



**European X-Ray Free-Electron Laser Facility GmbH**  
Holzkoppel 4  
22869 Schenefeld  
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# **PROGRAMME**

## **Third Workshop on Scientific Archives**

22–24 June 2021

(via Zoom videoconference)

Committee on the Archives of Science and Technology (CAST), Section on University and Research Institution Archives, International Council on Archives. Organizing committee:

- Bethany Anderson, University of Illinois at Urbana-Champaign (USA)
- Anne-Flore Laloë, European Molecular Biology Laboratory (Germany)
- Melanie Mueller, American Institute of Physics (USA)
- Frank Norman, Francis Crick Institute (UK)
- Brigitte Van Tiggelen, Science History Institute (USA)
- Laura Outterside, European XFEL (Germany)

**SUV ICA**

Section on University and Research Institution Archives

Section des Archives des Universités et des Institutions de Recherche

## PROGRAMME

<b>Keynote: Angela Saini on archives &amp; society</b> .....	4
<b>Discussion: ‘Cyclotron’ documentary. Jahnvi Phalkey, Director, Science Gallery Bengaluru</b> .....	5
<b>Processing of scientific archives in a French university: The case of Pr Henri Danan’s /Pierre Weiss laboratory’s fond</b> .....	7
Alice Perrin, Université Jean Moulin Lyon 3, and Lucile Schirr, Université de Strasbourg.....	7
<b>The Niels Bohr Archive: Past, Present, and Future</b> .....	8
Christian Joas, Rob Sunderland, Niels Bohr Archive, Copenhagen .....	8
<b>Personal archives of researchers of the North of Russia: Creation, preservation, information potential</b> .....	9
Alexandra Brovina, Federal Research Centre “Komi Science Centre of the Ural Branch of the Russian Academy of Sciences” .....	9
<b>The Scientific Data Archives of the Old Geophysical Institute of the University of Coimbra: How to preserve and make them available and workable for the current geoscientist community?</b> .....	10
Fernando B. Figueiredo, Paulo Ribeiro, University of Coimbra, Portugal .....	10
<b>Archiving scientific and research data in government: a motley of memory practices</b> .....	11
Jennifer Cuffe, Library and Archives Canada .....	11
<b>Scientific Heritage in the Age of Big Data and Open Science: What to Collect, How to Describe, Where to Provide Access</b> .....	12
Polina Ilieva, University of California, San Francisco (UCSF).....	12
<b>Access to Scientific Archives: The Archival Collections Index as a Pathway to Discovery</b> .....	13
Dorothy Leung, Archives, SLAC National Accelerator Laboratory .....	13
<b>Enabling future access to the Center for History of Science in Stockholm</b> .....	15
Karl Grandin, Maria Asp, Center for History of Science at the Royal Swedish Academy of Sciences.....	15
<b>Engagement with environmental science researchers at the UK Natural Environment Research Council Environmental Data Service</b> .....	16
Jaana Pinnick, Poppy Townsend, Kate Harrison, Katy Buckland, Natural Environment Research Council (NERC) Environmental Data Service .....	16
<b>Community Archives &amp; prospects for Science engagements: Reflections from the Philippines</b> .....	17
Leah Abayao, University of the Philippines.....	17
<b>Building an Institutional Archive of Science and Technology in India: Processes and Challenges</b> .....	18
Ponnarasu.S, Archive of IIT Madras, Indian Institute of Technology Madras	18

**The involvement of archivists from French universities and research organizations in the development of open science through the work of the AURORE section of the Association des archivistes français..... 19**  
Hélène Chambrefort (Inserm, Paris), Sarah Cadorel (Inalco, Paris), Océane Valencia ..... 19

**Archives as Crucible, Archives as Commons ..... 20**  
Venkat Srinivasan, Archives at the National Centre for Biological Sciences, Bangalore, India ..... 20

**‘What are they hiding from us?’ Eugenics archives and conspiracy theories ..... 21**  
Dr Maria Kiladi, University College London. .... 21

**Records of assisted reproduction: the Papers of Robert Edwards at Churchill Archives Centre and the Lesley Brown Collection at Bristol Archives ..... 22**  
Madelin Evans (Churchill Archives Centre), Allie Dillon (Bristol Archives) .... 22

DRAFT

## **Keynote: Angela Saini on archives & society**

Angela Saini is an award-winning British science journalist and broadcaster. She presents science programmes on the BBC, and her writing has appeared in *New Scientist*, *The Sunday Times*, *National Geographic* and *Wired*. Her latest book, *Superior: the Return of Race Science*, was a finalist for the LA Times Book Prize and named a book of the year by *Nature*, *NPR Science Friday* and the *Financial Times*, among many others. Her previous book, *Inferior: How Science Got Women Wrong*, has been translated into thirteen languages. Angela has a Masters in Engineering from the University of Oxford and was a Fellow at the Massachusetts Institute of Technology.

