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Call for Core Training Co-ordinators

The ARA training group is looking for a number of new members to contribute to the Core Training offer for ARA members. We believe that the provision of quality, inexpensive, accessible training is one of the key roles for ARA. As a group we oversee training across the Association, designing and delivering regional and specialist training events. In the last two years we have developed the new Core Training events.

Can you help us to further develop our training provision? Are you looking to spread your wings and broaden your horizons from your current job? Do you have something to offer?

We are particularly looking for people to take on the roles of Core Training Co-ordinators. These are people who look after specific Core Training courses and take responsibility for their structure and administration. This is an excellent opportunity to develop your skills and show a commitment to your continuing professional development.

We are looking for enthusiastic people who can make a minimum two-year commitment to the role. We meet three times a year with discussions in between by teleconference and email. Travelling, telephone and other expenses are met by ARA. For an informal discussion or to express an interest contact the chair of the training group.

Lizzy Baker, ARA Training Group Chair

Email: lizzy.aratraining@outlook.com

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



**Archives & Records
Association**
UK & Ireland

Welcome to ARC Magazine December 2014

Welcome to the Science and Archives edition of ARC. This month we have a range of articles produced by authors working with a variety of collections - from archaeology to science fiction - across the UK, Europe and Canada.

The issue opens with a summary of Nancy Marelli's keynote speech to the International Council on Archives / Scientific Universities and Learned Societies Group conference earlier this year. She highlights the themes of collaboration and community dialogue, which reoccur in articles throughout the issue.

Another prominent theme is collections reviews in scientific archives. Two articles examine how these have been implemented at the University of Bradford and The Royal College of Surgeons of England. Other pieces focus on research data management, demonstrating how archivists and records managers have become data managers in the 21st-century.

A number of authors highlight the value and use of archives to stakeholders. Researcher Bernie Lightman demonstrates how he has created an international collaborative correspondence project based around the 19th-century British physicist John Tyndall. Likewise, Charlotte Sleight describes how her new project on popular views of science in inter-war Britain has led her to the study of science fiction.



The final two articles discuss the pertinent challenges of using PDFs and highly-specialised file formats as deposit or preservation formats. Finally, thanks to Anne Barrett for collecting author contributions and for providing images.

Ellie Pridgeon
Editor

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Front cover shows: the skull of an elderly giant female panda. From the Royal College of Surgeons.

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.

www.archives.org.uk

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opening lines



Jeff James has been CEO and Keeper of The National Archives at Kew since July 2014.

Jeff James (left) at the event to celebrate Accreditation at the House of Commons on 15 October. Photograph by Simon O'Connor for the ARA.

'Tis the season to be jolly! It may seem like an odd thing to say in these uncertain times but as we approach the festive season I find myself in an optimistic frame of mind for the future of our sector.

Of course, there will be further challenges ahead but everything I've seen over the last five months since coming back to The National Archives convinces me that we have the skills, knowledge, experience and confidence to thrive!

Inspirational examples of creativity and innovation are everywhere in the sector and I've been very fortunate to hear these stories at various events since the summer, starting with the ARA annual conference in Gateshead.

Having just come from a professional body (albeit in housing) I understand the value that professional bodies bring in terms of influencing policy, promoting standards and encouraging learning and development. I'm delighted to be working in partnership with ARA on a number of initiatives to raise standards, promote professionalism and celebrate success. Initiatives like the Accreditation scheme, which has helped surface examples of good practice across the sector, including local record offices, university archives and business archives all over the UK. It was a humbling experience to join the All Party Parliamentary Group event at Parliament and witness first hand the passionate commitment to archives that is preserving and widening access to our amazing national collection.

As a profession, we are not always as vocal as we could be in celebrating our successes so I was very pleased to personally

support the 'Explore Your Archives' campaign. As we embark on a new strategic direction we have renewed our focus on our key audiences. As a leader and as a partner we want to work with you to sustain and develop our vibrant collections and services. By collaborating we will ensure the archival health of the nation and make sure those who need to know about the importance and richness of archives are made aware of the great things we all do, day in day out.

On a personal note I will continue to be as visible as possible within the sector; attending events, like the joint The National Archives / Research Libraries UK conference in Birmingham; visiting local archives from 'Lambeth to Lincolnshire' and in a personal capacity doing my own research (I am in discussions about a PhD on crime and poverty, which would see me use The National Archives' sources and those in local record offices).

We are stronger together and together we can and will make the case for archives as a vital part of the nation's heritage and that is why I am optimistic for the future of our profession.

So, can I wish you and your loved ones a very Happy Christmas and a prosperous New Year from me and my family. With three boys under three I'm looking forward to a hectic break and, dare I say it, getting back to work in January!

Jeff James
CEO and Keeper, The National Archives



Registration Scheme

news

New Enrolments

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

Fabiana Barticioti

Archivist, Bexley Local Studies & Archive Centre and Project Archivist, The Royal Ballet School

Ann Chow

Editor for the Advice and Records Knowledge Department, The National Archives

Sarah-Joy Maddeaux

Archivist, Essex Record Office

Rachael Muir

Assistant Archivist, Bank of England Archive

Julian Warren

Senior Archivist, Bristol Record Office

Don't forget: Existing candidates have 34 months to submit their portfolio under the existing Registration Scheme.

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regscheme Mentors@archives.org.uk

Richard Wragg

Communications Officer

Registration Sub-committee

Collecting matters

Back in September 1994, I attended the inaugural seminar of the International Council on Archives Section on University and Research Institution Archives (ICA-SUV) on documenting modern science and technology at the University of Lancaster. I don't remember much, other than the Scandinavians drank a great deal and it was unseasonably cold. Fortunately, the papers appeared in the journal *Janus* (1995).

These included a keynote by Marjorie Barritt on appraising modern science and technology records, revisiting the ground-breaking work of Haas, Samuels and Simmons a decade earlier. There was also a paper by Odile Welfel  on the French project Archives Issues des Sciences Contemporaines, surveying the written output of scientists and engineers.

Although the challenge of digital records was mentioned, most of the issues discussed were long-standing. Examples include the difficulty of persuading scientists that their archives could be of historical interest, and the problems facing non-specialists in processing scientific archives.

Fast-forward 20 years to Paris, July 2014, and the annual conference of the ICA-SUV entitled 'Archives of research data'. There were many more papers, and while some concerns were familiar - how can archivists persuade scientists that archives matter - much has changed.

Digital records are the norm, and while the challenges of preservation and access remain, they are better understood.

Two recurrent themes were the necessary erosion of records management / archives distinctions to capture tomorrow's archives today, and how the digital management of research data to meet retention requirements of funding bodies can tie in with the traditional role of archivists.

Challenges but perhaps also opportunities.

Tim Powell

Private Archives Team, The National Archives

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www.nationalarchives.gov.uk/archives-sector/collections-strategies.htm

Summary of keynote speech to the International Council on Archives / Scientific Universities and Learned Societies Group conference in Paris, July 2014

As an archivist, I have worked in university Archives throughout my career, and for many years was Director of Archives at a large university in Montreal. I have also worked extensively with a multitude of stakeholders and government policy makers on the issues surrounding copyright, as well as with people from other disciplines on projects where archives have been involved. I have also been the only archivist in a high-tech project dealing with technical aspects of data collections of Truth and Reconciliation Commission materials. So I am accustomed to having to explain what archives are, how archival principles work, and how to deal with archival records in a responsible and effective way.

Our project

In 2008, Canada's Social Sciences and Humanities Research Council (SSHRC) funded a four-year multi-disciplinary project to research *Grant's Atlas of Anatomy* illustrations, and to create a digital research tool to provide broader access to them. Our team was multi-disciplinary - a principal investigator from Communications Studies at Concordia University, a medical illustrator who is currently Head of the Division of Biomedical Communications at the University of Toronto, an exhibitions curator, and a digital technology specialist. I am the sole archivist in the group.

In the early 1940s, highly-skilled medical illustrators began creating the drawings for the anatomy textbook *Grant's Atlas of Anatomy*. They employed an innovative process using preserved human specimens, photography and tracings to create accurate, realistic illustrations. *Grant's Atlas of Anatomy* transformed the teaching of human anatomy with a single-volume text that used realistic illustrations. The book continues to be a commercial success after more than 70 years, and the upcoming 14th edition will continue to include many of the

original drawings. These illustrations are now housed in the Division of Biomedical Communication (BMC) at the University of Toronto. The archive includes nearly 1000 drawings, remnants of the process of creation (photographs, transparencies, tracings), and textual material that partially documents their creation.

