

The Whipple Museum of the History of Science

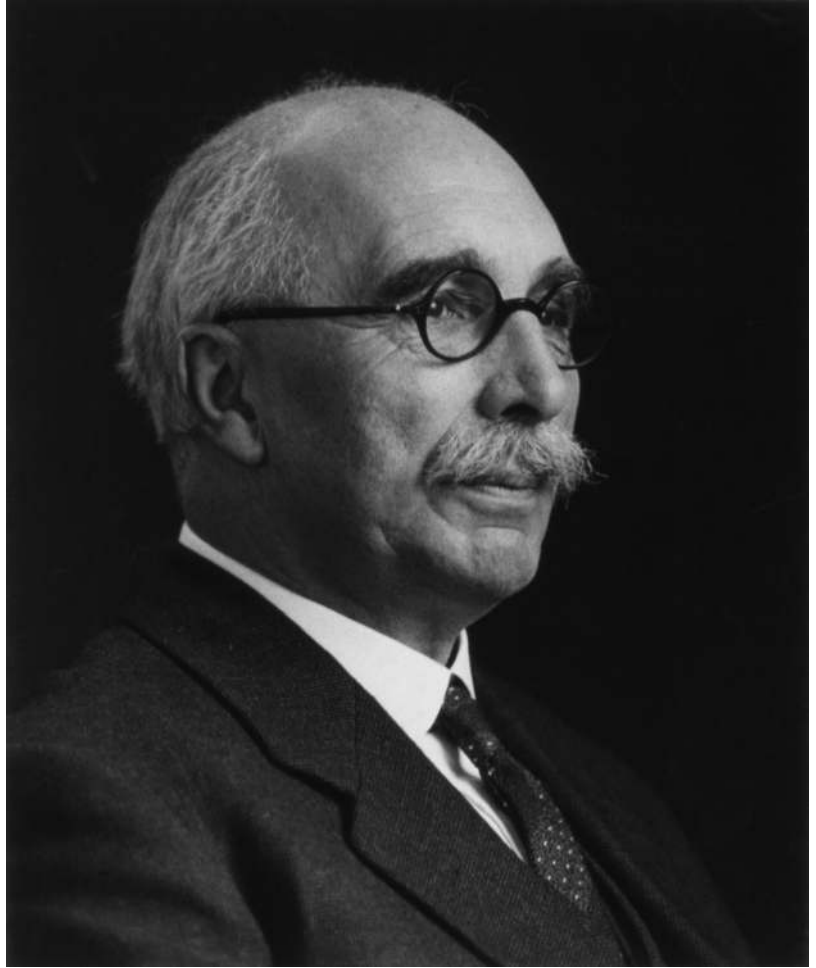
The diverse objects of The Whipple Museum of the History of Science's internationally renowned collection are brought into sharp relief by a number of highly regarded historians of science in fourteen essays. Each chapter focuses on a specific instrument or group of objects, ranging from an English medieval astrolabe to a modern agricultural 'seed source indicator' to a curious collection of plaster chicken heads. The contributors employ a range of historiographical and methodological approaches to demonstrate the various ways in which the material culture of science can be researched and understood. The essays show how the study of scientific objects – including instruments and models – offers a window into cultures of scientific practice not afforded by textual sources alone. This title is also available as Open Access on Cambridge Core.

JOSHUA NALL is Curator of Modern Sciences in the Whipple Museum. His first book, published in 2019, is *News from Mars: Mass Media and the Forging of a New Astronomy, 1860–1910*.

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FRANCES WILLMOTH† (1957–2017) was Archivist at Jesus College, Cambridge. She edited the three-volume edition of John Flamsteed's correspondence.