DRAFT

**Discussion: ‘Cyclotron’ documentary. Jahnvi Phalkey, Director, Science Gallery Bengaluru. Moderator: Brigitte Van Tiggelen.**

Cyclotron is a film about the world’s oldest functional particle accelerator and the people who keep it running today.

Operational in 1936 at the University of Rochester, United States, it was built merely three years after the very first cyclotron was built by Ernest Lawrence at Berkeley. The entire set-up in Rochester was dismantled and sent to India in 1967, and is now housed at the Punjab University, Chandigarh. With the cyclotron, the regional university became one of the very few places in India for research and education in nuclear physics. This was otherwise possible only in the facilities of the Department of Atomic Energy. The cyclotron has been running for nearly fifty years in Chandigarh.

The film explores the life and legacy of the machine as well as the struggles and triumphs of its technicians, researchers and students. It is a comment on the state of experimental research and higher education in Indian universities.

*Biography:* Jahnvi Phalkey, PhD, Founding Director, Science Gallery Bengaluru

Until her appointment in Bengaluru in November 2018, Jahnvi held a tenured faculty position at King’s College London. Her academic career started at the University of Heidelberg, following which she was based at Georgia Tech-Lorraine, France, and Imperial College London. She was a Fellow, *Wissenschaftskolleg zu Berlin* (the Institute of Advanced Study, Berlin). She was also external curator to the Science Museum London, and has been a Scholar-in-Residence at the Deutsches Museum, Munich.

Jahnvi is the author of *Atomic State: Big Science in Twentieth Century India* and has co-edited *Science of Giants: China and India in the Twentieth Century*. She is the producer-director of the documentary film *Cyclotron*.

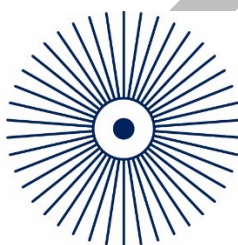
*Biography:* Brigitte Van Tiggelen, PhD, Science History Institute

Brigitte Van Tiggelen is Director for European Operations at the Science History Institute, Philadelphia, USA. Trained in physics, history and sociology, her PhD dissertation focused on chemistry in eighteenth century Belgium. She’s been passionate about the history and the heritage of chemical sciences ever since. Her research interests include topics such as couples and women in science, domestic science, philosophy of chemistry and Belgian chemistry. She has co-edited several books *From Bench to Brand and Back: The Co-Shaping of Materials and Chemists in the Twentieth Century* (2017); *Domesticity in the Making of Modern Science* (2016); *For Better Or for Worse?: Collaborative Couples in the Sciences* (2012), and *The Public Image of Chemistry* (2007). Her latest publication is a collective

volume *Women in their Element. Selected contribution of women to the periodic System* (2019), co-edited with Annette Lykknes.



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DRAFT

## **Processing of scientific archives in a French university: The case of Pr Henri Danan's /Pierre Weiss laboratory's fond**

*Alice Perrin, Université Jean Moulin Lyon 3, and Lucile Schirr, Université de Strasbourg, France*