After scanning the drawings at very high resolution and creating a digital archive research tool, we began research into the drawings themselves.

We asked questions such as: why and how were the drawings created? Who created them, what were the techniques used to create them? How do they relate to the specimens still available in the Grant's Museum? How were these drawings used in the training of physicians and other medical practitioners? We have contextual information from oral history interviews. Early on in the project we established contact with the Baltimore publishers of *Grant's Atlas* - they are still the copyright holders of the drawings - and we have maintained contact and good relations with them.

Lessons learnt

Medical illustration is a highly-specialised field that has undergone dramatic change in the digital environment. Drawings like the ones we were dealing with - carbon dust and pen and ink drawings on paper - are no longer being created. Current illustrations are almost exclusively executed on computers. Like so much of the documentary heritage of research and science, the surviving remnants are largely only what has been published.

Furthermore, most surviving original medical illustrations stay in the hands of the illustrators who created them, and these often disappear when the illustrator dies. The *Grant's Atlas* drawings were an exception because they are still being

by diverse academic schedules, practice and conventions. Likewise, grant money is tight to accomplish the project goals, so travelling to meet in person cannot be a priority.

Some further reflections

Archives are simply not on the radar of researchers involved in the sciences. They are accustomed to putting their research findings into their publications in the time-honoured manner that is reproducible and verifiable over time. Yet there are other records and materials, often not even considered for deposit in archives - for instance laboratory notes, field notes, correspondence (including e-mails), personal journals and photographs – which document how research sites are set up and organised. These are the items that document the way research was conducted and the context of the research data. They are most often totally ignored and neglected for archival deposit.

As archivists, we must get out there and develop new partnerships, reach out to under-represented groups such as medical illustrators, scientists and researchers who have a vested interest in preserving their heritage. We must bring archives into the community dialogue - and that includes the science and research communities. Above all, we must develop a commitment to advocate on behalf of our archival mission.

Nancy Marelli

Archivist, Emerita Concordia University,
Montréal, Québec

The Royal College of Surgeons of England: collections review and significance assessment

Background

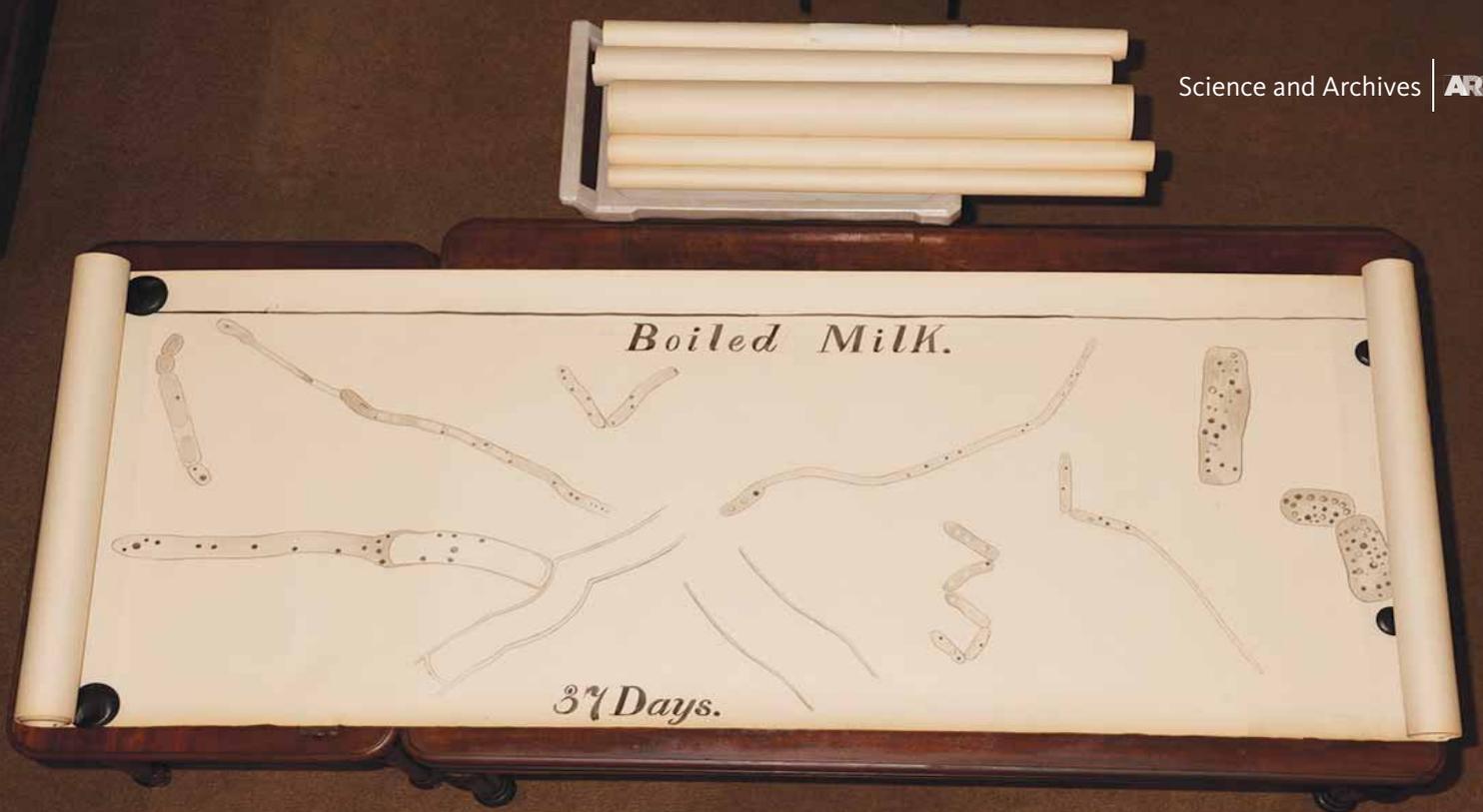
At the Royal College of Surgeons of England, we are about to begin a survey of our Designated collections, assessing their physical care, preservation and storage needs. We will be looking at the current and potential future uses of the collections, and also carrying out a significance assessment to determine their importance, identify iconic items, and uncover relationships between the items. The project is ground-breaking in its pan-domain scope, which includes library, museum and archive items.

Methodology

To ensure consistency, we have developed a customised methodology adapted to the specific requirements of our collections. The methodology was based on *The UCL Collections Review Toolkit*, and the reviewing significance 2.0 methodology was developed by Museum and Heritage Consultant Caroline Reed. Our bespoke methodology uses grids of criteria against which the reviewer can score the collection, make notes, or provide an assessment.

Reviewing scientific collections

The review methodology can be applied to any type of collection. However, as a scientific collection, some areas required special consideration during the customisation and project-planning phases. During the significance assessment we consider the historical and cultural meaning of items. Due to the specific scientific nature of the collections, and the varied material that supports current medical teaching, we added criteria to consider current scientific relevance.



Archives collection: A section from one of the Lister rolls showing pen and ink drawings of bacteria viewed through a microscope. Joseph Lister was a pioneering antiseptic surgeon, and the college has an extensive collection of Lister archive material. Reference MS0021. Image copyright The Royal College of Surgeons.

Assessing a collection containing human remains requires the reviewer to be aware of the collection's sensitivities, to understand the legal and regulatory frameworks such as the *Human Tissue Act*, and to be trained in the handling of certain objects. Our team of reviewers have either a library, museums or archives background, but will be reviewing items from across the collections. Therefore they will receive training in handling all objects, including specimens, rare books, oil paintings and manuscripts. The project provides a fantastic opportunity for them to get some hands-on cross-domain experience. As the reviewers will not have extensive subject knowledge, we will be using the expertise of internal and external specialists in medicine and science during our significance assessments.

The collections review and significance assessment project is funded by the Arts Council England's Designation Development Fund, and will be a vital part of our longer term strategic planning. We aim to use the results of the review to build a better understanding of the needs of our collections, to improve access and public engagement, and to enhance the use of our material as a leading research resource in the history and teaching of surgery and related disciplines.

Beth Astridge

Library, Museums and Archives Projects Manager,
The Royal College of Surgeons



Museum collection: skull of an elderly female giant panda (*Ailuropoda melanoleuca*) known as Ming. She was one of the first giant pandas in the UK when she was purchased by the Zoological Society of London in 1938. Reference: RCSOM/A 169.83. Image copyright The Royal College of Surgeons.

