced.

Creating a catalogue conforming to Churchill's standards proved easier to resolve than the technical challenges. The ability to view existing catalogues online in Janus was advantageous: the export process carries out transformations on some data and concatenates some fields, e.g., house style for distributing information between title, description and Admin history fields is not apparent on Janus, nor is application of multiple date fields.

Our experience demonstrates how remote cataloguing works most effectively when there is excellent communication between the remote cataloguer and the receiving institution. CSA's good relationship with CAC, and mutual recognition that time is needed to solve technical and standards issues, from the beginning to all aspects involved in consigning a completed collection, is proving key to the successful delivery of the project.

.....
Gillian Sheldrick

Archivist, Centre for Scientific Archives

Science and Culture

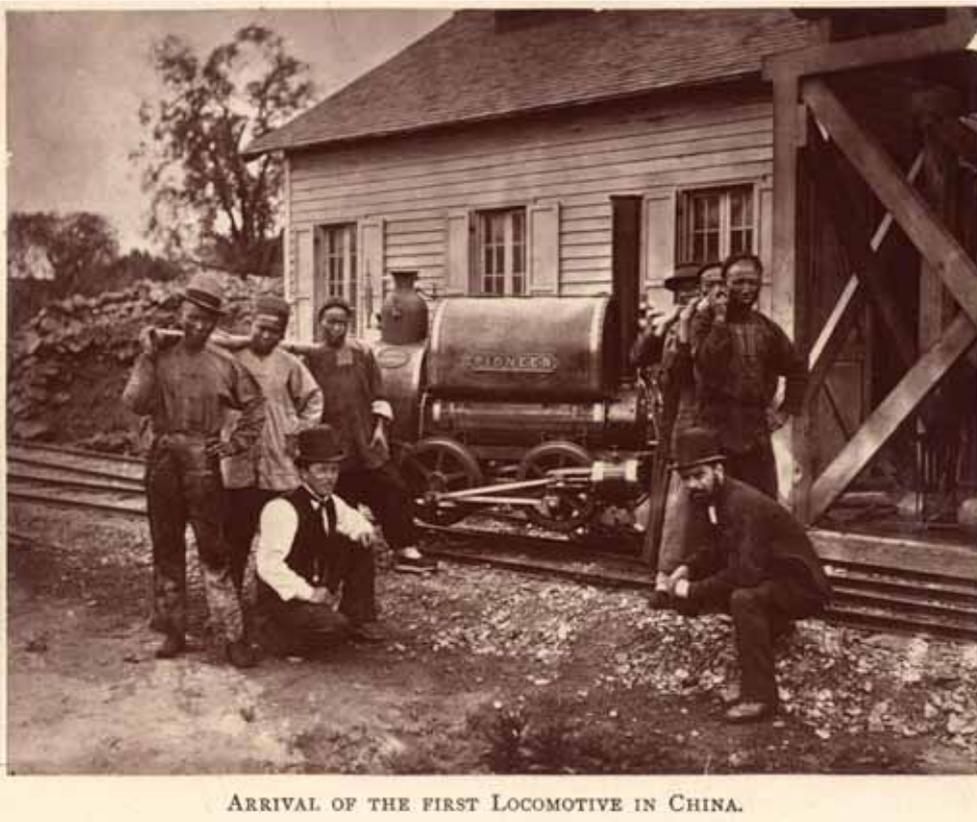
A Year in the life of the Institution of Civil Engineers

The past year has been particularly exciting for the Institution of Civil Engineers (ICE) Library and Archive, and includes involvement with TV programmes, launching an online Image Library, and work with Ancestry.co.uk.

Engineering and Industrial Archaeology have become popular subjects for programme makers, and ICE has built up a good relationship with researchers for programmes such as Coast and Great Railway Journeys. This year we have also worked with researchers for Restoration Man and Unbuilt Britain. The Unbuilt Britain team filmed in our library, and gave us an insight into how filming is carried out and the way production continuity works. Filming tends to go in cycles, and after a few quiet months Great Railway Journeys team are in touch about their next series.