This communication deals with the issues of scientific archives in the French university's context, based on the example of a specific case at the University of Strasbourg. In France, different factors affect the recent interest in academic and scientific archives and their valorization. The first one is the rapid evolution of the university's landscape these last 50 years. The second one is the development of History of sciences and technics as an autonomous discipline. Archivists, historians of sciences and scientists are becoming more and more concerned about the safeguard, the accrual, the custody and the preservation of the technical and scientific archives. However, France is lagging behind others countries for the questions of both academic and scientific archives. This study will focus on the research archives in university, through the example of the processing of Henri Danan's fond. In this perspective, we will focus on the peculiar context of university's archives in France and attempt to show the interest of the Henri Danan's fond in the light of the challenged we faced: how to process the fond in order to make it understandable. The University of Strasbourg has set up, since the 2000s, a program of safeguard and valorization of the physics archives and instruments in Strasbourg. The creation of the University of Strasbourg archives department in 2010 was a logical step demonstrating the university's will to improve archives conservation and valorization, in addition to responding to an administrative need. Since its creation, the archives department is trying to manage administrative records and process scientific archives at the same time. Scientific archives have special characteristics. According to the law, these particularities (bulk, multiplicity of the producers, presence of administrative archives, presence of objects, thesis, scientific documentation, pedagogic archives and personal papers) can be challenging for treatment, conservation and communication of this kind of fond. On the other hand, these same characteristics are constitutive of the interest of this fond. The archival processing of this fond revealed that the papers are not only those of one professor, Henri Danan, but also those of the whole Pierre Weiss laboratory since the 1920's. The main interest of this fond is to document the story of an important physics laboratory in Strasbourg through multiples decades, its member's identity and activities.

## The Niels Bohr Archive: Past, Present, and Future

*Christian Joas (Director), Rob Sunderland (Head Archivist), Niels Bohr Archive, Copenhagen, Denmark*

The Niels Bohr Archive (NBA) is an independent history-of-science archive that is physically located at the Niels Bohr Institute of the University of Copenhagen and holds the papers of Niels Bohr and many other twentieth-century physicists. Since its foundation, NBA's mission consists of three main pillars: conservation, research and edition work, and outreach. After briefly recounting NBA's prehistory—prominently involving the “Sources of the History of Quantum Physics” project launched in the 1960s by Thomas S. Kuhn and others—and the history since its official establishment in 1985, we give a short overview of our current activities. We then focus on future plans and future challenges, e.g., related to digital edition projects, to further increasing our research activities, and to broadening our extensive outreach programs. These challenges also include the upcoming move of the Niels Bohr Institute from its historic quarters to a new building made of glass and steel (NBA will remain at the historic address). In a piece for the University Newspaper, its editor-in-chief, Dennis Christiansen, asked “Can Niels Bohr's spirit survive the move to a glass box?” We will discuss how NBA can contribute to making sure that Bohr's spirit survives, and how this goal will affect NBA's future activities.



## **Personal archives of researchers of the North of Russia: Creation, preservation, information potential**

*Alexandra Brovina, Federal Research Centre “Komi Science Centre of the Ural Branch of the Russian Academy of Sciences”, Russia*

Over its nearly 300-year history, the Russian Academy of Sciences (RAS) has collected the richest documentary materials on the history of the Russian and world science and culture in the collections of scientific archives. The Archival Fund of the RAS has more than 5300 funds. A network of scientific archives is being developed in the regions, which are being formed at the Federal Science Centers of the RAS. The funds of the archives include the scientific, technical, visual and electronic documentations on the results of the research activities of the scientific institutions and the personal funds of scientists in all fields of science. The report analyzes the creation, preservation and information potential of the personal archival funds of the researchers of the northern (Arctic) territories of Russia in the 20th century. The main attention is paid to the collections of regional archives of the European North of Russia. The subject of the research is the historical role of the scientific community in the study of natural resources, biological systems and socio-anthropological resources of the northern territories of Russia. The relevance of the study is associated with the problems of preservation of the personal funds of scientists in modern archives. The author considers the position that the preservation of such documentary systems allows to collect (save) much more diverse facts and knowledge of an individual about a particular historical era and capture the mental characteristics of the society. The author has determined that the funds of personal origin of the scientists may be unequal in terms of quantity and content, but they always have a typical structure. The composition of a scientist's personal fund is represented by the following information blocks: “science”, “teaching”, “organization of science”, “correspondence”, “memoirs” and “visual series”. At the moment archives are replenished with original documents of scientists - discoverers of the generation of the pre-digital era. They have created and carefully kept manuscripts, letters, and memoirs in the personal archives. The recognition of their of their uniqueness has led to the adoption of a personalized approach to the study of the history of science in Russia and the purposeful accumulation of such materials in the collections of the scientific archives of various institutions.

## The Scientific Data Archives of the Old Geophysical Institute of the University of Coimbra: How to preserve and make them available and workable for the current geoscientist community?