Research data management at the London School of Hygiene & Tropical Medicine

The London School of Hygiene & Tropical Medicine (LSHTM) is currently in the third year of a Wellcome Trust-funded project to establish a Research Data Management (RDM) service. Key components of the service include the establishment of a research data repository, a supporting website, and a training programme.



Microscope belonging to Sir Ronald Ross. The Ross Institute and Hospital for Tropical Diseases was founded in 1926. The Institute was later incorporated into the LSHTM. Image copyright LSHTM.

The RDM service is based within the Archives & Records Management service, which is part of the school's library. This placement owes its origins to work I performed in 2009, when asked to investigate the new initiatives by research funders to make data publicly available. This led to the establishment of a working group to consider broader issues surrounding the management of research data that recommended the set-up of a central service that could work across the school. Initially, we sought to obtain JISC funding to explore the feasibility of the Archives & Records Management service providing RDM support, as well as the obstacles that would need to be addressed for an Archivist or Records Manager to take on this role. Although

we were unsuccessful in this application, the work was later used in a bid to the Wellcome Trust's Institutional Strategic Support Fund.

When I began my research, RDM was not discussed in the archives and records management forums that I attended. It was considered a library problem - a statement that frustrated me as I saw it as a logical extension to records management. Archivists and Records Managers work with records and primary data on a daily basis, using skills such as appraisal, selection, creation of metadata, identification of provenance, ensuring access and preservation. To guarantee consistency, it seemed sensible that they also apply these processes to born-digital and digitised research data. A familiar challenge to Records Managers is to decide which data should be retained and for how long. Although digital data is not constrained by physical storage space, it does not mean that we should be keeping it indefinitely. I have frequently heard the cloud mentioned as a solution that will allow us to "keep everything forever". However, like all off-site storage, it simply moves your items elsewhere and does not, in itself, meet our management needs.

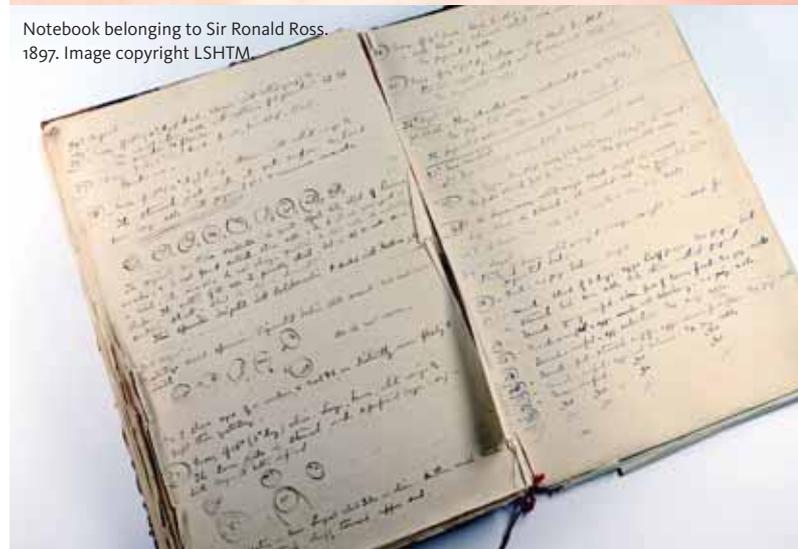
The development of RDM services presents new challenges for the Archivist and Records Manager. There are a diverse array of content types, ranging from MS Word documents to dynamic database and geographic information system (GIS) models, each of which has specific management requirements. The challenge is to understand the structure of these file formats, the information that should be kept, and the approach that should be taken to preserve these over time.

Working on the RDM project has been very interesting in terms of trying to ensure that there is equity of service in terms of access and preservation between traditional archival and records management material, and digital research data. I have learnt a lot from the Project Manager Gareth Knight, and it has made me question some of the principles and procedures that I apply to our traditional collections, including:

- How do we apply concepts of original order in the digital world?
- How can we provide access to data when the underlying hardware and software changes every few years?



Anopheles albimanus mosquito. Image copyright LSHTM.



Notebook belonging to Sir Ronald Ross, 1897. Image copyright LSHTM.

Approaches such as emulation and format conversion work well, but they differ from traditional approaches, which emphasise preserving access to the original item. There is also a growing community of research data managers whom we as a profession can learn from, and vice versa.

If you are interested in the RDM work we are performing at LSHTM, you can find details of activities on the project blog:

<http://blogs.lshtm.ac.uk/rdmss>

This is also a wide range of educational resources on the RDM website:

www.lshtm.ac.uk/research/researchdataman

Victoria Cranna

Archivist & Records Manager, LSHTM

Research data management perspectives: archiving, cataloguing and records management at the Royal Veterinary College



RVC library. Image copyright RVC.

The Royal Veterinary College (RVC) gained its royal charter in 1844, and was the first institution to train people in the UK in animal anatomy and diseases. Through its rich history, the college archive has grown to include historical and administrative records, academic and research material, animal records (including historic x-rays), video, audio and photographic material (including current and historic animal procedures), personal correspondence, museum artefacts, and c.15000 specimen pots. The collection also includes a small selection of unique copies of rare books.

The requirements of the appropriate archival strategies have recently been brought into focus for the RVC. This is partially to do with the requirements of the Research Councils UK for research data management and the wider sharing of research data.

Within the college, there is a growing awareness of the potential of this rich and varied archive material, and there is an appetite to make this more widely accessible and available. Previously, library staff administered the collection of archive material on an ad hoc basis. However, to make the most of these collections, further

work can now be done to ensure the content is recorded and catalogued in a standard and robust manner. The college is currently investigating (in collaboration with the Royal College of Veterinary Surgeons and with the assistance of a Wellcome Trust scoping grant) the potential of supporting a more formal archival, cataloguing and records management approach. The overall aim is to open our archives for use by interested parties, both inside and outside of the college, and to maintain the collections for future use.

As mentioned above, this work partly came into focus due to the research data management requirements of funded research. As a college, we will have to ensure that we can appropriately and effectively make our research data available for review and reuse by others in the sector. Research data can include almost anything produced during the course of research, such as text, data, audio and video. It is hoped that the expertise gained in archiving, cataloguing and records management will enable us to store our wealth of research data in an open, useable and accessible manner.

Sue Harrison

Project Manager (Data Management), RVC

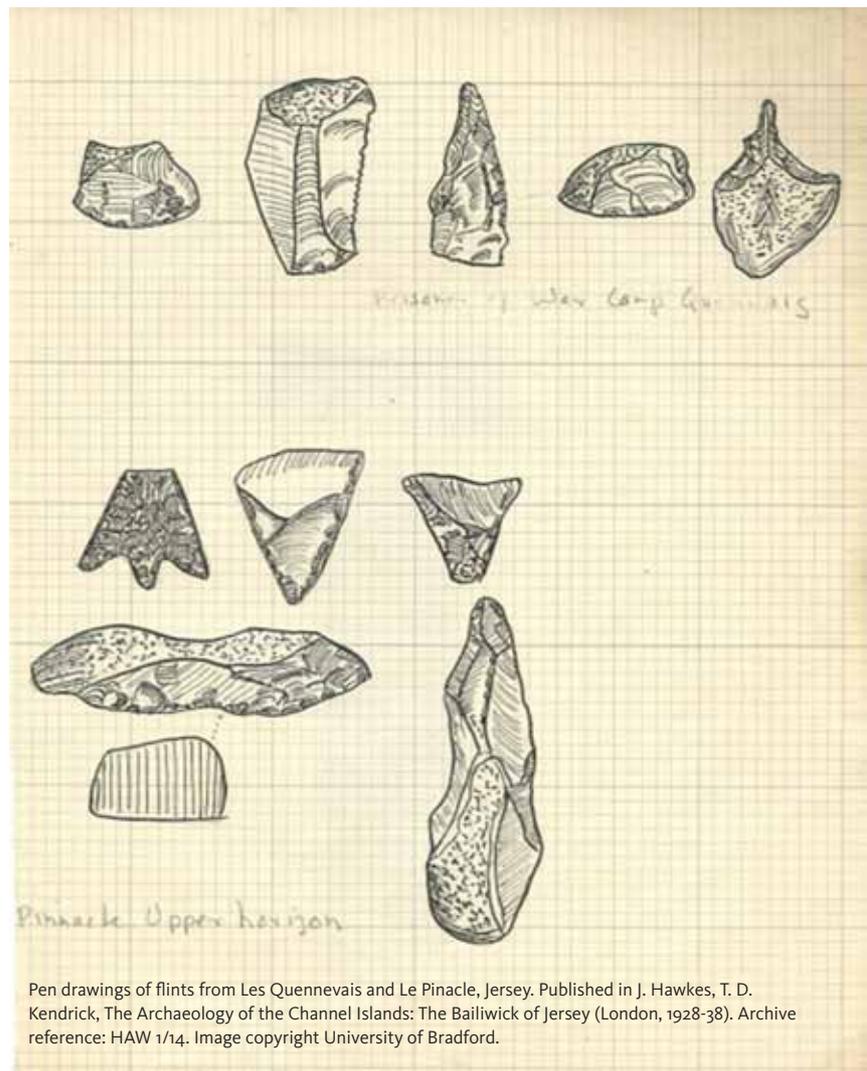
Archives and archaeologists: perfect partners?