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Robert Stewart Whipple (1871–1953)

The Whipple Museum of the History of Science

Objects and Investigations,
to Celebrate the 75th Anniversary of
R. S. Whipple's Gift to the
University of Cambridge



Edited by

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Contributors

JIM BENNETT was appointed Curator of the Whipple Museum of the History of Science in 1979. His connection goes back further since, on discovering history and philosophy of science as an undergraduate in 1967, he read books in the Whipple Library, then housed in a small section of the Main Gallery. Here the librarian, Rita van der Straeten, served tea to favoured readers in the distinctive 'Beryl Ware' crockery of the time, while the enigmatic Lady Rosemary Fitzgerald curated the Museum. When challenged to declare why on earth he was leaving in 1994, following a fond and emotional speech, he explained that this was the only way he could think of to stop the annual departmental magic lantern show with original slides, which, like serving tea in library reading rooms, was becoming disreputable.

CHARLOTTE CONNELLY has been the curator of the Polar Museum at the Scott Polar Research Institute since 2015, and works closely with colleagues at the Whipple Museum to deliver collections-based teaching to students across the University of Cambridge. Following her undergraduate degree in History and Philosophy of Science at University College London, Charlotte began her curatorial training by undertaking a BT Connected Earth research internship at the Science Museum in 2009 before completing a postgraduate degree in Museum Studies at the University of Leicester. In 2010 she returned to the Science Museum, where she was part of the curatorial team behind the Information Age gallery. Alongside her curatorial work, she has been based at the University of Cambridge since 2014 when she joined the Department of History and Philosophy of Science as a PhD student.

HASOK CHANG is the Hans Rausing Professor of History and Philosophy of Science at the University of Cambridge. He received his degrees from Caltech and Stanford, and has taught at University College London. He is the author of *Is Water H₂O? Evidence, Realism and Pluralism* (2012) and *Inventing Temperature: Measurement and Scientific Progress* (2004). He is a co-founder of the Society for Philosophy of

Science in Practice (SPSP) and the Committee for Integrated History and Philosophy of Science.

HELEN ANNE CURRY is Peter Lipton Senior Lecturer at the Department of History and Philosophy of Science, University of Cambridge, where her teaching and research encompass the histories of modern science, agriculture, and environment. She is the author of *Evolution Made to Order* (2016) and co-editor of *Worlds of Natural History* (Cambridge, 2018). Given her interest in seed collections of all kinds, Joshua Nall enticed her into researching the history of a seed herbarium acquired by the Whipple Museum. The result is that the museum knows a little more about the herbarium, and she knows a lot (possibly too much) more about the history of forage crops.

CATHERINE EAGLETON is Associate Director of Curatorial Affairs at the National Museum of American History, Smithsonian Institution, where she leads the collections and curatorial team who are responsible for the museum's collection of around 1.8 million objects and three shelf-miles of archives, including important collections in the history of science, technology and medicine. She began her research into the history of scientific instruments when studying History and Philosophy of Science at Cambridge, leading first to an undergraduate dissertation focusing on one of the instruments in the Whipple Museum, then to an MPhil, and finally a PhD completed in 1995 (all supervised by the current Curator and Director of the Whipple Museum). Before taking up her current position, she worked at the Science Museum, British Museum, and British Library, and alongside those curatorial positions she has continued to research and teach on the material culture of science. Her chapter in this volume attempts to answer one of the questions her students have most frequently asked during her lectures on medieval astronomical instruments and practical classes with Whipple Museum instruments.

SEB FALK is a Research Fellow of Girton College, University of Cambridge. He came to the Department of History and Philosophy of Science for an MPhil in 2011, and wrote his first essay on an encyclopaedic Spanish globe in the Whipple Museum collection. His article in this collection is based on his MPhil dissertation. He took leave from his PhD in the Department in order to complete a six-month internship in the Whipple Museum (funded by the Arts and Humanities Research Council). During this time, he researched the early history of the Museum; his investigation into a replica planetary model nicknamed 'King Arthur's Table' was published in the Royal Society journal *Notes*

and Records, 68.2 (2014). When not researching the religious contexts of medieval sciences, he loves teaching members of the public how to use astrolabes.