*Fernando B. Figueiredo (Researcher, Coordinator of CITEUC (Earth and Space Research Center of the University of Coimbra), Department of Mathematics, University of Coimbra, Portugal, and Paulo Ribeiro (Senior technician/researcher, CITEUC, Geophysics and Astronomical Observatory, University of Coimbra), Portugal*

In October 2018 we start a research project (HISTIGUC), entitled «150 years of the scientific activity of the Geophysical Institute of the University of Coimbra: history and heritage of the Earth and Environment Sciences in Portugal» (financed by the Portuguese Science Foundation (FCT), PTDC.FER-HFC.30666). The HISTIGUC aims to study of the scientific, historical and patrimonial heritage of the Geophysical Institute of the University of Coimbra (IGUC). Created in 1864 as the Meteorological and Magnetic Observatory (OMMUC), it was one of the first university institutions in Portugal to establish a continuous program of geophysical observations. As a result of 150 years of observations and research, IGUC holds a unique and scientifically valuable collection of geophysical instruments and long series of meteorological (since 1864), geomagnetic (since 1866) and seismological (since 1903) data. These collections have an indispensable value in current geophysical and climatic studies and are among the most complete and significant in Portugal and in the world. These are complemented by a vast technical-scientific production (reports, research memoranda, articles, books), which in large part must be inventoried and studied. One of the tasks of the HISTIGUC project is the preservation and cataloguing of this very rich collection of historical data, making it available to the geoscience community. To accomplish that, data must be homogenized to extract relevant scientific information. The homogenization and analysis of the data series must be done with a parallel study of the observatory's instruments and routines (with emphasis on data acquisition processes, and on the quality assessment of the geophysical observations and records). In this communication, we will explore some of the issues mentioned above about the scientific archives of IGUC, namely the collection of historical instruments and the important series of scientific data, and their availableness to the scientific community, policymakers, and the general public.

## Archiving scientific and research data in government: a motley of memory practices

*Jennifer Cuffe, Senior archivist, Library and Archives Canada, Canada*

What does it mean to archive scientific data? Answers may vary dramatically (Daston, ed. 2017), with varied interpretations of both 'archive' and 'scientific data.' Nevertheless, some institutions, such as government, may be in a position to propound a singular or uniform approach to the archiving of scientific records (including data) by means of policies, organizational design, budgets, technologies, and so on. These approaches can be traced through time, as can practices of archiving scientific records, as understood by their practitioners. In the Canadian federal government, multi-department approaches to archiving the data of contemporary government science have (sometimes momentarily) coalesced through institutions, policies, consultations, and technological infrastructure. This paper briefly describes three moments during the past forty years at which common approaches to "data archiving" were articulated, however fleetingly: the Machine Readable Archives of the 1970s and 1980s; consultations in the early 2000s on a proposed national data archive; and, more recently, groups devoted to discussing research data management and the long-term preservation of data. Despite moments of concerted collective action such as these, and the existence of overarching laws and policies, there is no singular and consolidated understanding of, or approach to, archiving scientific data across government. The archiving of scientific data is actively pursued throughout the federal government, but this activity is perhaps best typified as a motley of co-existing memory practices (Bowker, 2005; Pickering, ed. 1992). This paper identifies four major de facto approaches to scientific data archiving over the past four decades in the Canadian federal government: 1. Data archiving as multi-generational preservation of heritage; 2. Data archiving as an integral part of current scientific endeavor; 3. Data archiving as data libraries made available for general public use; and 4. Data archiving as IT backup. Each of these four de facto approaches is illustrated using examples drawn from within the Canadian federal government, including from the national archives, a national museum, a departmental archive, a departmental data centre, and government-wide online platforms. These research data archiving projects (as understood by participants) are pursued to different ends, with very different – and sometimes clashing -- time horizons.

## Scientific Heritage in the Age of Big Data and Open Science: What to Collect, How to Describe, Where to Provide Access

*Polina E. Ilieva, Assistant University Librarian for Archives & Special Collections, University of California, San Francisco (UCSF), USA*

