**FURTHER DETAILS FOR APPLICANTS**

**PhD PROJECT:**

# Making the Pulse: The Reception of the Stethoscope in Nineteenth-Century Britain, 1817–1870.

## 1. THE PROJECT IN BRIEF

The project will explore the multiple channels of reception of the stethoscope in Britain, between 1817 and 1870. The beginning of the stethoscope's widespread use is widely acknowledged as a foundational moment in the technologization of medicine: little is known, however, about the specific mechanisms through which they came to be accepted, and the different contexts in which they were used and discussed. The project will move beyond the existing focus of social histories of diagnosis by exploring the whole range of practitioners involved in the making of the nineteenth century stethoscope, including manufacturers, purchasers, wholesalers, users, students and patients.

### Research Questions

This project will address the introduction and dissemination of the stethoscope in Britain, in the period between its invention by René Laennec in Paris in 1816, and its introduction to routine practice and training in the 1850s and 1860s. Research will be guided by four main questions:

1) What were the respective roles of a) manufacturers b) specialist medical periodicals and manuals and c) medical schools and hospitals in shaping the reception of stethoscopes in Britain during the first half of the nineteenth century?
2) What were the main debates about the use of stethoscopes in Britain during this period, and how far do they appear to influenced training and practice in medical schools and hospitals?
3) What can we learn from surviving historical stethoscopes and the records associated with them about how different materials and techniques of manufacture were employed in the development of stethoscopes?
4) How might research into the reception of stethoscopes as an early example of technologized medicine contribute to their display in galleries, as a way of communicating important themes in the history of medicine to diverse public audiences?

This study addresses an episode of crucial importance in the introduction of technology to nineteenth century medicine, and in the transformation of diagnostic practice. Despite the recognised significance of stethoscopes, historians know remarkably little about the specific mechanisms through which stethoscopy developed. By adopting a novel methodology which combines evidence from the science museum collection, institutional records and periodical literature, the study will suggest how a variety of parties – including manufacturers, purchasers, wholesalers, users, students and patients – all contributed to shape the meanings and uses of this important and novel instrument.

## 2. SOURCES AND RESEARCH METHODS

The introduction of Laennec's stethoscope has long been presented as a foundational moment in the technologizing of medicine in the early nineteenth century (Reiser 1981). As Jonathan Sterne puts it "the stethoscope was designed to operate within the parameters of a set of social relations, and it helped cement and formalize those relations: the doctor-patient relation, the structure of clinical research and pedagogy, and the industrialization, rationalization and standardization of medicine (along with the improvement of physicians' social status)" (Sterne 2004, p. 101). Despite such recognition of the stethoscope's combination of material and social factors, however, existing studies of stethoscopy have offered only partial accounts of its development, by favouring one source of evidence over another. M. Donald Blaufox draws on his own collection of antique medical instruments to describe the technological evolution of the stethoscope during the nineteenth and twentieth centuries, but presents this as the straightforward triumph of a superior technology rather than a more socially mediated process (Blaufox 2002). Blaufox's collection provides the foundation of the Museum of Historical Medical Antiquities http://www.mohma.org/), which offers copious representation of historical instruments but little in the way of social context. In addition, much of antiquarian significance about the stethoscope is known by collectors of medical antiquities, in which there is a thriving trade (see for example: http://www.antiquemed.com/binaural_stethoscope.htm). How such connoisseurship and enthusiasm for historical instruments might inform the ways in which their histories are written and displayed will be a subject for the student. Conversely, Jacalyn Duffin's classic biography of Laennec makes important but limited use of material evidence but is based primarily on Laennec's own notes and manuscripts, to the exclusion of the ways in other users and manufacturers may have subverted or developed Laennec's original intents (Duffin 1998).

The standard view (e.g. Reiser 1981) is that Laennec marginalised the role of the patient's own story in diagnosis in favour of the apparently objective reading of the instrument: a decisive shift in the relationship between patients and medics. In the context of Britain, however, such an interpretation is considerably complicated by the stethoscope's entanglement with the new medical print media of the early nineteenth

century, particularly in the form of case histories presented in medical periodicals, and medical manuals. These important printed works have been little studied for this period, though they were clearly important for the development and standardisation of practices around stethoscopy (cf. Richardson 2008, for a slightly later period).

The best existing analysis of stethoscopy in Britain is Malcolm Nicholson's history, which discusses the decidedly uneven response to the stethoscope in different locations, and particularly the more favourable reception it received in Edinburgh than in London (Nicholson 1993). Nicholson argues that the key factor in the stethoscope's Scottish success was the advocacy of the surgeon Andrew Duncan, alongside the local interest in pathological anatomy, close links between Paris and Edinburgh, and a distinctive culture of patronage. In London, by contrast, many responses to the stethoscope remained chauvinistic and mistrustful during the 1830s and 40s. This explanation is unsatisfying overall, however, because it treats English opinion of the stethoscope as homogenous, rather than analysing the ways in which different people working in different locations – particularly medical schools and hospitals – contributed to the shaping of the new instrument. For example, the London manufacturers CJB Williams were the first to develop binaural version of the stethoscope, using bent lead pipes, in 1829, which demonstrates an active London market for stethoscopes as early as the 1820s, and also shows that such developments cannot be understood from the perspective of clinicians alone.