ICE has a huge and diverse collection of images including construction photographs, prints and lithographs, sketches and drawings, published plates, as well as technical drawings and blueprints. Many of these images are rarely used as researchers are not aware of them. We decided to create an online image library to promote our collections, improve access and hopefully raise a few funds along the way.

After looking at a variety of 'out of the box' solutions we decided to work with our inhouse e-services team to develop a custom made database. The advantage of this was that it would fit with the ICE branding and echo our existing websites. To help with continuity, we also used the subject headings on our main website as categories for our images e.g. maritime, transport, water etc. The exciting parts have been selecting the images and coming up with a catchy name. The rather clever but chilly sounding ICEpix was rejected for the 'does what it says on the tin' title ICE Image Library <http://ice-imagelibrary.com/>



Arrival of the first locomotive in China

Like most archives a fair percentage of our enquiries relate to family history and last year both ourselves and the Institution of Mechanical Engineers were approached by Ancestry.co.uk with a view to adding our membership application forms to the Ancestry website. After discussion we decided it would make sense for both Institutions to work together, so our membership information was available from the same source. With Data protection in mind we agreed a cut-off date of 1930 as members would have been at least 25 years old at the time of joining.

The Ancestry team moved into our Institutions and began scanning; a task which we would have had to outsource had we been doing this ourselves. The team also scanned a collection of ICE members' photographs and membership lists. They arranged tagging of the images, and we are now busy working with Ancestry and our Communications and Marketing teams ahead of the June launch.

Equally exciting is the news that ICE Candidate's Circulars (application forms) were added to the UNESCO Memory of the World Register at the end of June.

Carol Morgan

Archivist, Institution of Civil Engineers



Panama Canal under construction 1888 at Corrozita



Construction of Sydney Harbour Bridge

Science and Culture

Scientific Archives Snippets

WISRNNet (Women in Science Research Network) is a project that brings historians, archivists and practising scientists together to research women's participation in science and learned societies in Britain since 1830. Our aim is to understand women's low visibility and historic exclusion, to uncover further avenues for research and to develop strategies to improve the participation of women in science today. WISRNNet will be holding a number of events, including online seminars and discussions, over the next few months; please subscribe to WISRNNet alerts to stay in

touch at: <http://womeninscience.net/>
 This is a collaborative project led by Kingston University with support from The Royal Society, The Rothschild Archive and Liverpool University. It is funded by the AHRC as part of its 'Science in Culture' programme.

The launch event, with address by Ludmila Jordanova, was held at the International Congress History of Science Technology and Medicine in Manchester on 24 July 2013.



Screenshot of Women in Science Research Network website

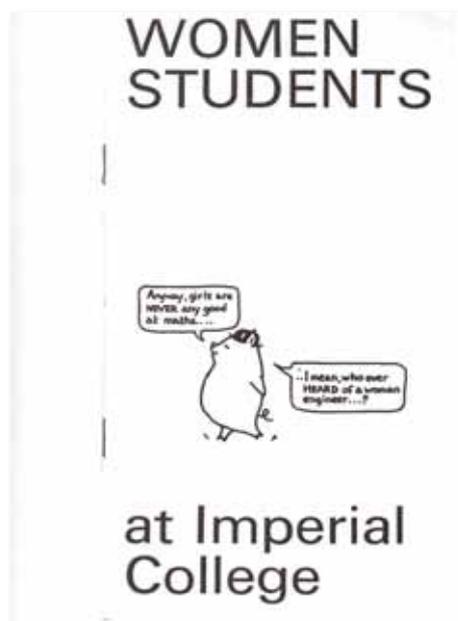


WISRNNet launch event 24 July 2013 in Manchester Museum

The 2013 International Congress History of Science Technology and Medicine whose theme is Knowledge at Work. Sunday 21 to Sunday 28 July 2013.