This research is a work in progress and the author intends to collect feedback from the workshop participants who have been encountering similar challenges resulting from the rapid expansion and acceptance of the open science approaches, including requirements for data sharing, publications in open access journals, websites and social media. The science became not only more open, but also exponentially more collaborative. This paper will examine changes, challenges, and evolution of the three major components of archival professional practices related to these transformations: 1. Collection development. Besides traditional records in analog and born-digital formats, archivists already collect datasets that are preserved in a multitude of places, some of them are institutional, some private with no mandate for permanency and without set time restrictions for the length of the preservation. What happens when the preservation mandate expires, who will make the appraisal decision on what and for how long to preserve? Even data that is in open access has to be managed, sustained and made accessible. Modern scientists change their institutional affiliations more often, which brings up another vital question – who owns their records and data, how to archive these dispersed and split collections? 2. Description. Traditionally archives have different repositories for digital materials in diverse formats: web archives, audio-visual archives, journals, etc., including the recent addition of datashare repositories. (UCSF uses five repositories: HathiTrust, Dryad, Internet Archive, Calisphere, and DPLA). How to update the structure of the finding aids and other tools to unify and facilitate exploration, to enable users to have single discovery point for the totality of the scientific heritage sources dispersed in diverse repositories and institutions? 3. Access. The entirety of digitized and born-digital collections exceeds tens of millions of pages and continues to grow. How can archivists enable computational research with these digital materials? Several archives (including UCSF) initiated projects for extracting data from these materials, sharing these datasets, creating APIs. Where and how to provide access to them? How to incorporate these new products into descriptive tools? Are these products considered original materials or surrogates? Examining these questions will enable archivists to address legal and ethical issues related to them, make our scientific heritage open and accessible, facilitate reproducibility and reuse for the benefit of the society.

## Access to Scientific Archives: The Archival Collections Index as a Pathway to Discovery

*Dorothy Leung (Archivist and Manager), Archives, History & Records Office (AHRO) and Research Library, SLAC National Accelerator Laboratory, USA*

This paper aims to describe practical methods to enable access to scientific archives, with a focus on the archival collections index as a pathway to discovery. Specifically, a case study involving the migration of an accession records database at the SLAC Archives, History & Records Office (AHRO) will be presented, including the background for the project, selection criteria for database management systems, setbacks, migration issues, compatibility with international standards, and implementation. The paper will conclude with a reflection on the challenges and lessons learned, as well as plans to continue enhancing access, particularly in the context of diversity and the globalization of contemporary scientific archives.

The AHRO website serves as a portal to SLAC's archival material by delivering content such as digital collections (newsletters and historic reports), and features such as web exhibits, staff biographies, and Spotlights (articles presented on our homepage) that highlight recent milestones. AHRO also utilizes existing resources shared through our affiliation with Stanford University, such as SALLIE (Stanford's All-Image Exchange) and Spotlight at Stanford, a digital showcase for research and teaching. In conjunction, AHRO's archival collections index is a central access point for basic level of description for all of our accessions, regardless of their processing state.

Driven by hardware and software obsolescence concerns, AHRO embarked on a project nearly a decade ago to migrate our collections index to a modern-day application, but the project stalled due to operational constraints (budgetary limitations and the sudden loss of personnel). In 2017, migration efforts resumed, sporadically at first, due to limited resources and other obligations. Metadata enhancement and cleanup, including conversations about data structures and definitions, progressed considerably once the decision was made to adopt open source software with an integrated metadata schema that offers user support and hosting on a cloud-based platform.

The migration effort also served as an opportunity to reevaluate and remove restrictions while balancing access with privacy concerns. Moreover, the tool we adopted (<https://slacarchives.omeka.net/>) allows the collections index, once placed behind an institutional firewall, to be available to the public. Although this software is intended for displaying digital collections and online exhibits, AHRO has adapted it as both a publishing platform for our collections index and as an archival collection management system to

support core administration functions—a low-cost, lightweight solution to our needs.

This case study provides an example of overcoming challenges, ranging from technical hiccups to factors beyond archivists' control, in the continued pursuit of initiatives to increase access to scientific archives.

DRAFT

## Enabling future access to the Center for History of Science in Stockholm

*Karl Grandin (Director), Maria Asp (Archivist) at the Center for History of Science at the Royal Swedish Academy of Sciences, Sweden*

The Royal Swedish Academy of Sciences, in existence since 1739, has throughout most of its history been considered a public institution and to all intent and purposes it was and operated as such especially in the beginning, despite it being legally a private institution. Today, it is considered and consider itself as a private institution, this reflects that much has changed since 1739 with both science in Sweden and with the institution.

The Center for History of Science, originally the manuscript collection of the Library of the Academy, holds the archives of the Academy including the Nobel archives in Physics and Chemistry and personal archives of quite a few previous members of the Academy. We will briefly present the Center, its function and place within the Academy as well as in relation to the legislation which governs the archives produced at Universities. The challenges for a privately-run organisation to navigate within, and without, this legislation is discussed, not least in relation to our collection policy and strategy.