Meet the creators of the Archaeological archives in the University of Bradford Special Collections: British archaeologist Jacquetta Hawkes (d.1996), who used poetry and geology to re-imagine the past; geologist Arthur Raistrick (d.1991), who studied the industrial archaeology of the Yorkshire Dales; Calvin Wells (d.1978), doctor turned researcher of ancient diseases; and the Prehistoric Society, founded by East Anglianolith enthusiasts in the 1900s.

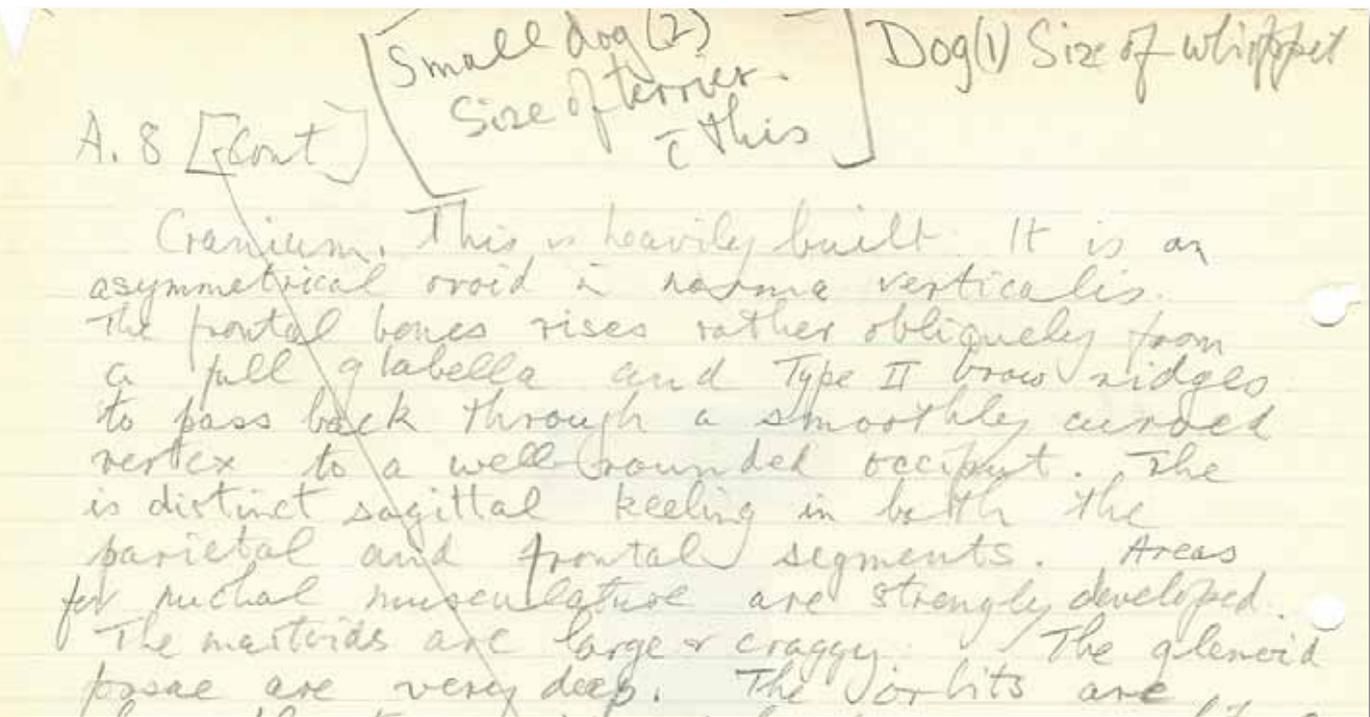
The University of Bradford Library traditionally accepted archaeological collections because they related to one of the university's research strengths. However, we felt that this and the other criteria in our original collecting policies were not rigorous enough as they did not explain what makes our collections 'special', or help us decide where to direct our limited resources. Because we are so familiar with the material, we did not need to instigate a full collections review.

We tackled these issues in our revised policy in 2013. Here, we expressed our mission as collecting "unique and distinctive" materials in support of the university's mission. We then categorised the relevance and future of

Christopher and Jacquetta Hawkes with unknown man (possibly a Jersey connection). 1930s. Archive reference: HAW 18/3/46/1. Image copyright University of Bradford.



Pen drawings of flints from Les Quennevais and Le Pinnacle, Jersey. Published in J. Hawkes, T. D. Kendrick, *The Archaeology of the Channel Islands: The Bailiwick of Jersey* (London, 1928-38). Archive reference: HAW 1/14. Image copyright University of Bradford.



Notes by Dr Calvin Wells on skeleton A8 at Beckford. Note mention of small dogs at top. Archive reference: CAL 1/16. Image copyright University of Bradford.

existing collections in light of this. We decided that archaeological archives fell into the 'heritage' category, and that we want to collect more of these, and do more with the collections we have.

Why did we decide this?

- **Archaeology at Bradford is distinctive:** the discipline was part of the university from its early years, and our department pioneered new ideas and methods. The Archaeological Sciences department holds related collections, allowing for collaborations that make the most of the university's unique and distinctive assets.
- **Archaeology appeals to wider audiences:** people are fascinated with the past and landscape, not to mention the discovery of treasures!
- **Archaeologists (even the most scientific ones) appreciate archives:** they know the history of their discipline. Our students understand our quip that Jacquetta Hawkes was the first post-processualist! Archaeology students are keen to work with primary sources as material for their projects, or to build skills as part of their placements. Archaeologists need to use archives in their careers, and to investigate documentary evidence before work begins on a site. Special Collections staff teach these skills on course modules.

We would always have accepted archaeological archives into our Special Collections, but revised policies and procedures mean we now do so with a clearer understanding of their purpose and value to our mission and that of the university.

Alison Cullingford

Special Collections Librarian,
University of Bradford

Women in Science Research Network WISRN Net Rothschild Science project and update

From the point of view of The Rothschild Archive, engagement with scientific archives and research has led us into areas we never quite imagined when we first began to think about the role of Rothschild family members in scientific fields.



The Rothschild Archive website



WISRN Net website

The Women in Science Research Network (WISRN Net), a collaborative project between Kingston University, the University of Liverpool, the Royal Society and The Rothschild Archive, has been a great and public success. It won funding from the Arts and Humanities Research Council (AHRC) as part of its Science in Culture programme. WISRN Net was launched at the Manchester Museum during the International Congress of History of Science, Technology and Medicine (ICHSTM) in July 2013.

After the WISRN Net workshop on 16 July 2013, Patricia Fara contributed reflections to the project website. These demonstrate the rich rewards to be gained from collaborative work: "...I was invited to a marvellous primary school in Tower Hamlets, where I awarded a prize to the pupil whose second language - English - had improved the most... Afterwards, I visited the London Metropolitan Archive (LMA), which I had learnt about at the workshop from Howard Bengé. He showed me photographs of female

carpenters standing at factory benches assembling the wooden wings of aeroplanes during World War One".

At this point, the WISNet network extended itself in surprising directions. By the time I left, I had put Howard in touch with the head of the primary school so that the children could visit the education centre at LMA to look at photos of Tower Bridge being built, and to hone their engineering skills with paper and drinking straws.