The Centre for Scientific Archives held a half-day symposium at the Congress: S072. Preserving scientific heritage to enable working with knowledge: how historians, archivists and scientists can engage in preserving and disseminating scientific heritage via a global online system.

A report on proceedings will appear in a future issue of ARC.



Male Chauvinist Pig from recruitment literature of Imperial College

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The new-build atrium in Liverpool Central Library

Introducing the new Liverpool Central Library & Archive

“This is like visiting your Nan and finding that she has turned into Beyonce.”
 Frank Cottrell Boyce, local author

On 17 May 2013 the redeveloped Liverpool Central Library & Archive opened to the public. There were 15,000 visitors to the building on that day and over 100,000 visitors in the first month. Their reaction as noted in the quotes above, has been overwhelmingly positive.

Planning for the redevelopment goes back to the mid-1990s. Feasibility studies were carried out, alternative locations explored, and funding was sought. The primary aim was to improve the archive accommodation. It was eventually decided to carry this out on the existing site shared with the Central Library and to upgrade library facilities as well. When over £50M PFI credits were awarded in several stages by DCMS an intensive process of “competitive dialogue” took

place with four bidding consortia. The successful consortium is led by Amber Infrastructure and includes Austin: Smith Lord, principal architects, Shepherd Construction Ltd, and Cofely GDF-Suez, facilities management partner. As well as planning the building, a lot of attention was paid to ensuring a high standard of cleaning, maintenance and security for 25 years.

Financial close was achieved in July 2010. There was a three month time limit to decant collections and to set up temporary services. The construction period took just over two years and the move back began in January 2013. The redevelopment opened on schedule and within budget.

Central Library is a Grade II* listed building. The original part of the

building, which opened in 1860, took a direct hit from a bomb in the Second World War. Only the facade survived and it was therefore possible to obtain permission to demolish the drab late 1950s section of the building and a 1970s library stack. This demolition was highly sensitive with party walls shared with World Museum Liverpool and The Walker Art Gallery. Vibration monitors were used and acceptable levels agreed with assistance from experts at the University of Liverpool.

The outcome has been a transformation. The archive service, which comprises both Liverpool and Merseyside Record Offices and the City’s Local Studies Service and will house Liverpool Register Office archives, now has a purpose-built repository designed to meet all



The repository external wall including the list of writers with Liverpool connections



View of part of the Archive public area



The repository block as seen from the new-build public space.

aspects of BS5454:2000. As well as an electronically powered mobile shelving system, the repository has four hour fire protection and an automatic gas fire suppression system. There is a Document Reception area and vastly improved staff accommodation includes a well-equipped Conservation Studio and a Cataloguing Room.

Archive visitor facilities have also been transformed. As well as being more spacious and inviting than before, there is a sound-attenuated interview room, more pcs, a display space including new showcases, and a well-equipped, sound –attenuated Searchroom.

The building as a whole now has:

- A more prominent entrance with improved landscaping and signage.
- A dramatic atrium which invites people to explore the whole building.

- Improved links to historic buildings, which have been fully restored. They are now open at all times and include showcases to display archives as well as library collections. Touch-screen displays add significantly to the content on view.
- Increased numbers of computers with free access and 100% Wi-Fi coverage.
- An excellent children's area and a performance space.
- A cafe with an external ground floor terrace.
- A roof terrace with panoramic views.
- A high standard of accessibility and facilities and inclusive design.
- Well-equipped meeting rooms.

A marketing campaign included posters in underground stations and advertising on buses, bus stops, taxis, and on a giant screen in the city. A

flyer was sent to all households within a three mile radius. The regional and national media have provided excellent coverage. Culture Liverpool facilitated a literary festival and commissioned a light show, which included animations of books and archives to show the city's rich collections.