The general operation of the Center will be presented as well as a few recent and possibly future projects. In a recent evaluation some new directions for the Center were suggested, for example to act as a node for historians of science with regular workshops etc.

Finally, we will discuss the recent Swedish Government Official Report on Archives "From here to Eternity: A long-term archival-policy for government administration and cultural heritage," in relation to the Center. One of the conclusions of the report is the important role of private archives. The report suggests changes in legislation whereby the importance of the private archives as part of the cultural heritage would be clearly stated in the Archives Act. The current Act only mentions the archives of official bodies. Furthermore, it is suggested that the National Archives should be given a new function in relation to private archives and the report also proposes additional government grants for national private archival institutes. What possibilities and limitations might the suggested changes bring about for the Center? GDPR will also be discussed in this context.

## Engagement with environmental science researchers at the UK Natural Environment Research Council Environmental Data Service

*Jaana Pinnick (NGDC Grants Manager), Poppy Townsend (Communications Manager), Kate Harrison (Data Centre Operations Manager), Katy Buckland (Scientific Data Coordinator), NERC Environmental Data Service, UK*

The Natural Environment Research Council (NERC) is the UK's largest funder of independent environmental science, training and innovation, delivered through universities and research centres. NERC's investment has led to significant discoveries in environmental science which deliver sustained benefits to citizens in the UK and the rest of the world. To provide access to the scientific information and data it has funded, NERC maintains the Environmental Data Service (EDS), a network of five Environmental Data Centres. NERC's well-established data policy mandates that data generated through NERC-funded activities are properly managed to ensure their long-term availability. NERC EDS holds and collects environmental data primarily from NERC-funded researchers. It is responsible for curating these data, making them freely available to all users with an interest in re-using them for any purpose. The range of data held within the EDS covers all aspects of environmental science including physical specimens and sample materials as well as third-party materials. NERC data assets include many unique, irreplaceable and historical datasets which provide a valuable resource for new environmental research and innovation. NERC EDS staff are experts in the curation of scientific information, research data management and preservation techniques, resulting in high quality nationally important assets. Their domain expertise ensures that the data they hold are fit for purpose over the long term.



## Community Archives & prospects for Science engagements: Reflections from the Philippines

*Leah Abayao, University of the Philippines, Philippines*

Community archives embody principles of meaningful conceptualizations of cultural development as it allows for “grassroots activities of documenting, recording and exploring community heritage” and recognizes community participation, control and ownership as an essential component” (Flinn, 2007). A community archive is an important platform that allow local people to build a narrative of their past by employing multiple modalities within their cultural frame. This paper draws from a collaborative project of the University of the Philippines Baguio and the National Archives of the Philippines from 2014 to 2019 that conducted seminar - workshops with local communities in a desire to help them set up their own archives. Processes were designed to allow for mutual learning engagements that deepened our understanding of needs, desires and the requisites of a community archive. I have led a team composed of historians, archivist and language and culture documenters from the humanities. The workshops we conducted resulted in the identification of important cultural ideas, practices and observances that have weakened, yet communities would like to revitalized due to their contemporary relevance. After a 5-year work with communities, new challenges emerged and our work shifted to scientific engagements. Communities have also expressed to innovate along with science. Local knowledge about a bark-derived textile used in preparing cultural attires is a case in point. The desire for longevity of the material have been raised and we have looked for possibilities of involving colleagues from the sciences, especially those involved in innovations in plasmas that use atmospheric pressure for surface modification. We see how ideas and interest evolved and how communities and actors coalesced around a shared concern of cultural revitalization along with science and science education. Archiving rituals and observations in relation to growing traditional crops was an interesting case where cultural narratives are interspersed with community’s view of science and local developmental thrust. The practice of community archiving along with science thus provide new conceptualizations of culture and history that inform development goals in Philippine communities whose traditions are in flux. Local perspectives and live experiences opened community engagements with science, a science that they see a promising future they still would own, and archive in their communities.