MATTHEW GREEN completed his MPhil in the Department of History and Philosophy of Science in 2018; his chapter in this volume began as an MPhil essay supervised by Liba Taub. After graduating, he undertook a paid internship at the Whipple Museum as Collections Assistant, working on the Dillon Weston and Michael Clark collections.

BORIS JARDINE began his career as a historian of science at the Whipple Museum. Following employment there he has studied History and Philosophy of Science at the Universities of Leeds and Cambridge. His current research project (funded by the Leverhulme Trust and Isaac Newton Trust) deals with the history of the New Museums Site in Cambridge, and the role of different building types, specimens, and equipment in the period of the ‘laboratory revolution’ in science teaching and research. He has published on many Whipple objects, including Charles Darwin’s achromatic microscope (Wh.3788) and a gauging rule by Henry Sutton (Wh.6239).

MICHAEL F. MCGOVERN is a PhD candidate in History of Science at Princeton University. While pursuing his MPhil in History and Philosophy of Science and Medicine at Cambridge in the 2013–14 academic year, he got side-tracked from his interest in big mainframe computers and started writing about the Whipple’s remarkable Hookham collection of handheld calculators. He stayed on as a museum assistant for the summer following the completion of his degree, and produced the ‘Calculating Devices’ section of the Whipple’s Explore website. Before settling down for further graduate studies in Princeton, he worked as a software developer for a large Midwest industrial supply company outside Chicago, Illinois, where he spent much of his time developing a history-of-computing exhibit for the company.

ADAM MOSLEY is Associate Professor in the History Department at Swansea University. Before moving to Wales, he spent many years working behind the scenes at the Whipple Museum as an MPhil and PhD student in the Department of History and Philosophy of Science, and then as a Research Fellow at Trinity College. Thanks in large part to that experience, he teaches the history of collecting and museums as well as incorporating study of the material culture of the sciences in his attempts to understand the early-modern mathematical disciplines.

JOSHUA NALL is Curator of Modern Sciences in the Whipple Museum. He first joined the Museum as a paid summer intern in 2007 following the completion of an MPhil in the Museum's parent department. He was soon beguiled by the Whipple's incredible collections, in particular a spectacular manuscript globe of Mars (Wh.6211). Researching this object led to a PhD on late-nineteenth-century debates over life on the red planet, following which he returned to the Museum as a curator. He has published on a range of Whipple objects, including some fake instruments (Wh.0365, Wh.0776, and Wh.1144), an imposing dividing engine (Wh.3270), the Museum's exceptional collection of teaching and research models, and its extensive collection of scientific trade literature. His work on Mars appears in his first book, *News from Mars: Mass Media and the Forging of a New Astronomy, 1860–1910* (2019).

SIMON SCHAFFER is Professor of History of Science in the Department of History and Philosophy of Science, University of Cambridge. He has long been fascinated by the Babbage engine in the Whipple collection. He co-edited *Material Culture of Enlightenment Arts and Sciences* (2017) and *Aesthetics of Universal Knowledge* (2017). In 2018 he was awarded a medal by the Scientific Instrument Society and the Dan David Prize.

HENRY SCHMIDT was an MPhil student in the Department of History and Philosophy of Science, University of Cambridge, from 2015 to 2016. He is now a doctoral student at the University of California, Berkeley. His interests primarily lie in the social and intellectual history of Earth-system sciences and ecology.

ANNE SECORD is an editor of *The Correspondence of Charles Darwin* and an Affiliated Research Scholar in the Department of History and Philosophy of Science, University of Cambridge. Her interest in working-class natural history in nineteenth-century Britain was greatly enhanced by the Whipple Museum's purchase of a copy of Edward Hobson's *Musci Britannici*. She is completing a book that explores social class, observation, and skill in nineteenth-century natural history. Her edition of Gilbert White's *Natural History of Selborne* was published in 2013.