The Guardian, on 17 May 2013, headed "In praise of Liverpool central library" which included the following: "The blend of old and new is thrilling. Not just the bright modern interiors behind the restored facade, but the mix of digital access with cloth-bound books, and city records reaching back to the 1207 letters patent from King John, enticing settlers to build up the port. The Echo's view that this is a secular cathedral –to rank with the huge Anglican one... and the Catholics' Metropolitan – may sound excited, but it isn't wrong."

David Stoker

Liverpool Central Library and Archive



Destination Tyneside

For the first time since the merger of Tyne & Wear Archives Service and Tyne & Wear Museums in 2009 archives are taking centre stage in a new permanent gallery at the Discovery Museum in Newcastle where the Archives are also based. The museum attracts over 400,000 visitors a year.

Destination Tyneside tells the story of migration to Tyneside from the mid nineteenth century, when tens of thousands of people moved to the area from other parts of the UK and the world, right up to the present day. The population of Newcastle alone increased from just over 80,000 in 1851 to nearly 310,000 in 1911 as new industries demanded an ever-increasing supply of labour, and wages were amongst the highest in the country. Today, the north east is seeing the highest rate of growth in migrant communities outside London.

The story is told through the experiences of six real-life migrants whose stories have been researched in the archives and are illustrated with relevant documents as well as objects from the museum collections. Ann Ferguson arrived from Northern Ireland aged 9 in 1866, Lena Vineberg escaped oppression in Poland aged 17 in 1874, Thomas Murphy moved from County Kilkenny with his family aged 29 in 1874, John "Jack" Lawson joined his father and brother from Cumberland aged 9 in 1894, Ali Said signed on as a seaman in Aden in his 20s in 1898, and Angela Marcantonio arrived from Italy with her husband aged 18 in 1904.

Each character in turn, represented by actors, tells their story on film in the introduction to the gallery – some escaping poverty or oppression in their home areas, others simply seeking a better life,

some apprehensive about moving, others excited at the prospect. We meet the same characters again in the centrepiece of the gallery, an immersive 180° cinema projection, later in their lives talking about their experiences against a backdrop of maps, photographs and documents. The focus on real people telling their individual stories helps create a genuine emotional connection with what could be both a dry and controversial topic.

Elsewhere in the gallery documents, photographs and objects illustrate aspects of migration over the years and more recent migrants also contribute their personal stories. There is space for schools and other groups to take part in activities, supported by a Heritage Lottery Fund My Tyneside programme.

The gallery's concept was to deconstruct and reframe the identity



Tyne & Wear Archives & Museums Director Iain Watson with Barbara Roche



Some of the contributors to the contemporary area of the gallery



Adam Fenwick, managing director of Fenwick Ltd, one of the sponsors, with Liz Rees and Kylea Little, Curator



Iain Watson with Chi Onwurah MP, Hazel Edwards, Discovery Museum manager and Barbara Roche

of Tyneside (often falsely portrayed as a monolithic “Geordie” culture) and encourage visitors to appreciate how much the area’s identity has been influenced by migrants. A piece of participatory research in 2010 had also shown that more recent migrants felt distant from regional identity due to their exclusion from museum displays, and that comparatively few visitors to the museum from whatever background were aware of the rich collections of archives and that they could readily access them. The gallery therefore seeks to address both those issues and also encourages visitors to find out more about their own family backgrounds by visiting the Archives.

The gallery was opened on 12 July by Barbara Roche, chair of the Migration Museum Project and former UK Minister for Immigration and Chi Onwurah, MP for Newcastle Central in front of a large crowd of invited guests.

Oh, and in case you’re wondering what happened to the migrants.....