The project team created a scheme within the main project which enabled early career researchers in the history of science to shadow women scientists. Do read some of the feedback from those who took part in this initiative:

<http://womeninscience.net>

The first initiative of the Rothschild Scientists project involved collaboration with the Natural History Museum in London. Archivist Lorna Cahill was engaged to catalogue the diverse correspondence (up to 1914) that was sent by collectors to the two curators of Walter 2nd Lord Rothschild's collection. Lorna wrote about her work in The Rothschild Archive's Review of the Year:

www.rothschildarchive.org/materials/review_2011_2012_tring_correspondence_2.pdf

As the cataloguing progressed, we realised that the subsequent tranche of letters led into the period of World War One. We wanted to know how the nature and volume of the correspondence, and thus scientific research itself, was affected by the war. The project will continue to catalogue the correspondence, and this time we will be establishing a fellowship with the German Historical Institute to analyse the letters and try to answer these questions. Another welcome collaborative opportunity!

Project Director Jenni Thomas carried out important work at the Natural History Museum in Tring, which was established by Walter Rothschild. As the early impetus for this project was a desire to discover what had happened to the vast collections of natural history specimens collected and donated by the Rothschild family to many museums,

“We wanted to know how the nature and volume of the correspondence, and thus scientific research itself, was affected by the war.”

Jenni's collaboration with curators there and at the American Museum of Natural History was the main aim of the project. A collaborative article focuses on matching up the bird skins (in the USA) and the nests and eggs (at Tring), and explores ways in which further partnerships can take place. Would it be possible to create a virtual archive of all these collections? Perhaps this is just a step too far. Asking the questions and learning about the ways in which scientists work and how this differs from the way archivists work has been one of the most illuminating lessons of the project.

Melanie Aspey

Director, Rothschild Archive

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Cross-disciplinary working amongst stewardship professionals: how should we promote heritage preservation in academic institutions?

Many recent studies show a rise in awareness by universities in their heritage, particularly in Europe. The situations are still diverse and fragile for many institutions, but academic collections and museums benefited from a strong revival reinforced by the creation of dedicated networks. These include University Museums and Collections (UMAC), which is the last thematic international committee of International Council of Museums (ICOM) created in 2001, and Universeum, created in 2000:

<http://publicus.culture.hu-berlin.de/umac>

<http://universeum.it>

Both networks aim to promote, preserve and provide public accessibility to academic heritage. They reinforce the development of a community with various backgrounds within the academic and heritage sector to exchange and define best practices, enhance the visibility, and encourage studies that increase our knowledge of university heritage, its diversity and its various uses.

For the last few years, a strong focus has been placed on the scientific and pedagogical value of this heritage to reinforce its use in the primary missions of the university - research and teaching. If this strong link is necessary in most cases, it is not sufficient if one is interested only in the scientific value of the collections and not in their cultural, historical and heritage value. The aim is different - on the one hand it is the material use of the object that matters, and on the other hand it is its less definable significance given by the possible different material uses. This indefinable value is reinforced by the sheer variety of what constitute the heritage materials of a university - stuffed animals, plaster casts, sketches, slides, maps, original or modified instruments, skeletons, seeds, botanical specimens, photographs, books, paper archives, buildings and so on. This heterogeneity of documentary materials is a value in itself because it testifies to the richness of the university as a knowledge and cultural institution.

“ We have to move forward and to go outside the disciplinary framework with which each collection is associated, not only by academics but also by heritage professionals.”



Collaborative working balance. Photograph copyright University of Strasbourg collections.

We have to move forward and to go outside the disciplinary framework with which each collection is associated, not only by academics but also by heritage professionals. The scientific and heritage value of the collections, as well as their visibility and accessibility, would be enhanced if one considers them as mutual resources. Without denying the specificity of each material in their management, preservation and heritage value, a closer collaboration between museums, archives departments and libraries is certainly a serious option to follow.

Sébastien Soubiran

Deputy Director, Jardin des Sciences, University of Strasbourg and Board Member, Universeum

John Tyndall: correspondence, biography and 21st-century archival research

In 2006, I began to work on a scholarly biography of John Tyndall, the 19th-century British physicist. As part of the project, I received funding to catalogue his correspondence, and hired some graduate students to help me with the task. Little did I know at the time that this would all lead to the establishment of an international collaborative correspondence project that would consume me for another eight years, and will most likely continue to consume me for at least another six.

Outline of the project

It became clear after only a little time that cataloguing, digitising and transcribing Tyndall's letters was quite separate a project from the biography on which I was working. It would require bringing on board colleagues in the field. At this point, we are projecting 16 volumes of correspondence containing over 7500 letters, to be edited by teams of co-editors. The first volume on Tyndall's early years is scheduled to come out in the winter of 2015. Thereafter we will produce another volume every six months.

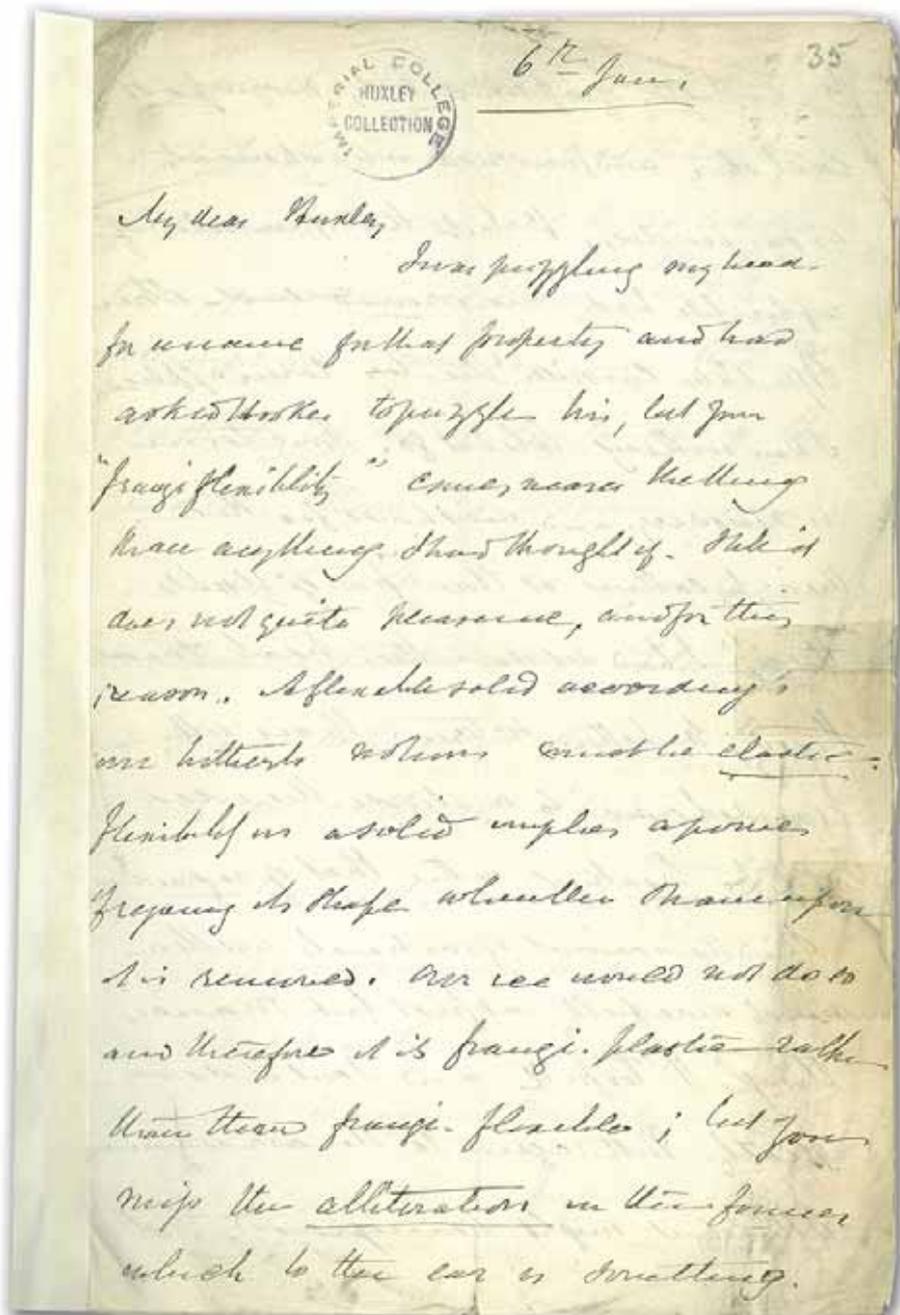
The students and scholars who have worked on the project are very committed to it. The project has already spawned two edited collections, two conferences, and a host of conference sessions in which graduate students have participated. At York University in Toronto, over 50 graduate students have been involved in the project, while dozens have worked on transcribing letters at over a dozen universities around the world. Some graduate students have contributed papers of their own to conferences, based on the work they have done on the correspondence. Others have worked on transcribing letters. They have learned these skills, essential for future archival work, and acquired the historical knowledge needed in order to understand the context of the letters they have been transcribing. Others have, and will, work with volume co-editors. While working on this phase of the project, graduate students conduct library research to acquire information

that will be incorporated into the annotations and other scholarly apparatus associated with the volume, such as the introduction. These students will learn advanced research skills by working with experienced scholars, and will become familiar with digital biographical resources on the Victorian era.