The study will be informed by the perspective which Christelle Rabier terms "the 'social life' of medical things," studying technologies "through their material configuration, invention, improvement, and diversification, the sites of their deployment, their status as both novelties and less spectacular objects of everyday use, and the challenges they faced in fitting themselves into people's lives and European *res publica*" (Rabier 2013). Such an approach, which is informed by Arjun Appadurai's 'social life of things', will allow the student to join up evidence from different sources to go beyond the partial accounts offered in existing histories. It will also pay attention to the tacit and sensory aspects of stethoscopy, and the ways of imagining and hearing the body which the new technology enabled, both for medics and in the larger culture, for example through their representation in fiction.

Given the variety of channels through which stethoscopes found a home in nineteenth century British medicine, serious study of their introduction and use will require analysis from a number of different perspectives. This study will therefore draw on three main sources of evidence:

1) Records of hospitals and medical schools: particularly (a) those of St George's in London where James Hope was an early adopter of stethoscopes, (b) those of the Leeds medical school, and (c) case reports and other records of the endowed

hospitals (Guys, St. Bartholomew's, St. Thomas's), where there is likely to be evidence of use of stethoscopes and of equipment purchases.

2) Surviving stethoscopes in the Science Museum's collections, which will be studied with a view to discovering what can be learned from historical instruments in terms of shifting practices of manufacture, ownership of the instruments, and who purchased stethoscopes and from where. Relevant collections of the Science Museum include one of Laennec's own stethoscopes (A106078) examples of English and other European monaural stethoscopes (A608198); and Allison's differential binaural stethoscope of 1859 (A625135).
3) Accounts of stethoscope use in a wide range of documentary sources, including medical handbooks and textbooks, case histories and other discussions of practice in the medical periodical literature, the diaries, reminiscences, and correspondence of both practitioners and patients, and fiction.

The Science Museum is the partner for this project, providing the basis for it in its collections. The Science Museum supervisor, Dr Oisín Wall, will provide informed access to the collections, and guidance as the student engages increasingly deeply with his/her project. There will be intensive periods of work at the Museum, particularly associated with detailed work in the museum archives and stores, and examination of the material collections of the museum held in reserve collections offsite. During these periods there will be very close advice and guidance given by Dr Wall and supporting expert staff at the museum. The student will be given a formal status paralleling that of staff, with access passes and use of facilities. The student will be provided with office space and a workstation during his/her time there. At the outset of the project, the student will be given standard induction for new curators including: appropriate health and safety training; briefings from the lead supervisor and other curators about the history of the museum, the development of the collections and the museum's current holdings; introduction to the museum's stores, including safe handling of objects and security issues. There will also be briefings, as appropriate, about the Museum's collections implementation processes and the Documentation Centre's holdings from a member of the Documentation team. As well as the expertise and access identified above, the student will also benefit from the collaboration over and above a standard PhD programme by extending his/her 'skills set' and improving his/her employability. Such skills obviously include curation, public dissemination, and event organization that may open opportunities not just in museums and galleries, but also in the wider creative industries sector.

**Bibliography**

Blaufox, M. Donald, *An Ear to the Chest: An Illustrated History of the Evolution of the Stethoscope* (Boca Raton & London: Parthenon Pub. Group, 2002.

Nicholson, Malcolm, 'The Introduction of Percussion and Stethoscopy to Early Nineteenth-Century Edinburgh', in *Medicine and the Five Senses*, ed. by W.F. Bynum and Roy Porter, (Cambridge: CUP, 1993), 134–53.

Rabier, Christelle, 'Introduction: The Crafting of Medicine in the Early Industrial Age', *Technology and Culture* 54 (2013)**:** 437–59.

Richardson, Ruth, *The Making of Mr Gray's Anatomy: Bodies, Books, Fortune, Fame* (Oxford: Oxford University Press, 2008).

Reiser, S. J., *Medicine and the Reign of Technology* (Cambridge: CUP, 1981).

Sterne, Jonathan, *The Audible Past: Cultural Origins of Sound Reproduction*, (Durham, NC: Duke University Press, 2004).

## 3. DISSEMINATION OF THE PROJECT'S FINDINGS

- **Doctoral Thesis (80–100,000 words).** The thesis will address the reception of the stethoscope in Britain, as described here, but will be moulded by the student in close consultation with the supervisors.
- **Academic Presentations.** The student will be expected to give regular seminars throughout her/his candidature, including in the work-in-progress seminar of the Centre for History and Philosophy of Science, the postgraduate conference of the British Society for the History of Science, and major academic conferences with wide audiences (e.g. Society for the Social History of Medicine).
- **Scholarly Articles**. The student will be expected to submit an article to an appropriate scholarly journal (e.g., *Social History of Medicine* or *Bulletin of the History of Medicine*) during the course of her/his doctoral studies, in order to maximize employment opportunities.
- **Post-Doctoral Publications**. Depending on the student's longer term plans, the student will be strongly encouraged to publish further materials from the completed thesis in a series of scholarly articles, or, ideally, in the form of a monograph.
- **Exhibitions.** The student will be expected to contribute as appropriate to the Science Museum's medical gallery redevelopment (2019–44), drawing on his/her research for the interest and use of members of the general public.