- Ann Ferguson remained a staunch Ulster Unionist and founded an Orange Lodge in Hebburn
- The Vinebergs Anglicised their name to Vyner and their descendants still live in Newcastle
- Thomas Murphy’s health suffered by working in the chemical industry but his descendants still live in the area
- Jack Lawson became a trade unionist and MP and was raised to the peerage as Lord Lawson of Beamish
- Ali Said opened the first Arab seamen’s boarding house in South Shields in 1909 but was deported following his participation in demonstrations against registration of Arab and Somali seamen in 1930, leaving a wife and family behind

- The Marcantonios started an ice cream business under the more English name Mark Toney that is still run by the family and thriving.

Liz Rees

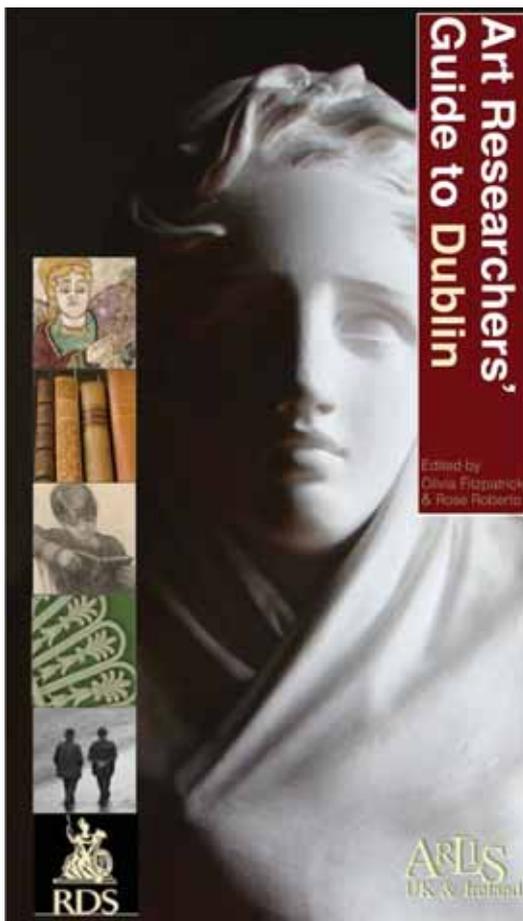
Senior Manager
Tyne & Wear Archives & Museums
Discovery Museum

Publicity for your Collections

Do your collections contain material on art or design? Do any focus on the lives of artists or designers? Do they contain rare gems on these topics that more people should know about? If so, the Art Researchers' Guide series will provide a fantastic opportunity to market this material and bring the institutions that house them to a wider audience.

Each portable handbook from this series focuses on a particular city. Researchers interested in art and design material will read short descriptions, be drawn in by colour images, and be directed with maps and icons to the most relevant place to their needs. The most recent volume in the series is the Art Researcher's Guide to Dublin (£7.25/€8.50) available from www.arlis.org.uk or www.tcd.ie/Library/Shop. Work on a Manchester Guide will begin shortly. So far we have also heard from people in Liverpool, London, and around Wales, and if we hear from more people in those cities, work on guides for them can also begin.

What about your city? We are interested in hearing from all archives and libraries, small as well as large institutions. Please contact Rose Roberto, ARLIS Publications Committee member and Art Researchers' Guide series editor at: r.v.roberto@leeds.ac.uk



ISBN: 978-0-9562763-3-9

138 pages + foldout map

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Show me the money! – Securing Funding for Business Archive Projects

Business Archives Council Conference 2013

Thursday 7 November 2013

Boots Archive, Thane Road

Nottingham, NG90 4XY

The aim of the conference is to look at funding for business archive collections in various institutions. As well as looking at case studies where archives have successfully received funding, and what has been achieved in these projects, the conference will also aim to provide practical advice and information on how to go about securing funding.

Speakers include:

Emma Markiewicz, The National Archives

Sophie Clapp, Boots

Stacy Capner, Richard Burton Archives, Swansea University

Adrian Steel, The British Postal Museum & Archive

Susan Gentles and Amy Procter, Standard Chartered Bank

The conference will also include a panel session where delegates will have the opportunity to hear from, and put questions to, representatives from various institutions offering funding, including the Heritage Lottery Fund, the Arts & Humanities Research Council, The National Archives, and the Business Archives Council.