Significance of correspondence

For scholars involved in the project, the importance of a more extensive collection of correspondence resides in the insight it gives us into dimensions of scientific life and culture that cannot be found in other contemporary sources. It lets us get behind the scenes to observe the historical actor when they have left the public stage. Through letters we can glimpse the sometimes hidden aspects of a scientist's personal life, whether it be their relationship to members of their family, their romantic entanglements, their closest friendships, or even their patrons. It is here that we can frequently observe their innermost feelings as they experience the ups and downs of a scientific life, or as they conduct unreported laboratory work that seemed to promise a new discovery but which ended up going nowhere. Letters often help the historian to reconstruct the intellectual and social forces that shape the thoughts and practices of the scientist. It is in correspondence that we find the scientist planning out his or her career strategies or working with allies to respond to an opponent. An examination of a scientist's correspondence undermines the ill-informed conception of scientists as isolated geniuses. Our interpretations of important scientific figures, including the significance of their achievements, are often revised in light of their correspondence.

While correspondence opens up the life of the scientist to the historians' gaze, it also reveals the structure of the scientific world in which the scientist lives. Letters can be seen as communication technologies that disclose the nature of the information network of which the scientist is a part. The study



Thomas Henry Huxley papers, Imperial College Archives. Letter from Tyndall to Huxley 6 January 1857. Image copyright Imperial College Archives.

of correspondence fits nicely into the current interest in the circulation of knowledge. 19th-century scientists used correspondence as one of the main ways to collect, process, and disseminate data. We have only to think about Darwin's extensive correspondence network, which he used both to gather scientific information from all corners of the globe and to subsequently publicise his discoveries. Writing and responding to letters was just as important for scientists as the time spent in the field or in the laboratory. Correspondence can shed light on hitherto unknown or obscure individuals, allowing us to better understand the role of 'invisible technicians' and 'subordinate labourers' in science at a particular time. Moreover, it is becoming clear that letters were instrumental in the rise of the scientific journal and the introduction of the peer-review system. In sum, correspondence is an invaluable resource into the personal life of the scientist, the community of practitioners, and the nature of the scientific process.

Initial findings

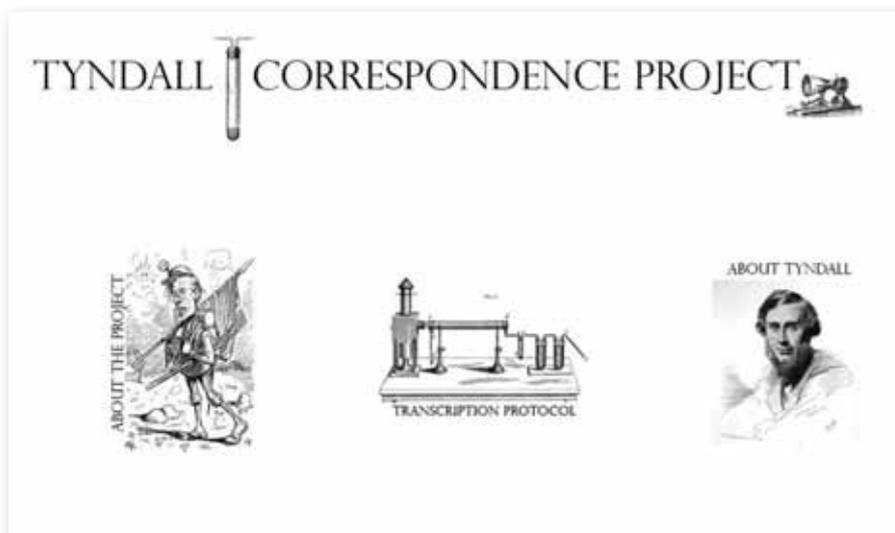
Now that we are nearing the end of the transcribing phase and I have access to all of the letters transcribed so far, I have already made several key discoveries that will be integrated into my biography of Tyndall. On Tyndall and the rise of the laboratory as a key place where science was done in the second half of the century, I was able to understand just how important Tyndall's time in Germany as a PhD student. Here he was exposed to some of the best labs in the world, and he brought this knowledge back to England with him, becoming a champion for the laboratory.

For further information on the Tyndall Correspondence project at York University in Toronto see:

www.yorku.ca/tyndall/project.html

Bernard Lightman

Professor of Humanities, York University, Toronto



Tyndall project website, York University, Toronto

Using oral history to bring institutional histories to life

I first came across the Oral History of British Science project (OHBS), run by the National Life Stories team at the British Library, as a PhD student in 2010. Despite thinking the OHBS was a great initiative, as a first-year PhD student who at the time was hoping to write an institutional history of the post-war development of the Meteorological Office's public weather warning services, I presumed that as the collection developed it would be of little help to my thesis.

It was not until the final year of my PhD that my assumptions about the OHBS were proven wrong. Whilst writing up my thesis, I was struggling to fill gaps in the written archival records about structural changes at the Meteorological Office, and about the decision-making process that had led to them. OHBS interviews with former senior figures at the Meteorological Office, especially Sir John Houghton and John Kington, gave me confirmation of developments that I was fairly certain had occurred, but for which I had no written evidence. Not only was the anecdotal and conversational nature of the oral histories a welcome change from the monotony of recorded minutes and written memoranda I had been using, but the interviews revealed lots about relationship dynamics at the organisation. These so often fly under the radar of documentary records.

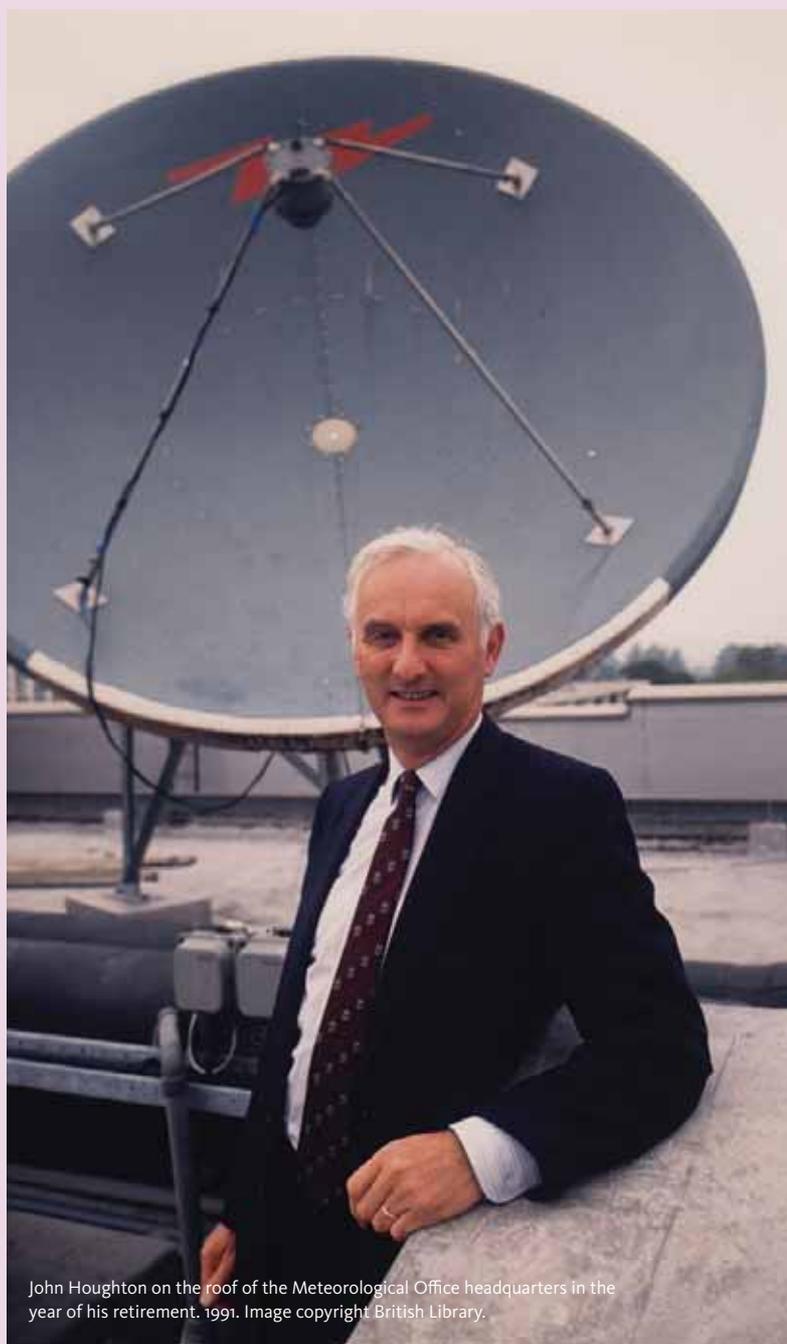
The OHBS collection helped me to bring the history presented in my thesis to life, and as I embark on a new postdoctoral position researching 20th-century history of clashes between science and religion, it promises to continue being a valuable resource for my research.