## **Building an Institutional Archive of Science and Technology in India: Processes and Challenges**

*Ponnarasu.S, Archive Project Leader, Archive of IIT Madras, Indian Institute of Technology Madras, India*

There is a growing interest on archives in recent times. The sacred abode of historians at large has enticed many more for purposes beyond academic research. This diverse group of new entries include the administration of various institutions that are realising the strength of archival records for the smooth running of their everyday business. At the research front, the shift towards diachronic studies emphasises the importance of past events recorded in various mediums. This shift of looking at things in a historical setting moved from social sciences towards science and technology too. Thus various stakeholders, whether institutional, public and/or private in nature, are working on setting up their own archive. In this context, a sixty-year-old technological institution has started its effort to build their archive both for administrative and research purposes. The archival material present at this institution is of various forms, though most of the records are paper. This paper looks into the process of setting up the physical archive at the Indian Institute of Technology, Madras and the challenges to be encountered. At the nascent stage in this process, the paper discusses the two current challenges, first, administrative and the second, physical/natural. As stated earlier, various stakeholders of the administration are convinced on the importance of the archive but lack the skills and/or time to understand and participate in the process of selecting and organising records for the archive. A major constraint is appraisal; sixty years of records need a keen and research eye to eliminate and select the records. Even if one has a retention policy, which is not the case here, what should one do if a record finishes its retention period but has a continuing value for administration or research. The second current challenge of nature has its own role to play. Considerable amount of records have been affected by termites, fungus, moulds and insects. These records have valuable information, but are often destroyed to a level where restoring them needs lots of effort in terms of money, energy and expertise. This paper will discuss the process we have undertaken to setup the archive and how we are dealing with the challenges in enabling access to scientific records and to further its use and reuse for scientific research.

## **The involvement of archivists from French universities and research organizations in the development of open science through the work of the AURORE section of the Association des archivistes français**

*Hélène Chambrefort (Inserm, Paris), Sarah Cadorel (Inalco, Paris), Océane Valencia (Sorbonne université, Paris), France*

France has been challenged by The French Digital Republic Act enacted on 7 October 2016 that prepares the country for the digital transition and the economy of tomorrow. This law promotes innovation and the development of digital economy, both leading to a digital society that opens, relies and protects citizens' rights. It especially generalizes the opening of public data, as well as enhanced protection for personal data. According to the Act, the French Research Ministry has set up initiatives to spread the principles of Open Science over France. One of the most important initiative is the creation of a Committee for Open Science (COSO) that implements a policy for the opening of research publications and data. It brings together expertise, taskforces and networks around Open Science and research data management. This new context directly impacts archivists in their practice and in their relationship with the public. Moreover, archivists in universities and research organizations are particularly challenged by both the protection of personal data and the opening of public data. Through a specific section of the Association des Archivistes Français, called AURORE, they are involved in working groups within the COSO. Most importantly, they contribute to the availability of research data and help researchers within Open Science, with numerous tools and taskforces to guide data traceability and selection. The presentation explains how archivists work on processing and archiving of research data. It exposes what tools are developed and proposed, who are the interlocutors and partners, both inside institutions and in related organizations such as libraries, professional networks, or data protection officers.

## Archives as Crucible, Archives as Commons

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Archives enable diverse stories. This aim shapes the purpose of an archive and what environments it could nourish in the future. And at the heart of an archive – both for the archivist and for the user – is an attempt to find meaning in the data stream. This data can arrive at the archive in various containers: a custom-built lab contraption, a four-hour-long audio interview, an annotated album of photographs. Within each object lie many stories waiting to be interpreted, each a reflection of the interpreter. I will try and unpack these ideas through the lens of a new physical and digital space. The Archives at NCBS is a space for the history of contemporary biology in India (<http://archives.ncbs.res.in/>) that opened in February 2019. We have three main objectives: build up the archive as a space to strengthen the commons, a focus on education through archival material, and to build a broader consortium of science archives with a discovery layer for the public to find, describe and share archival material and stories. We also positioned the archives as an ecosystem for learning for students across disciplines. During the setup, in the first 1.5 years of this experiment, the Archives has been host to 43 students from across India and from more than a dozen disciplines including physics, chemistry, biology, engineering, education, history, art, design, journalism, communication, sociology, and law. They develop projects around their specific interests. Digital archives afford us the ability to see connections between memory, database and the narrative. Over the coming three years, the Archives at NCBS is undertaking two collaborative projects: an open source storytelling and annotation template as an additional layer to the Archives digital portal, and the development of a global interconnected digital archive of science. We built a pilot project on multiples ways to reflect upon and assemble the history of NCBS (<http://stories.archives.ncbs.res.in/exhibit/13ways/>). We see these as steps toward three meshed spaces: discovery (a catalog of catalogs), interpretation (annotation tools), and narrative (storytelling widgets). By building such an ecosystem, we also hope to bridge the gaps between four existing communities: the scientists, historians of science, storytellers for a non academic audience, and the public.