To book your place:

A special 'early bird' rate of £70 is available if booking before 30 September. After this, the charge will be £80 for BAC and ABH members and £100 for non-members. A second or third delegate from the same member organisation will cost £60 each. We are pleased to be able to offer a discounted rate of £20 for students and low waged delegates.

A booking form can be found on the BAC website at: www.businessarchivescouncil.org.uk/activities/objectives/conference/2013conf

Any questions, please contact Adam Hillhouse of The British Postal Museum & Archive at adam.hillhouse@postalheritage.org.uk or Josette Reeves of Unilever Archives at Josette.Reeves@Unilever.com

Registration Scheme 'Blitz-It' Workshop at the new Library of Birmingham

Monday 23 September, 2 pm - 5.30 pm.

This FREE half-day workshop is for candidates who have been working on their portfolio for 5+ years and who would welcome some extra support to get their portfolio ready for submission in the next 6-12 months. Mentors of candidates in this position are also welcome.

This surgery style workshop will provide a brief reminder of the key components of the Registration Scheme:

- Structuring the portfolio across the four development areas: Formal training courses; Study & Research; Work achievements; Contributions to the profession
- The assessment criteria and working through learning outcome forms: Motivation; Achievement; Evidence
- Claiming more than one credit
- Writing the reference
- The assessment process

In addition there will be opportunities for candidates and mentors to have a one-to-one discussion about their portfolio with the Registrar or an experienced Assessor.

To get the most out of the workshop, candidates should bring their draft portfolio with them for their own reference. Examples of successful portfolios and Learning Outcomes Forms will also be available.

Workshop Presenters:

Tricia Phillips, ARA Registrar; Nicky Philips, Assessor

Maximum attendance: 12. Book early to avoid disappointment (no later than one week prior to the date of the workshop)

To register for the workshop or find out more, please contact regschemeevents@archives.org

Registration Scheme Workshop at Glamorgan Record Office

Monday 28 October, 1 pm - 4.30 pm

This FREE half-day workshop is suitable for candidates, referees, mentors and anyone interested in enrolling on the scheme or becoming a mentor.

It will provide the opportunity to:

- Find out about the Registration Scheme: Why do it? Personal and professional benefits? What does it involve?
- Work through the four development areas: Formal training courses; Private study/professional research; Work achievements; Contributions to the profession
- Work through Learning Outcome Forms: Motivation; Achievement; Evidence
- View successful portfolios
- Ask questions

Programme Structure:

13:00 - 13:10 - Arrival & registration

13:10 - 13:50 - Overview of the ARA Registration Scheme; Role of the candidate & mentor; Personal Development Planning

13:50 - 15:15 - Getting to grips with the four areas of development; Learning Outcome Forms

15:15 - 15:45 - Tea/coffee; View binders from some of the successful candidates; individual queries

15:45 - 16:30 - Support; Frequently asked questions; Discussion and round-up

Maximum attendance: 24. Book early to avoid disappointment (no later than one week prior to the date of the workshop)