For more information please see:
<http://sounds.bl.uk/oral-history/science>
www.bl.uk/voices-of-science

Alexander Hall

Postdoctoral Research Associate, Coventry University

“The OHBS collection helped me to bring the history presented in my thesis to life.”



John Houghton on the roof of the Meteorological Office headquarters in the year of his retirement. 1991. Image copyright British Library.

Finding the scientific everyman in the archive: how science fiction can inform history of science

Historians of science are well-drilled these days in the avoidance of Whiggism, that is, the narration of history with reference to great heroes. However, archives and historiography are mutually-constitutive activities. The archives that tend to be retained are those of persons or organisations who meet a contingent and temporal notion of importance, and so that is what is available for historians to consult. Archives are saved about people perceived as important at the end of their lives, so historians are stuck with sources that confirm the judgements of their subjects' peers.

In my new project on inter-war science in Britain, I have been concerned to know what ordinary people thought science was. One important route into this has been through science fiction. A generation of very young men born after the Great War, and readers of American pulp magazines, got together in the 1930s. They shared their interests, critiqued the stories (and non-fiction) that they read, and even began to compose their own. They created and home-published fanzines such as *Novae Terrae* and *Tomorrow*. Significantly, they often referred to themselves as 'science fans' rather than 'science fiction fans', indicating their wish to participate in a cultural conversation about science in general. Science fiction has a mixed reputation as literary form, but as historical perspective on what science was thinkable, and by a wider range of people than your usual famous scientists, it is incredibly valuable.

I have chosen to use these fanzines as a doorway to my research, restricting myself to the people and books that they refer to; reading through their eyes. The rare 1930s fanzines are available through Rob Hansen's online archive:
www.fiawol.org.uk/FanStuff/THEN%20Archive/archive.htm

It is a feature of science fiction history that its archivists have, by and large, themselves been fans, which makes preservation that much more hit and miss than if supported by formal libraries and archives. One fan group that succeeded in finding some historical



Phoenix magazine. Writer H.G. Wells attended the Royal College of Science (a constituent of Imperial College) between 1883 and 1887 as a trainee science teacher. In 1887, he founded The Science Schools Journal, which later became Phoenix, the annual Imperial College student union arts magazine. Image copyright Imperial College Archive

permanence, and hence retained its early materials, is the British Interplanetary Society.

Science fiction is not exempt from the backward-filtering of fame. The most famous of the 1930s fans, a very young Arthur C. Clarke, looms over all the forgotten figures. Yet even he has a precarious and partial archive. Much of his material is mouldering away in a garage in Somerset. Other participants in the early fanzines went on to find sufficient fame that some of their archives have been preserved, notably by the Science Fiction Hub at the University of Liverpool Special Collections and Archives. Here, early stories and letters by John Wyndham, Eric Frank Russell and Olaf Stapledon shed

“It is a feature of science fiction history that its archivists have, by and large, themselves been fans, which makes preservation that much more hit and miss than if supported by formal libraries and archives.”

permanence, and hence retained its early materials, is the British Interplanetary Society.

Through these and other archives, a very different picture of science is slowly emerging, one that perpetuates Victorian values surprisingly far into the 21st century. Industry, innovation, and entrepreneurship predominate amongst the science fans. Theirs was the generation that peaked with the advancement of Britain's only ever scientist to the position of Prime Minister. Arguably, theirs was the narrative that created the social niche of science and technology that was science fact. Long live the science fiction archive!

Charlotte Sleigh

Reader in History of Science, University of Kent

To PDF or not to PDF?

The production of this article on Portable Document Formats (PDFs) was inspired by a meeting organised by the Open Planets Foundation in September 2014 entitled 'Preserving PDF: identify, validate, repair':

www.openplanetsfoundation.org

The event was attended by the Archaeology Data Service (ADS), a digital repository established in 1996 to archive archaeological data in the long term. It also provides specialist advice and expertise during the lifecycle of digital archaeological data, from creation, through preservation, and onward to its potential reuse. The range of research carried out under the banner of archaeology is extremely varied and spans disciplinary boundaries from history, to social sciences, to hard sciences. As a result, the archive is just as likely to contain a strontium isotope analysis of human remains as a 3D laser scan. These diverse techniques and methodologies produce an equally broad range of digital outputs. An archaeological excavation may produce databases, spreadsheets, computer-aided design (CAD) plans, and geographic information system (GIS) files alongside standard desktop publishing and image formats. Yet despite this complexity, the most common outputs remain documents and reports that are predominantly deposited in the PDF.

The focus of the ADS has always been on preserving high-quality, well-documented data that holds the greatest potential for reuse. Therefore ADS does not actively encourage the use of PDF as a deposition format. Initially, such an approach was motivated by apprehension over the suitability and sustainability of the PDF format. While these have been alleviated by the development of the open preservation standard (PDF/A), concerns remain over how the format is actively employed within the wider archaeological profession. Certainly, within the archaeological report, complex data-streams are often embedded within the PDF format (e.g. vector

“ADS has had to take a pragmatic approach to PDF by accepting all PDF formats for deposit, and by adopting PDF/A as a preservation format.”

images, images, spreadsheets) when they would be more effectively and sustainably preserved and managed in the original format. At the same time, much of this content lacks the appropriate metadata required to take full advantage of data reuse.

Despite this stance, ADS is aware that PDF is still a very popular format, and in some cases may be the only available format version of a digital object. A report produced by the ADS in 2010 discovered that just over 50% of unpublished grey literature held by archaeological organisations in the UK is principally in a digital format, with 43% of that maintained as PDFs. As a result, ADS has had to take a pragmatic approach to PDF by accepting all PDF formats for deposit, and by adopting PDF/A as a preservation format.

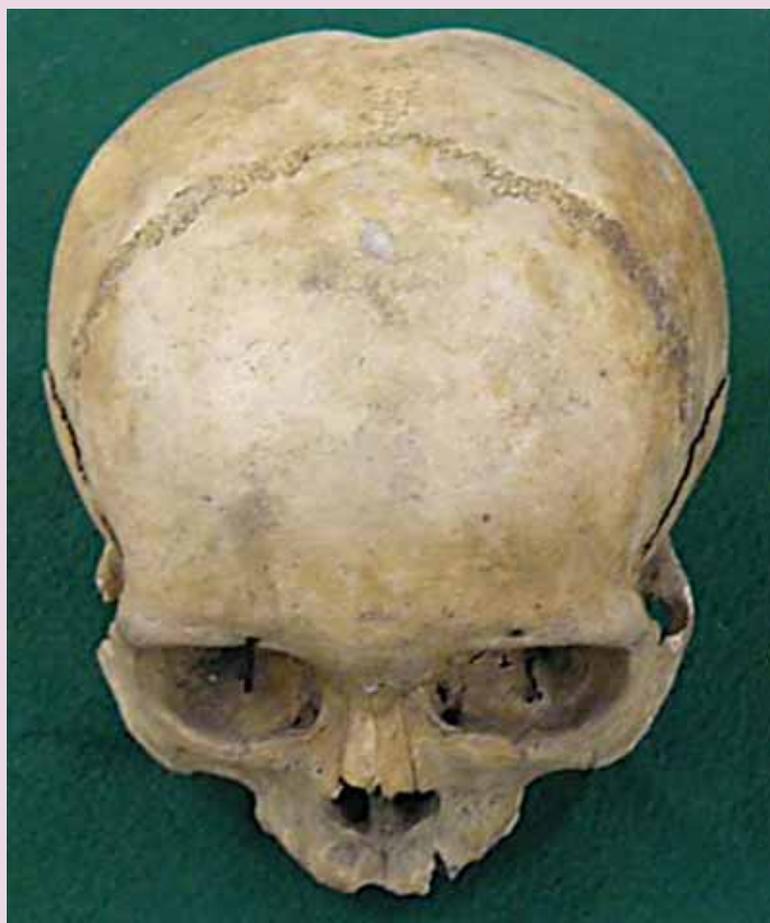
It is the inherent flexibility of the PDF format which has seen it become firmly entrenched within current workflows, providing consistent and accessible content across a broad range of platforms. It also remains one of the few preservation formats where data curators have worked alongside software developers to create a dedicated archival format (PDF/A). Certainly, PDF/A format is not the ‘magic bullet’ of digital preservation, but when employed as a part of a considered preservation strategy, it offers a worthy addition to the curatorial arsenal.