## 4. FINANCIAL ARRANGEMENTS AND FACILITIES

Applicants must be either UK residents (full studentship) or EU nationals (fees only). They should normally have, or expect soon to be awarded, a Masters degree in a relevant discipline (history of science, technology and/or medicine; history), though exceptions can be made for applicants with strong undergraduate records and relevant experience. The studentship supports three years' full-time work, but can be taken up on either a full-time or a part-time basis. Standard tuition fees and maintenance grants will be paid by the AHRC to the nominated student. In the 2016/ 2017 academic year full-time awards will provide a maintenance grant payment of £14,296. In addition to these amounts, the AHRC will make an additional, one off maintenance payment to

cover the special costs of working at two sites. The student may also have access to an additional pot of AHRC funding (held by the HEI) which is equivalent to an extra 6 months of funding. This is available (if required) to enable the student to undertake high-cost training or professional development opportunities that are relevant to his/her research. Students may also be eligible for UK study visits and one overseas study visit as well as one overseas conference for the duration of the award.

The Science Museum will provide up to £1,000 per year, to be paid directly to the student against receipts for agreed research related costs, including travel. The Museum will also provide a contribution in kind to the student in the form of workspace, access to a PC, telephone, copier, stationery and other office facilities to support the project. In addition to Oisín Wall's supervisory and Alison Hess's advisory roles in the project, professional staff time will be made available to the student for consultation on the project, and his/her wider professional development training. The Museum will also provide seminar rooms or larger spaces for events organised by the student to tie in with his/her project

The University of Leeds and the Science Museum will supply appropriate facilities to support the research project and limited additional funds for archive visits and conferences.

## 5. THE COLLABORATING PARTNER INSTITUTIONS

The **Centre for History & Philosophy of Science** at the University of Leeds is one of the leading international centres in the field. Currently it has nine academic staff, over twenty-five PhD students, and an increasingly large group of postdocs working in history of science, technology, and medicine, and in philosophy of science. There are a wide range of seminars and reading groups, with individual staff and students regularly presenting papers for discussion at a weekly work-in-progress workshop. The Centre works in close collaboration with the Leeds Centre for Medical Humanities, the Thackray Museum, the Leeds City Museum, and other groupings and institutions. A recent innovation has been the founding of the University of Leeds Museum of the History of Science, Technology, and Medicine, which is the focus of a new two-year free public lecture series, 'HPS in 20 Objects', featuring lectures by members of staff in collaboration with students.

The main contact and supervisor for this project: **Dr Adrian Wilson** email: A.F.Wilson@leeds.ac.uk

Further information at http://www.hps.leeds.ac.uk/

The Science Museum was established after the Great Exhibition of 1851 as part of the South Kensington Museum, and celebrated the centenary of its separate existence in

2009. It is one of the world's premier museums of science, technology, industry and, since the addition of the Wellcome Collection in 1976, of medicine. Its collections in many areas are unparalleled. The Science Museum has twenty specialist curators with interests across science, biomedicine, ICT and engineering. The Head of Research and Public History (Dr Tim Boon), leads a new Department which spearheads the Museum's strong commitment to research across the Science Museum Group. Our policy is to promote research that explores the histories of science, technology, engineering and medicine, with a special stress on their material, visual and public cultures. We also encourage research into conservation, collections management and the visitor experience. Dr Tim Boon and his colleague Dr Alison Hess (Research and Public History Manager) are actively developing collaborative programmes of research with university departments in a variety of disciplines, with a strong emphasis on this wider history of science and technology. For many years, curators have carried out research across the subject areas of history of science, technology and medicine to provide detailed and contextual understanding of the Museum's collections, which has resulted in scholarly publications, websites and books, as well as galleries. Over the last decade, the Science Museum Group has obtained twenty seven studentships with a wide range of HEI partners, including Warwick University, Royal Holloway University of London, UCL, University of Manchester and many more. Eight students have been awarded their doctorates. In January 2013, the AHRC awarded a Collaborative Doctoral Partnership of eight studentships per annum for three years to the Science Museum Group with BT Archives. In June 2015 The Science Museums and Archives Consortium (including the Science Museum, National Media Museum, National Railway Museum, Museum of Science and Industry, Royal Geographical Society, Royal Society and BT Archives) were awarded 18 studentships over three years. This is one of these studentships.

The main supervisor for this project: Dr Oisín Wall

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Further information available at http://www.sciencemuseum.org.uk/about-us