To register for the workshop, please contact regschemeevents@archives.org

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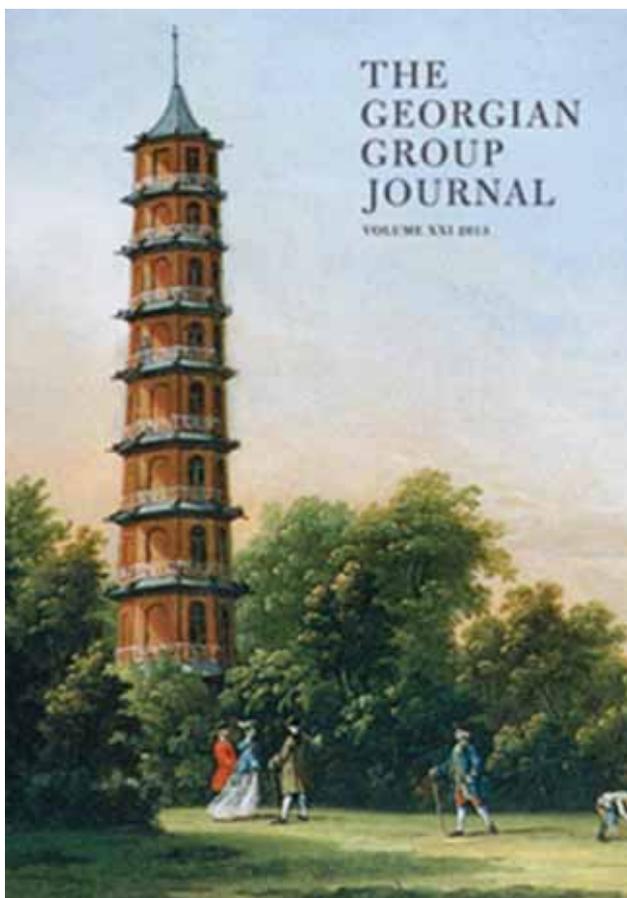
A Tribute to John McLintock

Friends and colleagues will be saddened to learn of the death of John McLintock, a registered member of the Society who served on many committees. John died on 26 May after a brave, two-year battle with cancer. Before his early retirement in 2012, he had been Head of Architectural and Engineering Drawings and Cartographic Collections at the National Records of Scotland (NRS).

Born in 1957, John was educated at the Royal High School in Edinburgh and was a graduate of the Department of Scottish History at Edinburgh University. He joined the Scottish Record Office (SRO, the predecessor to NAS now NRS) in 1984. Previously he had worked for Glasgow University Archives and as Archivist for the Trustees Savings Bank.

John's career was both long and varied. He planned and oversaw the introduction to SRO of STAIRS, its first computer system for cataloguing Scottish Office files. From 1993-2002, he served as Registrar of the National Register of Archives (Scotland), a post he greatly enjoyed. He also produced An Archival Account of Scotland, the first national audit of the state of archive provision in the country. This will bear fruit

[The Georgian Group Journal, Vol. XXI 2013](#)
[Paperback, 220 pages. Published May 2013](#)
[John's most recent article appears here.](#)



later in the year with the joint publication of a national profile report on the preservation of Scottish archive collections.

John was appointed Head of Maps and Plans in 2002, where he managed / superintended the transfer of the existing plans catalogue into CALM. He also undertook extensive work in arranging and reducing the backlog of unlisted plans, and drew up comprehensive rules to enable cataloguing to professional standards. Later, he supervised and coordinated the transfer of the plans themselves (very extensive collections) to upgraded storage in Thomas Thomson House.

John was a recognised and published expert on the early history of HM General Register House, the principal building of the National Records of Scotland. As such, he was the driving force behind the 3D imaging project, conducted in collaboration with Historic Scotland that produced a digital visualisation of the building. This was a highly successful combination of scholarship and technology, moving between the eighteenth and the twenty-first centuries. John's most recent article appears in the Georgian Group Journal Volume XXI; 2013 on James Salisbury's Lost Architectural Model of General Register House.

John will be much mourned and missed by all who knew him.

Linda Ramsay

Head of Conservation
 The National Records of Scotland

*This will be published by the SCA, in conjunction with the NRS and the British Library Preservation Advisory Centre.

Calling All Colleagues!

ARC is always seeking articles reflecting the issues that matter to you most. We would love to publish pieces that reveal the sector's opinion and showcase successful best practice.

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From beetles to The Beatles



Entomology Products (Pages 71-75)



Phonograph Record Storage Sleeves (Page 27)

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