For a fuller discourse on PDF/A see: R. Moore, T. Evans, “Preserving the Grey Literature Explosion: PDF/A and the Digital Archive”, *Information Standards Quarterly*, Vol. 25, issue 3 (2013), pp.20-27. This is available online at:
<http://dx.doi.org/10.3789/isqv25no3.2013.04>

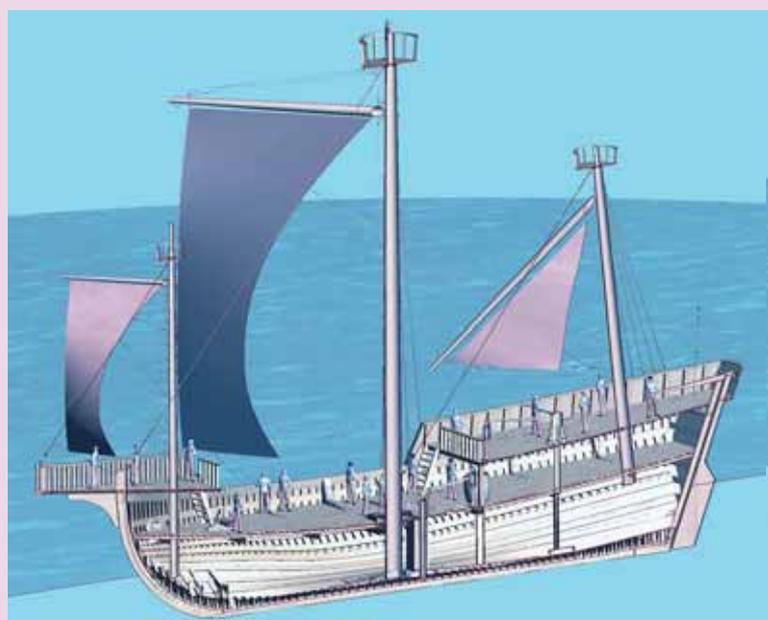
Archaeology Data Service team



Archaeology Data Service logo



Photograph of skull analysed during the 'A Long Way from Home: Diaspora Communities in Roman Britain' project. Image copyright H. Eckardt, G. Müldner and M. Lewis.



3D reconstruction of Newport medieval ship. Image copyright Newport Museums and Heritage Service.

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Off the shelf history

There are all sorts of important items in all kinds of archives. Yet the shelves holding such items are rarely considered.

Before World War Two, most shelves were made of timber. However, as wood became scarcer and was found to have limitations, manufacturers developed metal shelving, which quickly became popular. Two companies, both still key players, developed in the 1940s and 1950s: Dexion and Handy Angle (now Link 51). Both produced angle systems, which enabled users to take them apart, reposition, and use them for different storage purposes. They were so popular that most storage featured one of these systems until the late 1970s. In 1968, more than 1 million feet of slotted angle was produced in the UK alone.

As storage became more sophisticated - and clients demanded more - systems that 'clipped together' and which clients could reconfigure themselves, without calling on engineers, were developed.

In the 1970s and 1980s, the challenge was to produce shelving that could carry heavy loads and still be adjustable. There were, however, very few systems designed specifically for archive collections. The Glover system is widely considered to be the first 'roller racking' system, which uses wires and pulleys to move the shelving into and out of position. This was a major step forward, but it took a while to become popular. The next development was to use chains within the floor track - the shelves could be moved by cranking a handle at the end. Soon the chain was replaced with a drive cog mounted onto a track in the floor. During the 1970s, a large number of mobile shelving systems were installed in places where space was at a premium. The desire for space efficiency was probably driven by high rents in large towns and cities. Towards the end of the 20th century, archives and heritage storage became an important market for shelving companies struggling with the decline of British manufacturing. Large new buildings, like the British Library in London, demanded a more exacting specification, and significant installations like the London Metropolitan Archives helped shelving companies understand and develop systems specifically for this market.

At the same time, British Standard 5454 drove the specification to be more tailored for archive storage. Systems with smooth face uprights and shelves made with folds ensured no snagging, sharp edges or damage to the media being handled. Even shelf clips could now be hidden



Typical slotted angle shelving. c.1960.



New mobile shelving installed in 2013 at a county archive. Image copyright Link51.

within the shelf flange of some of the more advanced systems, and a wide range of accessories for the archive market could be introduced to allow archivists to store virtually anything in a suitable shelving system.

Fast forward to today: steel shelving is a more sophisticated product than ever before. Costs are competitive in the UK and good suppliers understand the needs of those responsible for archive storage. There is no reason for anyone in the sector to settle for second best or risk damage to collections by using inferior products.

Rob Dakin

Divisional Project Manager, Link51

Observations on PDFs from the Technische Informationsbibliothek, Hannover

The Technische Informationsbibliothek (TIB) is the German National Library of Science and Technology. It focuses on all areas of engineering, as well as architecture, chemistry, information technology, physics and mathematics. Located in Hannover, the TIB is a member of the Leibniz organisation and conducts applied research and development in relevant areas of information science, such as data visualisation or digital preservation.

The TIB is a specialist library, collecting materials of the respective subject areas regardless of language and publication type. It also fulfils the role of an information and literature provider for research and industry worldwide. With an overall holding size of 8.9 million objects, the TIB is the world's largest specialised library for science and technology. Besides standard media types like books and journals, the library also specialises in the collection of grey literature. Recognising the importance of research data early on, the TIB became the world's first Digital Object Identifier (DOI) registration agency for primary data in 2005, and is currently the managing agent of DataCite: www.datacite.org

As a national subject library, TIB has an archival mandate, including the long-term stewardship of a growing digital collection.

Collecting materials of any publication type, the TIB has seen a growth of information entering the collection either in a hybrid analogue / digital form, in digital form only, or as a digital supplement to an analogue publication. These materials pose various challenges, especially in regard to digital preservation. While digital representations of the classical publication form are mainly available in PDF format, the supplements may include highly-specialised file formats. To meet the needs of one of the collection areas, the TIB is engaged in the EU project Durable Architectural Knowledge (DURAARK), where tools and methods for curation and preservation processes of architectural data are being developed: www.duraark.eu

Michelle Lindlar

Technical Analyst for Digital Preservation,
Technische Informationsbibliothek



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HANNOVER

Die Technische Informationsbibliothek (TIB) ist die Deutsche Zentrale Fachbibliothek für Technik sowie Architektur, Chemie, Informatik, Mathematik und Physik und arbeitet mit der Universitätsbibliothek Hannover (UB) im räumlichen und organisatorischen Verbund. Der Personalbestand der TIB/UB beträgt ca. 400 Beschäftigte.

Die TIB/UB betreibt das umfangreiche Lokale Bibliothekssystem (LBS) für die zum Standort Hannover gehörenden Bibliotheken.

In der Abteilung EDV und Technische Infrastruktur der TIB/UB ist zum nächstmöglichen Zeitpunkt folgende Stelle zu besetzen:

Systembibliothekar/in oder Informatiker/in (E 10 TV-L)

Die Stelle ist auf 2 Jahre befristet. Der Arbeitsplatz ist grundsätzlich teilzeitgeeignet.

Den vollständigen Ausschreibungstext mit weiteren Informationen zu Aufgaben und Anforderungen der Stelle sowie die Bewerbungsanschrift finden Sie auf unserer Homepage unter:
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