Acknowledgments: The Milli Collective (<https://milli.link/>) is developing the technical platform. Milli is a consortium of individuals and communities interested in the nurturing of archives. It was incubated by the Archives at NCBS, which is now a partner member of the collective.

Disclaimer: This is an edited version of previous presentations of work at the Archives at NCBS

## **‘What are they hiding from us?’ Eugenics archives and conspiracy theories**

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In May 2019 I was appointed to work with UCL’s Eugenics Inquiry Committee. My main responsibilities were to provide research support, investigate the links of our Institution with Eugenics, and produce a thematic catalogue of our eugenics-related collections that would enable other researchers to identify material on the role that Eugenics played in the history of UCL. However, soon after I started, I became aware of several misinterpretations in the historiography of the Galton Laboratory – of that part of UCL that became the undeniable symbol of eugenics research. Some of the most important sources have been consistently overlooked and missed. Most interpretations were based on outdated assumptions that failed to take into account archival sources and factors which could provide a completely different perspective. There was a preoccupation with discussions centred on the obvious – Francis Galton - that essentially distracted from the real questions that we should be asking. Above all, there was confusion as to where the relevant material is: The general assumption was that ‘it’s difficult to find material online because the institution is deliberately hiding it’. In this paper, I will use the Galton Laboratory historiography, our UCL Archives and the Research Guide to Eugenics that I have produced as part of my work with the committee, to discuss how misinterpretations of the past, conspiracy and institutional indifference theories have been essentially based on difficulty and inability to identify appropriate sources, particularly archival ones. Because of that, I will argue the significance of scientific archives has never been as important as now, in a post-truth world. It is essential that institutions, particularly academic ones, place emphasis not just on the preservation and housing but also on the high visibility and accessibility of their archives, in order to respond accordingly to the public interest their collections attract. Academic institutions need to adapt to discussions of inclusion and diversity in relation to their archives, redefine their public engagement activities with scientific archives, and place more emphasis on the ‘engagement’ part of their activities with archives and collections. Moreover, explicit and direct links between scientific archives and today’s society should be made, rather than discussing them as relics of the past or simply products of great scientists that should be preserved for posterity.

## Records of assisted reproduction: the Papers of Robert Edwards at Churchill Archives Centre and the Lesley Brown Collection at Bristol Archives

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Bristol Archives and Churchill Archives Centre in Cambridge recently enabled access to collections documenting the history of reproductive science, particularly in vitro fertilisation (IVF). Both projects were made possible by Research Resources Awards from the Wellcome Trust, which funded cataloguing, conservation and digitisation work. During these projects, both archives grappled with balancing research access with protecting the sensitive data such collections inevitably contain. In 2010, the family of Professor Sir Robert (Bob) Edwards, IVF pioneer and fellow of Churchill College, began depositing his papers at the Centre. Further material was transferred until 2019 by Edwards' family and Bourn Hall Fertility Clinic. The collection contains his personal and scientific papers, including correspondence, lab notebooks, articles, photos, videos and film. Born in 1978, Bristol resident Louise Brown was the world's first IVF baby. Her mother Lesley, a patient of Bob Edwards, kept a wealth of material about the family's very public life, including letters, photos, news cuttings, documentaries and personal items. Louise donated the collection (15 archival boxes and several objects) to Bristol Archives and Bristol Museums in 2016. It was opened for research in July 2018, just before Louise's 40th birthday. Later that year, items from the Brown collection, and one of Bob Edwards' notebooks, featured in the Science Museum exhibition IVF: Six Million Babies Later, celebrating four decades of assisted reproduction. The Edwards papers, 141 boxes in total, were opened in June 2019. In this paper, we will outline the different types of evidence – and different perspectives – preserved in the two collections. Common themes to emerge include the personal impact of experiencing infertility and participating in experimental trials, and the immense global media and public reaction to this ground-breaking scientific development. We will also discuss the challenges of managing personal information in these records. Bob Edwards' papers contain extensive details of patients and clinical trials, while Lesley Brown received letters from women around the world who had difficulties with infertility. The two archives adopted quite different approaches to safeguarding privacy whilst opening as much material as possible for research.