

The Working Life of Scientists: Exploring the Culture of Scientific Research through the Personal Archive of Donald Michie

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Summary:

The purpose of this CDP project is to examine the history and culture of scientific research using the British Library's collections of a scientist's personal archives. The project will focus on the biologist and pioneer in artificial intelligence research, Donald Michie (1923-2007). It will comprise a detailed mapping of the key personal relationships represented in this archive, which will shed light on the nature, communication and reception of scientific research in different scientific disciplines: genetics as well as AI, robotics and computing.

This is intended to be a humanities-led, cross-disciplinary project that will open up a nuanced understanding of the British Library's collection of the personal archives of twentieth-century British scientists. It will enable us to better exploit this particular archive, and the valuable related collections of scientific archives, to research audiences across a number of disciplines. Related archives in the Library collection include those of biologists Anne McLaren and John Maynard Smith and cybernetician W Ross Ashby.

The PhD student will have the opportunity to access a wealth of material across the Library's collections, making connections across formats and subject areas, by drawing on a range of curatorial expertise. Additionally, supported by staff across the Library, the student will have the opportunity to promote the collections through social media, events and academic publication, engaging with and inspiring new audiences as well as other researchers.

As well as the personal archives of contemporary British scientists, there is a significant amount of associated material in other British Library collections: the pre-1950s Science collections in Modern Archives and Manuscripts, the Oral History of British Science within the National Life Stories collections, as well as other material held in the Sound Archive (for instance, a 1951 recording of the first computer programme to play music 'written by Christopher Strachey under the Tutelage of Alan Turing' and an oral history interview with Anne McLaren). It would also be of interest to consult and compare these 'informal records' with formerly published material by the scientists in question which the Library holds in its journals collection.

Areas of Study:

The Contemporary Archives and Manuscripts collections are very well represented in the fields of computer science and of evolutionary, developmental and molecular biology. These are integrated in the archive of Donald Michie. Michie is known for his work at Bletchley Park during the Second World War and later in the field of Artificial Intelligence (AI). During the 1950s he and Anne McLaren undertook pioneering research leading to the development of in-vitro fertilisation.

Material in the Michie archive includes correspondence, notes, notebooks, offprints and photographs. It covers output by Michie from the 1940s to 2006 (including work done by his department at the University of Edinburgh) on machine intelligence, experimental programming, biology, economics and finance as well as religion and Michie's consultancy work. More specifically, the university papers contain administrative records, minutes, accounts, as well as teaching-related material, notebooks from 1970 through to 1985 and further correspondence. In addition, there is as yet largely unexplored born-digital material which includes early AI (Natural Language Processing) 'chatbots'.

This material offers unique opportunities to study the history and culture of the scientific study of genetics and artificial intelligence, as well as university-industry relations. The latter in combination with the former two would, for example, enable the PhD student to advance understanding of the historical development of the relation between ‘pure’ and ‘applied’ science, scientific funding, and intellectual property.

A particular incident of historical interest is the 1973 Lighthill Report, effecting a funding stop for AI research. This could be studied using the Michie-Lighthill correspondence as well as the audio recordings of the Lighthill debate, both held in the Library’s collection. In addition, a combined study of Michie and McLaren’s archives would enable the student to explore issues of scientific collaboration and politics in the 1950s genetics community, including the historical importance of their visits to the Soviet Union.

We would be looking for the HEI partner to work with us to develop the research theme (in line with the [Arts & Humanities Research Council’s subject coverage](#)) to enable the project to benefit from their specific academic expertise and interests. Possible research questions that could be developed further include:

1. How and why a particular scientific idea arises and develops at a particular time within certain socio-cultural contexts, including the importance of scientific collaborative networks and scientific funding.
2. The historical methodological and technological changes in the pursuit of knowledge and the new kinds of knowledge production they made possible, such as Michie’s explorations of communication through machine intelligence.
3. The flow of scientific ideas across and within universities, geographical locales and industry, which can be understood through the study of correspondence and networks.
4. The politics and power of researcher networks within the emerging discipline of AI and within the genetics community during the early Cold War, addressing questions of collaboration, finances and ideology.
5. The relative importance of individual creativity and the role of serendipity in scientific discovery, and the way this has been documented.
6. The importance of and relations between the formation of AI as a field and the institutional history of the Edinburgh Department of Machine Intelligence and Perception, including the “Robot Working Party” and Round Table.

Benefits and training opportunities for the student:

The research materials described here are primary resources with tremendous potential for an original research project, also giving the student the opportunity to develop transferable skills in research, resource management and knowledge production within a national cultural institution. The student will benefit from privileged access to the collections, working *with* the British Library, drawing on a diverse range of staff expertise.

British Library curators will initially provide the PhD student with a detailed and contextual overview of the materials to be investigated, assisting them in navigating the complexities of the Library’s collections of personal archives, as well as in mapping the Library’s collections with those held elsewhere whilst sharing this knowledge across institutions.

This guidance and support will include an explanation of the issues involved in the appraisal, acquisition, cataloguing and conservation of archives. Training will be provided on the Library’s IAMS cataloguing system, enabling the student to contribute to the improvement of catalogue records, such as by adding clarifying details. We would be keen for any such catalogue produced by the student to be submitted for the PhD examination as a thesis appendix.

Working with the British Library in this way will allow the student to:

- Develop an understanding of the collections from the inside: how they are organised, catalogued, conserved, accessed and used by both researchers and the general public.
- Work with expert curators in the cataloguing, curation and promotion of unique archival collections of international importance as well as exploring the use of new technologies such as born-digital processing and network mapping.
- Promote their research and the associated collections through professional social media channels (including the Library's [blogs](#)) and through public and cultural engagement opportunities.
- Experience working in the cultural sector in a publicly funded national institution.
- Work with other experts from around the Library as part of a multi-disciplinary advisory group.
- Be part of the wider [CDP consortium](#) and the training, networking and professional development opportunities that the scheme offers.

The British Library co-supervisor has a detailed understanding of the collections that would be used in this project. Given the cross-disciplinary nature of this project, an advisory group could also be set up, enabling the student to benefit from the advice and support of Library colleagues with understanding of related contemporary archives and with expertise in areas such as social network mapping and digital research methods.

The project will also benefit from the Library's strategic partnership with the Alan Turing Institute in data research. The original Turing Institute in Glasgow was established by Michie in 1983; Michie also set up the Turing Trust in 1975 to catalogue his friend's papers. Both Institute and Trust are represented in his archive and their historical study offers possibilities of collaboration with the present-day Alan Turing Institute, which is located on site at the Library in St Pancras.

Application deadline: 23 November 2018. For more information about the call and how to apply visit www.bl.uk/research-collaboration or email Research.Development@bl.uk.