LIBA TAUB is Curator and Director of the Whipple Museum, having taken up her post in 1995. She is also Professor of History and Philosophy of Science. Since the last Whipple volume, she has edited *On Scientific Instruments*, a special issue of *Studies in History and Philosophy of Science*, 40.4 (2009); and the Focus section on *The History of*

Scientific Instruments, *Isis* 102 (2011): 689–96. She has also written extensively on ancient Greek and Roman science.

TABITHA THOMAS (NÉE BURDEN) studied Natural Sciences at Newnham College, Cambridge (BA, MSci, 2018). She first entered the Department of History and Philosophy of Science in Part IB and continued there for Parts II and III of her degree. In her final year she engaged closely with the Whipple Museum, using a data-driven approach to study how much of its collection was acquired and formed, first, from the gift of Robert Stuart Whipple (on which the chapter in this volume is based), and secondly, from the Cavendish Laboratory in the 1950s and 1970s (which was the focus of her dissertation). She is now living in Oxford with her husband, Douglas.

FRANCES WILLMOTH† (1957–2017) completed her PhD in 1990 in the Department of History and Philosophy of Science, University of Cambridge, under the supervision of Jim Bennett. Her dissertation was a biography of Sir Jonas Moore, practical mathematician, surveyor, and founder of the Royal Observatory at Greenwich. She went on to work on an edition of John Flamsteed’s correspondence (three volumes, 1995–2001). Together with Liba Taub, she edited *The Whipple Museum of the History of Science: Instruments and Interpretations, to Celebrate the 60th Anniversary of R. S. Whipple’s Gift to the University of Cambridge*, published by the Museum in 2006. She served as Archivist at Jesus College, Cambridge, where she also directed studies in History and Philosophy of Science.

CAITLIN DONAHUE WYLIE is Assistant Professor of Science, Technology, and Society at the University of Virginia. Caitlin first visited the Whipple Museum as an undergraduate, and was so charmed by the glass fungi that she later applied to the Department of History and Philosophy of Science as a graduate student. As an MPhil student, she spent many happy hours gazing at the collection, including a cheerful monkey-shaped number plate displayed alongside more traditional calculating devices. She wrote an MPhil essay about this charming machine, which became a chapter in this Festschrift. She is grateful to Eleanor Robson, Liba Taub, Joshua Nall, and Ruth Horry, all of whom taught her how to handle and make sense of scientific instruments.

Acknowledgements

The production of this volume, celebrating the seventy-fifth anniversary of the founding of the Whipple Museum of the History of Science, has been, like everything else that takes place at the Whipple, very much a joint effort.

We are grateful to all of the authors for their contributions. They have enjoyed different sorts of relationships to the Museum, and their essays here are intended to provide a picture of the breadth and richness of the collections, as well as the very varied approaches to study that have been based on and inspired by Whipple holdings.

The collation of the volume itself has been helped substantially by Whipple Museum staff and by friends of the Museum, including Mary Brazelton, Toby Bryant, Rosanna Evans, Matthew Green, Tamara Hug, Boris Jardine, Steve Kruse, Simon Schaffer, Alison Smith, and Claire Wallace. Lucy Rhymer and Cassi Roberts at Cambridge University Press were wonderfully patient and helpful. We thank you all.

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Finally, we mark the unwavering contribution of our close friend, colleague, and co-editor, Frances Willmoth (1957–2017). Encouraged by the success of the first Whipple Festschrift, marking the sixtieth anniversary, Frances conspired with us to organise and edit the present volume. Displaying her characteristically dry wit, she confessed her pleasure that she would not be in a position to be required to proofread this time. We, however, are very sad that she is not still with us, and not only to see the completed volume. Any typographical errors here are no fault of hers. We are exceedingly grateful for the inspiration and support she gave us in undertaking this project.

Liba Taub and Joshua Nall